Finger Vein Authentication using Deep Learning

Dr. Pallavi R[1], Amala Renita[2], Jasmine Karam[3], Umama Amin[4], Yuthika MB[5]
[1] *Professor, Department of Computer Science & Engineering, Sir M Visvesvaraya Institute of technology*
[2,3,4,5] *Student, Department of Computer Science & Engineering, Sir M Visvesvaraya Institute of technology*

Abstract **- The main aim of the project is to use finger vein for authentication. Finger vein recognition technology is one of the new biometric technologies, which has been gaining a significant amount of attention. It uses the vein pattern underneath the skin for authentication. This technique captures the finger vein pattern by shining an infrared light on the fingers. If the finger vein matches with the person's vein pattern which is stored in the database a success message is displayed. If it does not match a buzzer sound will be played.**

I.INTRODUCTION

Finger vein is the vascular pattern underneath our skin which is unique to a person. Finger vein authentication system helps us to uniquely identify a person by using their finger vein pattern. Some current identity verification systems such as password, smart cards, etc carry the risk of theft, forgery and unauthorized use. This has lead to a lot of financial loss. Finger vein authentication has been lately gaining a lot of attention due to its many advantages. Some advantages of using finger vein for authentication are-It has a high accuracy of identifying a person. It cannot be easily forged, unlike the fingerprint and iris of a person, as it is present under the skin. The fingerprint of a person changes as he ages i., it starts to wear off and a person's iris pattern can also change if he/she gets some surgery done. This is not the case with the finger vein patter which remains exactly the same throughout a person's life. The finger vein is obtained by using a near-infrared reader.

II. LITERATURE SURVEY

In paper [1] a method is proposed which extracts the vertical cross-sectional profiles to determine the approx. positions of the vein regions in a given finger-vein image. The proposed method correctly detects the positions of the vein regions of the finger by checking the depth of the vein profile using various depth thresholds. Based on the detected positions, the proposed method measures the quality of the finger-vein. Image using the number of detected vein points (NDVP) relative to the depth thresholds, which allows one's variations in the vein density to be considered for quality assessments. In this study, the vein points are all the image pixel points on the detected vein lines. Finally, this proposed method assesses the quality of input finger-vein images and images of inferior quality are not used for recognition, thereby enhancing the accuracy of finger-vein recognition. Capturing a clear vein pattern in the finger-vein image is very important in finger-vein recognition.

In paper[2], they have presented a finger-vein based biometric security system that can be used for security based electronic devices. The method can extract the finger-vein feature for recognition from the NIR images. This method uses single sample and is convenient to the application. This work can be extended with increasing the database for further verification

In paper [3] they have discussed recent approaches to solving the problem of varying finger lengths and proposed using a set of images of same size interval in a selected sub-block approach. For each image sub-block, wavelet moment was performed and PCA features extracted. LDA transform is performed, and the two features were combined for recognition. For Finger Vein Recognition 53 matching and identification, we proposed a method of fuzzy matching scores. Experimental results show that wavelet moment PCA fusion method achieved good recognition performance; error rate FAR was 0.7%, rejection rate FRR of 1.05%.

In paper [4] they propose precise extraction of finger vein pattern is a elementary step in developing finger vein based biometric authentication systems. Finger veins have textured patterns, and the directional map of a finger vein image represents an intrinsic nature of the image. The finger vein pattern extraction method

IJRAR.ORG E-ISSN: 2348-1269, P-ISSN: 2349-5138

INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS (IJRAR) | IJRAR.ORG

An International Open Access, Peer-reviewed, Refereed Journal

BRAIN TUMOR DETECTION THROUGH IMAGE SEGMENTATION

Prof. Dr. Savita Choudhary[*1], Rhea Nataraj[*2], Shreya H M[*3], Vinaya H Naikar[*4]

[*1]Guide,Department of Computer Science & Engineering, Sir M Visvesvaraya Institute Of Technology,Bengaluru,Karnataka,India

[*2,3,4]Student,Department of Computer Science & Engineering, Sir M Visvesvaraya Institute Of Technology,Bengaluru,Karnataka,India

ABSTRACT

Brain cancers (e.g. glioblastomas) are some of the deadliest types of cancers and are some of the most difficult to treat due to their anatomical location. Early tumor detection is crucial for a good prognosis but oftentimes the diagnosis is difficult because the tumor is too small and not easily detectable.The segmentation of brain tissue in an MRI (magnetic resonance image) is critical for detecting the existence of outlines related to a brain tumor. Traditional diagnosis techniques include a brain scan (i.e. MRI), which can be time-consuming for doctors to analyze. An alternative, efficient technique for diagnosis (analysis of the MRI) is the use of machine learning, which can be used with an image classifier for fast and accurate detection. Here, we used open-source MRI datasets that are trimmed and resized for accurate results. We implement TensorFlow's Convolutional Neural Networks (CNN) as the architecture for our model. The images that we used in our algorithm were made up of 46% that had tumors and 54% that were not cancerous. The program takes about 3.47 seconds to load the model and produce predictions. Our model has a validation loss of 0.122 and a 99.50% max validation accuracy. Although our model focuses on brain tumors, its use can be extended to other types of cancers that are diagnosed with similar methods (e.g MRI). In addition, the suggested method guarantees that brain tumor detection, classification, and segmentation would be exceedingly efficient and exact.This model is written in Python 3 using the Tensorflow library and uses Keras to build a neural network to classify images. Importantly, the training data was cleaned and cropped to unnecessary backgrounds. After the training, the model and its weights were saved to a file.This interface is built using Streamlit and uses this mechanism to allow for a fast and intuitive analysis of given data.

Keywords: Brain tumor detection,CNN.

Easily Trainable Neural Network Using TransferLearning

Varghese P Kuruvilla[1]
Department of Electronics and Communication Engineering,Sir M. Visvesvaraya Institute of Technology Bengaluru, India

V N Naveen Raju[2]
Department of Electronics and Communication Engineering,Sir M. Visvesvaraya Institute of Technology Bengaluru, India

Vishnu Sodishetty[3]
Department of Electronics and Communication Engineering, Sir M. Visvesvaraya Institute of Technology Bengaluru, India

Phaninder Ravi Parimi[4]
Department of Electronics and Communication Engineering,Sir M. Visvesvaraya Institute of Technology Bengaluru, India phaninder

---

***Abstract*—**Convolutional neural networks are growing increas-ingly popular in the field of computer vision. One of the most common problems encountered when using convolutional neural networks for computer-vision tasks is that of transfer learning, where a pre-trained model should be adapted to the specific task at hand. This paper investigates the performance of the Tiny YOLOv3 neural network for transfer learning. Specifically, we aim to minimize the time taken for the pre-trained network to converge by varying the number of trainable layers and the number of images used for training. For this experiment, Tiny YOLOv3 was used to detect a specific window of a building after it was trained on a large and varied dataset of real-world images of windows. The resulting mean average precision scores were compared and it was found that even for a shallow networklike Tiny YOLOv3, transfer learning greatly improved the mean average precision scores and minimized the convergence time. The neural network was trained using an Nvidia Tesla K80 GPU and the model was deployed on the Nvidia Jetson TX2 embedded platform. Using transfer learning we obtained an 83% decrease in the time taken to achieve the required mean average precision. Our work could be applied in scenarios where the neural network needs to be retrained quickly with a limited number of training samples.

***Index Terms*—Transfer learning, TinyYOLOv3, Mean AveragePrecision**

I. INTRODUCTION

Traditionally, convolutional neural networks were used for object classification. However, in recent years, convolutional neural networks have been adapted for object detection tasks where localization is required in addition to classification. A typical convolutional neural network achieves this by using alternating convolutional layers for feature extraction followed by max-pooling or average pooling layers to reduce the number of parameters in the network. However, training a convolutional neural network from scratch using randomly initialized weights is impractical, as it requires considerable computational resources and takes considerable amount of time. To overcome this problem, most neural networks are initially trained on a large and varied dataset and the pre- trained weights are used as a starting point for the specific object detection task at hand.

The rest of the paper is organized as follows. In the next section, we give an overview of convolutional neural networks and transfer learning. In section III, we briefly survey some of the works which have been carried out on transfer learning. Section IV talks about the methodology used and contains the experimental results obtained. In Section V, we analyze our results and list some of the potential applications of our work. Finally, we conclude the paper in Section VI.

II. BACKGROUND

A. Convolutional Neural Networks

Convolutional neural networks have been used for computer vision-based tasks from around 1998. However, with the introduction of AlexNet [1] in 2012 which harnessed the power of GPUs during training, several novel architecturesfor object recognition have been proposed and implemented.A convolutional neural network generally used for object detection tasks is shown in Fig. 1.

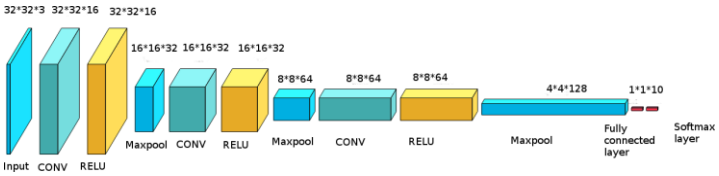

Fig. 1. Architecture of a typical convolutional neural network

International Journal of Engineering Trends and Technology
ISSN: 2231 – 5381 /doi:10.14445/22315381/IJETT-V69I10P211
Volume 69 Issue 10, 82-88, October, 2021

Design, Modelling, and Simulation analysis of a Single Axis MEMS-based Capacitive Accelerometer

Veena. S[1], Newton Rai [2], H.L. Suresh[3], Veda Sandeep Nagaraja[4]

[1]*Assistant Professor, Department of Electrical and Electronics Engineering, Nitte Meenakshi Institute of Technology, Bangalore, Karnataka, India;veena.s@nmit.ac.in*
[2]*Department of Electrical and Electronics Engineering, Nitte Meenakshi Institute of Technology, Bangalore*
[3]*Professor and Head, Department of Electrical and Electronics Engineering, Sir. M Visvesvaraya Institute of Technology, Bangalore*
[4]*Senior Scientist, Tyndall National Institute, University College Cork, Ireland*

Abstract *- This paper presents the design, simulation, and analytical modeling of the single proposed axis MEMS-based capacitive accelerometer. Analytical modeling has been done for frequency and displacement sensitivity. The performance of the accelerometer was tested for both static and dynamic conditions, and the corresponding static capacitance value was calculated and was found to be C0=0.730455pF, a response time of 95.17µs, and settling time of 7.261ms and the displacement sensitivity* S_d*= 3.5362*$*10^{-8}$ *m/g. It was observed that the sensitivity of the accelerometer depends on its design parameters like beam length, overlap area of comb, sensing mass, and the number of interdigital fingers. A novel capacitive accelerometer has been designed for an operating frequency of 2.1kHz*
The accelerometer was designed using COMSOL Multiphysics and analyzed using the MATLAB simulator tool. The single proposed axis MEMS-based capacitive accelerometer is suitable for automobile applications such as airbag deployment and navigation.

Keywords *- single axis, Comb drive MEMS accelerometer.*

I. INTRODUCTION

The accelerometer is an electromechanical device that is used for physical measurements like acceleration, force, the vibration of a moving solid. Micro machined accelerometers are one of the important classes of MEMS devices. There is a wide scope of utilization that requires acceleration measurement such as automotive industry, biomedical applications, oil and gas exploration, vibration analysis, navigation system, robotics, mobile, and computer accessories.
Most accelerometers are based on the principle of mechanical vibration. The fundamental structure of the MEMS accelerometer contains the seismic mass supported by beams. The mass is frequently appended to a dashpot that gives the essential damping impacts [1,2]. The spring and the dashpot are in turn connected to the frame, as shown in figure 1. An accelerometer that is kept at rest will measure acceleration due to gravity of g ≈ 9.81 m/s^{2,} and in contrast, accelerometers that are in a free-fall state will measure as zero [3].
Accelerometers are classified based on their principle of operation. They are piezoelectric, piezoresistive, capacitive, heat transfer, optical, hall effect, thermal, interferometric, etc. [4], but commercially, piezoelectric, piezoresistive, capacitive were widely used.
Piezoelectric: utilizes piezo ceramics like lead zirconate titanate, and they have a very high-frequency range, large measuring range up to 6000g, self-powered device [5].
Piezoresistive: employ beam-like structure whose resistance varies with acceleration. They are cheap due to their simple construction design, low hysteresis, simple readout circuits and have the ability to operate at higher temperatures [6].
Capacitive: the capacitive-based MEMS accelerometers measure capacitance change between a fixed and movable electrode isolated by a littlegap[7].
Although commercially different accelerometers are available, the main aim for selecting capacitive based MEMS accelerometers are their high Sensitivity and linearity, good repeatability, low noise performance, flexible structure to design, uses low power to operate, and high durability
This paper presents a novel single folded beam-type capacitive MEMS Accelerometer. A literature survey is done and is presented in section II. Principle of operation and the design of the proposed accelerometer is discussed in section III and IV respectively. Mathematical modeling of the proposed accelerometer is presented in section VI and followed by the simulation results. An open-loop model of the proposed accelerometer and the results are discussed in consecutive sections.

II. LITERATURE REVIEW

Lots of work has been done in the field of MEMS comb-type accelerometers, and numbers of publications are available. Many authors have proposed their ideas on design, working, mathematical analysis of MEMS accelerometer and still working on improving the performance of the same.

ELECTROMAGNETIC RAIL-GUN USING HIGH VOLTAGES AND PULSE POWER SUPPLY

Mahesh.K[1], S. Inbasakaran[2], Lithesh J[3]

[1]*EEE Department, Sir MVIT, Bengaluru, India*

[2]*EEE Department, NHCE, Bengaluru, India*

[3]*EEE Department, NHCE, Bengaluru, India*

ABSTRACT

This paper mainly deals with the construction of an electromagnetic rail-gun working under high voltages and pulsed power supply. This paper emphasizes mainly on proving the working principle of Rail-gun, its design specifications, overall energy performance, energy losses, efficiency etc. This paper also provides an insight regarding the reasons for the energy losses in the system. A high voltage supply is supplied to two parallel rails and a sliding projectile is placed between them. Due to suitable energy conversion i.e. energy used in discharging the capacitor bank being converted to kinetic energy to slide the projectile which is a pulse power application.

Keywords: capacitor bank, efficiency, high voltages, homopolar - motor, Lorentz force, pulse-power

1. INTRODUCTION

A rail-gun is an electrically powered electromagnetic projectile launcher based on similar principles to the homopolar motor. A rail gun comprises a pair of parallel conducting rails, along which a sliding armature is accelerated by the electromagnetic effects of a current that flows down one rail, into the armature and then back along the other rail. The armature may be an integral part of the projectile, but it may also be configured to accelerate a separate, electrically isolated or non-conducting projectile. Solid, metallic sliding conductors are often the preferred form of rail-gun armature but "plasma" or "hybrid" armatures can also be used. In its simplest (and most commonly used) form, the rail-gun differs from a traditional homo-polar motor in that no use is made of additional field coils (or permanent magnets). This configuration is thus a self-excited linear homo-polar motor formed by a single loop of current.

A relatively common variant of this configuration is the **augmented rail-gun** in which the driving current is channeled through additional pairs of parallel conductors, arranged to increase ("augment") the magnetic field experienced by the moving armature. In electric motor terminology, augmented rail-guns are usually **series-wound** configurations.

A railgun requires a pulsed, direct current power supply. For potential military applications, rail-guns are usually of interest because they can achieve much greater muzzle velocities than guns powered by conventional chemical propellants. Increased muzzle velocities can convey the benefits of increased firing ranges while, in terms of target effects, increased terminal velocities can allow the use of kinetic energy rounds as replacements for explosive shells.

International Journal of Power Electronics and Drive Systems (IJPEDS)
Vol. 13, No. 1, March 2022, pp. 432~443
ISSN: 2088-8694, DOI: 10.11591/ijpeds.v13.i1.pp432-443

High voltage power supply controller for Electrostatic precipitators

Beula David[1], Indira Megaravalli Shankarappa[2], Balaji Nerayanur[3]
[1]Department of Electrical and Electronics Engineering, Sir. M. Visvesvaraya Institute of Technology, Bangalore, India
[2]Department of Electrical and Electronics Engineering, M.S. Ramaiah University of Applied Sciences, Bangalore, India
[3]Department of Electrical and Electronics Engineering, Dayananda Sagar College of Engineering, Bangalore, India

Article Info

Article history:

Received Jul 13, 2021
Revised Jan 25, 2022
Accepted Jan 31, 2022

Keywords:

Collection efficiency
Current-fed push-pull
DC power supply
Electrostatic precipitators
Spark and arc control

ABSTRACT

Gaseous exhausts from various industries pollute the environment with fly-ash generally filtered by electrostatic precipitators (ESPs) before being released to the atmosphere. This paper presents the development of a controller for ESP power supply. The controller maintains the voltage applied to ESP at its maximum average value by duty cycle control that results in an improvement in dust collection-efficiency. The limiting factor for the output voltage is the breakdown of gas (spark/arc) in the electrode gap of ESP. During a spark/arc condition, the duty cycle limit imposed by the controller causes a reduction in output voltage that leads to the prevention of spark/arc. The present design has a response faster than line frequency power supply controllers. The control circuit is simpler, easy to implement and uses a standard PWM controller IC. The design of power stage uses a flyback current-fed push-pull DC-DC converter with multiple secondary circuits, which has the advantages of instantaneous current limit and less voltage stress on rectifier-diodes. Simulation is performed to obtain a 1 kV, 100 W output from a 24VDC source. The results are compared with experimental values to validate the controller's ability to achieve good load regulation during normal operation and a reduction in output voltage during spark/arc condition.

Corresponding Author:

Beula David
Department of Electrical and Electronics Engineering, Sir M Visvesvaraya Institute of Technology, Bangalore- 562 157, Karnataka, India
Email: beula.d2014@gmail.com

1. INTRODUCTION

The major source of environmental pollution is fly-ash (dust) particles from various industries and power plants. Government regulatory bodies have made extraction of fly-ash particles from industrial flue gases mandatory before they are released into the atmosphere. Electrostatic precipitators are used to filter fly-ash particles by ionizing them in a high electric field. A typical electrostatic precipitator (ESP) consists of a discharge electrode that is negatively charged and the other, a grounded collecting electrode. A high voltage is applied between these electrodes to initiate a corona discharge to ionize the dust particles. The charged dust particles get deposited on the collecting electrodes. They are periodically dislodged by rapping the electrodes and are collected in dust hoppers to be removed. ESP power supplies in the range of 10-100 kV are used in incinerators, biomass plants, power plants and process industries to name a few. In many small-scale ESPs use high voltage power supplies of few hundred watts also [1].

ESP power supplies used in large industries are thyristor-controlled, operating at line frequency. They are plagued with low average DC output due to line frequency operation, high percentage ripple, large

ISSN: 0974-5823 Vol. 7 No. 6 June, 2022

International Journal of Mechanical Engineering

Distributed Generation System Reliability Evaluation Using Fuzzy Logic with Renewable Energy Sources

Mr.Siddappaji.M.R* Dr.K.Thippeswamy**

Assistant Professor, Sir.MVIT, Bengaluru, Karnataka India*,

Sel.Grade Lecturer, S.J.Govt. Polytechnic, Bengaluru, Karnataka India**

Department of Electrical & Electronics Engineering**,

Abstract— The essential challenges in the Distribution System (DS) are reliability and continuity. The electric load architecture of the distribution network altered as a result of social and political changes. The DS becomes less reliable as a result of a lack of maintenance and the aging of the distributing firm's assets. It was difficult for technicians to recognize and categorize assets concerning operational and maintenance requirements. As diverse resources and innovations are being used, distribution generation (DG) is predicted to perform a major role in the successful progression of power systems. DG is most commonly connected with two forms of energy: traditional and renewable. It is extremely difficult to predict when renewable energy will be more unreliable. Fuzzy logic could be employed to estimate DS reliability indices. In this paper, fuzzy logic is used to analyse the DS's reliability indices. The fuzzy toolbox is used to create the IF-THEN rule, which employs inferences depending on past knowledge. Analytical and Monte Carlo Simulation (MCS) methods are used to compare the results of the fuzzy logic method.

Keywords— Electric Vehicle, Motor, Speed, Optimization, Error, Time response.

I. INTRODUCTION

The concepts are of reliability and applicable to practically all application areas. Through its widest sense, reliability is a measure of system performance. This metric could be utilized to enable systems to fulfil performance requirements, quantify differences among alternative approaches, and generate economic judgments. The main purpose of reliability assessment is to deal with queries like "Is the network adequately reliable?", "What plan is most prone to failure?" and "where will another money be invested to better the network?" [1]. The objective of a power grid will provide energy to its clients cost-effectively and reliably. It is important to formulate and manage a reliable network since interruptions and electrical problems could have a major impact on the economy and the clients. Presently, deregulated power utilities would be reformed and run as distinct generating, transmitting, and distributing corporations, with accountability for the reliability and quality of the power system.

DG are small-scale (10 MW or fewer) power sources located at the consumer terminal that can produce electricity independently for a few consumers while also connecting to public distribution [2]. DGs include wind turbines, fuel cells, PV cells, internal combustion motors, and renewable sources. DG offers different benefits for power DS support, including decreased energy consumption, investment preservation, utilization of new energy, and enhanced dependability and flexibility. It is utilized frequently in the distribution network. As technology progresses, the use of DG in power distribution networks becomes more prevalent. Concerns of interconnection, protection coordination, and voltage regulation must be addressed when integrating DG into the energy system. However, the main benefits of integrating DG into a power supply are greater reliability and cost reductions.

DG technologies have a significant effect on high-reliability claims, such as providing a capacity source during an emergency or delaying the construction of a local network. During power disruptions, DG can be

International Journal of Engineering Applied Sciences and Technology, 2021
Vol. 6, Issue 8, ISSN No. 2455-2143, Pages 154-164
Published Online December 2021 in IJEAST (http://www.ijeast.com)

"FUZZY LOGIC TO IMPROVE RELIABILITY INDICES AND VOLTAGE INSTABILITY CONSTRAINTS FOR CONTINGENCY ANALYSIS AND OPTIMAL POWER FLOW WITH RENEWABLE ENERGY SOURCES"

Mr.Siddappaji.M.R
Asst. Professor
Department of Electrical & Electronics Engineering
Sir.MVIT, Bengaluru, Karnataka India

Dr.K.Thippeswamy
Sel.Grade Lecturer
Department of Electrical & Electronics Engineering
S.J.Govt. Polytechnic, Bengaluru, Karnataka India

***Synopsis:-*Its survey's aim is to learn more about raising awareness about reliability indices in a distribution framework while using the predicates of optimum power flow approaches. The voltage unpredictability is evaluated by using an L-index, a VCPI-Centroid, and a triangle membership function to illustrate the compared input limits vulnerability as fuzzy sets. The method's practicality is facilitated by the results, which include a fuzzy burden stream for basic and critical scenarios without and with DG units. The suggested approach will be extremely useful in assuring the power grid's overall voltage security by estimating the probability of voltage breakdown under current load circumstances. This will assist in estimating the framework's maximum load capacity without causing voltage instability. A software tool is used to evaluate the method's effectiveness on an example IEEE 14-bus framework.**

***Keyword:* - VCPI, DG, FL, VSC-OPF.**

I. THE INTRODUCTION

In the current mass power system, voltage insecurity would result in a power outage. In an ideal power framework, the voltage should be controlled within acceptable limits to ensure a high level of customer service which is a serious issue in the power system's design and operation. As voltage falls to a sharp value, power flow from the stack to the source is reduced. This phenomenon is referred to as "voltage insecurity" [1]. Before voltage insecurity, both the bus angle and frequency remained constant, but fluctuations in reactive power are also increasing in the power transmission system to the stage where it is difficult to maintain up with the voltage magnitude inside the cutoff. As a result, voltage insecurity happen as a consequence of the framework's inability to deliver reactive power to the load. It might also be caused by network distribution issues, a transformer failure, or the failure of a vital transmission line orgenerator, a line problem or bus fault, or a heavy HVDC power stream with insufficient shunt capacitance and inverters [20]. The OPF in the power framework is a problem of optimization under various restrictions. It is essentially a large and well-studied area of restricted optimization. The use of load flow equations in the layout of uniformity restrictions is an important feature of OPF. For minimizing scalar optimization tasks, OPF heavily depends on static optimization techniques. In 1968, Domed and Tunney [12] proposed OPF for the purpose of minimization, in which the main request angle computation is based on correspondence and disparity constraints. OPF was utilized by Mormon et al. [3] to draw attention to the issues with the unregulated electricity grid. In addition, OPF has been used by researchers to address problems with the vertical electric grid. Normally controlling equipment, such as tap changing transformers, are used to overcome the aforementioned difficulties. In any case, they are not executed in a reasonable timeframe to prevent voltage breakdown. The majority of the proposed indices are based on a framework or on bus orientation. There hasn't been a lot of research on employing a line-based voltage steadiness list to evaluate voltage stability. The voltage strength index is used in this way to determine which lines are critical for a given load

International Journal of Engineering Applied Sciences and Technology, 2022
Vol. 6, Issue 9, ISSN No. 2455-2143, Pages 130-134
Published Online January 2022 in IJEAST (http://www.ijeast.com)

PERFORMANCE OF RELIABILITY INDICES AND VOLTAGE INSTABILITY ANALYSIS FOR OPTIMAL POWER FLOW TECHNIQUE WITH RENEWABLE ENERGY RESOURCES

Mr.Siddappaji. M.R
Assistant Professor
Sir. MVIT, Bengaluru, Karnataka India

Dr.K.Thippeswamy
Sel. Grade Lecturer
Department of Electrical & Electronics Engineering
S. J. Govt. Polytechnic, Bengaluru, Karnataka India

***Summarize:*-Its objective of this research was to learn more about identify the most acceptable parameters for assessing voltage unpredictability, dependability, and performance in the optimum power flow (OPF) approaches while keeping the most extremely unpleasant possibility or blocked position in mind. Voltage flimsiness may be modified by a variety of components and control mechanisms that act on different time steps. It includes an OPF and burden stream evaluation of the IEEE 14-bus system framework without and with DG units, as well as a load flow analysis undertaken using the MI-Power software tool. The appropriate allowable parameters and control methods, such as those used in an OPF technique, are considered to be essential in long-term voltage instability. OPF is said to be formed in order to limit either the substation's influence or the expense of effect.**

***Index words*:-DG, Reliability index, power flow consistency, optimizing, peak demand, utility grid limit.**

I. INTRODUCTION

Unwavering quality evaluation of integrated era transmission (mass power structure) has substantially as of late turned into a significant thought in power framework system planning. For evaluating reliability indices, research studies [1–4] provide such a thorough bibliographical review. A composite framework can be isolated in many possible areas as far as the limit accessible to satisfy request susceptible to the inclination of safety limits in general (line streams and voltage limit). The computation required to assess an unwavering reliability list for a composite structure have risen exponentially. Dependability of a framework may be classified into two parts: sufficiency and security. Framework sufficiency is characterized as the framework's flexibility to provide its outages, line stream imperatives, and generator and branch blackouts, however framework capability of the power framework to sustain expansion induced by shortfalls or unplanned expulsion of mass power supply is defined as security (dynamic). This means that sufficiency evaluation is a composite power framework's consistent post-blackout state, while security evaluation in dependability assessment incorporates dynamic analysis using real-time [6].

Optimization technique was previously provided in the 1990s [1] and has maintained a major enhancement difficulty in electrical power frameworks investigation even now. The development of OPF has key challenges: first, it is a functional level problem that must be addressed at regular intervals; second, the computational resources are constrained. Second, for a massive power structure with a huge number of buses, generators, and constraints, it is a non-linear advancement concern. The significance of the problem, as well as the issues already described, has resulted in a considerable existing literature. Load stream extensive research is the most commonly used exploration model in the power structure. The assessment of the line blackout stream in transmission lines and transformers is referred to as load stream concentration. Transmission lines and transformers in an electrical network should not be overloaded, and voltages must be within stated cutoff thresholds for all transports and generator responsive age to remain within reasonable limits.

JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

Enhancement in Energy Conserving and Securing the Data in Wireless Sensor Networks: A Comprehensive Review

Manjula G. Hegde[(1)], Dr. E. Kavitha[(2)]

[1]Research scholar, Dept. of ECE, Sir. M. Visveswaraya Institute of Technology, Bangalore, India
[2]Prof. and Head, Department of Telecommunication Engineering., Sir. M. Visveswaraya Institute of Technology, Bangalore, India.

Abstract

Wireless sensor networks (WSN) are a technology that has been demanding, emerging and popular in recent decades. Since WSN has many areas of application, it also presented the researchers with several challenges. Even though there are many energy conservation techniques available, energy conservation in the WSNs has become a very big task for designers. Security has also become a huge concern because of the inclusion of the wireless channel in the WSN. The biggest task in recent trends is to secure the data, maintaining confidentiality without hampering coverage. Therefore, a mechanism is needed to overcome all these problems in order to improve the network lifetime with energy conservation, data security, reliability, and improvement of the network lifetime. With enhancement of energy efficiency, data protection, t, and without hindering the coverage, network life time will be increased. This paper discusses the different approaches used for the above problems and also offers a brief overview of some of the protocols used to achieve protection and conservation of energy. The other researchers will further use these results to make the WSN more safe and increase energy efficiency by selecting the best mechanism.

Key words- Energy conservation. Security, challenge.

I. INTRODUCTION

The Wireless Sensor Network (WSN) is a cluster of spatially distributed and dedicated sensors designed to track physical or environmental conditions such as temperature, pressure, etc. and to systematize the data collected to a main location through the network. One of the primary objectives of wireless sensor networks is to gather knowledge from the real environment. Combined with computing power and wireless connectivity, sensing technology makes it lucrative to be used in abundance in the future[1]. The wireless sensor network (often referred to as the wireless actuator network)[2] consists of sensor nodes that range in size from shoebox size to grain dust size. WSN is independent of infrastructure, where it can be built virtually to work without the need for wired connection in any harsh environment. Military applications such as battlefield surveillance have driven the development of WSN, and today such networks are used in many industrial and consumer applications [2]. WSN is used in many indoor and outdoor applications [3]. It is very important to provide security during the transmission of data on the network [4]. In WSN, security is considered to be the most difficult task because it is very difficult to keep track of the sensor nodes or network all the time. But it needs to be secured to the maximum extent to prevent the data from being attacked by an intruder.

ScienceDirect

Materials Today: Proceedings

Volume 56, Part 4, 2022, Pages 1927-1934

Machine learning tool for exploring sentiment analysis on twitter data

Shanta H. Biradar [a 1], J.V. Gorabal [b 2], Gaurav Gupta [c]

Show more

https://doi.org/10.1016/j.matpr.2021.11.199

Get rights and content

Abstract

In social media, micro-blogging is a common routine of most people around the world. Social media analytics gathering structure and unstructured Big-Data from various social sites and analyzing to make business decisions using Apache Hadoop and Apache Hive respectively. The objective of the research work was to develop big data technology used for gathering and handling large unstructured data from real time social media for sentiment analysis for identifying the brand and services. The methodology devised an algorithm based on sentimental analysis using customers review classification, which dealt with prepossessing the datasets, clustering of the data based on the specific domains, feature vector using n-gram models and tf-idf vectors extracts synonyms and classification sentiment analysis. The result shows that applied sentimental analysis with unsupervised clustering of data into specific domains and supervised machine learning techniques handle large amounts of twitter data in an efficient way. The developed tool 1.5 times faster than that of traditional database to Hadoop cluster and also the accuracy is nearly 80 %, which helps the user in computing, analyzing and interpreting interaction and associations between people, topics and ideas.

Introduction

Most of the civilians are voluntarily involved in many social networking platforms such as Instagram, Twitter, facebook, etc. to express their emotions, opinions, feelings or beliefs on both places or personalities [1]. This sentiment analysis provides visitors and consumers in all the field rich information, which can reduce ambiguity regarding visiting or purchasing which leads to higher sales of the product [2]. The review data obtained from social media are large and unstructured, therefore analyzing individual reviews could be tedious work. Many analysis techniques have been proposed to resolve issues of analyzing social media data [3], [4], [5]. Discuss advantages of using sentiment analysis in identifying the customer sentiment towards any product or service [6]. The research work identifies sentiment analysis as a better approach for converging large textual data into sentiment scores, which companies can make use for identifying their customer perception. Though sentiment analysis is considered as a better approach of analysis of consumer sentiment, various methods have been adopted in designing the sentiment analysis algorithm. Xieling and Haoram [7] describes a method for computing sentiment analysis using an unigram model as a base of analysis and determining mean and standard deviation of the overall sentiment expressed in the text [8]. Oracal proposes a platform to determine sentiment analysis using the method of categorization and enrichment. The platform helps in classifying the related text into a particular group and identifying the sentiment of the classified group [9].

Many techniques such as machine learning [10], lexicon based method[11], statistical method [12], knowledge based [13] and hybrid approach are used for sentiment analysis for various applications. The sentiment analysis could be

Indian astronomical tables – a study with special reference to *Makarandasārinī*

Banuvalli Chetana, M.* and S. K. Uma

Department of Mathematics, Sir M. Visvesvaraya Institute of Technology, Bengaluru 562 157, India

Among the astronomical tables belonging to different schools of astronomy (*pakṣas*), *Makarandasāriṇī* (*MKS*) is the prominent and most popular text. This article highlights the important aspects of *MKS* like making of almanacs (*Pañcāṅga*), finding the equation of centre, equation of conjunction, moments of solar ingress into zodiacal signs and 27 lunar mansions (*nakṣatra*), and so on. A detailed study of the work done on *MKS* and further scope of research are also discussed.

Keywords: Almanac, astronomical tables, lunar mansions, *Makarandasāriṇī*, solar ingress.

THERE are various astronomical tables recorded in different forms in Sanskrit in a variety of ways for more than 2000 years, in the form of ancient hymns, mathematical functions, numeric array tables used to generate calendars and ephemeris[1].

The annual Indian calendrical-cum-astronomical almanacs are compiled with the help of traditional astronomical tables. These tables are differently called as *Sāriṇī*, *Padakam*, *Koṣṭhaka* and *Vākya*. There are a large number of tables belonging to different schools (*pakṣa*) like Saura, Ārya, Brāhma and Gaṇeśa. These schools of astronomy are conformed to the parameters and procedures of *Sūrya-siddhānta* of Āryabhata I (476 CE), *Brahmasphuṭa siddhānta* of Brahmagupta (628 CE) and *Grahalāghava* of Gaṇeśa Daivajña (1520 CE).

The major tables of the *saurapakṣa* are (i) *Makarandasāriṇī* by Makaranda (1478 CE), (ii) *Gaṇakānanda* by Sūryacārya, son of Bālāditya (16 March 1447), (iii) *Rāmavinoda* by Rāmacandra (1590 CE), (iv) *Ravisiddhāntamañjarī* by Mathurānātha Śukla (1609 CE), (v) *Pratibhāgī* and (vi) *Tyāgarti* manuscripts. The *Gaṇakānanda* of Sūrya is a *karaṇa* text (handbook) popular mainly in Andhra Pradesh and Karnataka. *Pratibhāgī* and *Tyāgarti* tables are used by the *saurapakṣa* followers in Karnataka[2].

The important tables belonging to *Brāhmpakṣa* are *Brahmatulyasārinī* (epoch 1183 CE), *Mahādevī* by Mahādeva (1316 CE), *Jagadbhūṣaṇa* by Haridatta (1638 CE) and *Khecaradīpikā* by Kalyāṇa (1649 CE).

Tithichintāmaṇi (1525 CE) and *Grahalāghavasārinī* (epoch, 18 March 1520 CE) are the tables based on *Grahalāghava* of Gaṇeśa Daivajña. Among the practitioners of the Gaṇeśa *pakṣa* based on Gaṇeśa Daivajña's *Grahalāghava* (GL), the astronomical table called *Tithichintāmaṇi* is most popular. It involves different tables for the calculation of the ending moments of lunar day (*tithi*), lunar mansion (*nakṣatra*), etc. Once an almanac maker obtains the required annual constants for *tithi*, *nakṣatra*, etc. for the beginning of a solar year, the rest of the work is simple and rather mechanical. One needs to add or subtract the related elements, using the tables in the text, for successive days[2].

There are tables belonging to other schools as well. In fact, the *vākya* tables used mainly in Kerala and Tamil Nadu composed by the legendary Vararuci comprise Sanskrit sentences which are numerical chronograms based on the *kaṭapayādi* system. Unlike the other Indian astronomical tables, the *vākya* system comprises simple Sanskrit sentences in which each letter represents a number following the *katapayādi* system. The significant achievement of the *vākya* system is that true position of each planet is given in simple sentences. The *vākya* system prevents the elaborated procedures of repeatedly determining and applying the equation of centre and equation of conjunction to obtain the true position. Interestingly, this system of astronomical tables scores over other types of Indian astronomical tables. The number represented by these sentences (*vākyas*) gives directly the true positions of the heavenly bodies. The *vākya* system is based on *Āryapakṣa* by Āryabhaṭa I.

Indian astronomical tables may also be classified into three types based on their arrangement as (i) mean linear, (ii) true linear and (iii) cyclic. In the mean linear arrangement, mean motion tables are accompanied by the tables of equations. *Grahalāghavasārinī*, *Ravisiddhāntamañjarī*, *Makarandasāriṇī* and *Brahmatulyasārinī* are mean linear-type tables. In true linear mean motion tables are accompanied by the true longitude tables, whereas in the cyclic arrangement true longitudes are given for several years of the goal-year periods. *Mahādevī*, *Rāmavinoda* and *Khecaradīpikā* are examples of true linear tables. *Jagadbhūṣaṇa* by Haridatta is a cyclic table[2].

Makarandasāriṇī

Makarandasāriṇī (*MKS*) is the most popular Sanskrit text containing a large number of astronomical tables. The major tables in *MKS* are for (i) the ending moments of lunar

*For correspondence. (e-mail: chetana3011@gmail.com)

International Journal of Thermofluid Science and Technology (2022)
Volume 9, Issue 1, Paper No. 090103
https://doi.org/10.36963/IJTST.2022090103
Research Article

Double-diffusive penetrative convection in a fluid overlying a porous layer

Gangadharaiah Y H [*,1], S. P. Suma [2], Nagarathnamma H [3], and T. Y. Chaya [4]

[1] *Department of Mathematics, RV Institute of Technology and Management, Bangalore, India*
[2] *Department of Mathematics, Cambridge Institute of Technology, Bangalore, India*
[3] *Department of Mathematics, Dr. Ambedekar Institute of Technology, Bangalore, India*
[4] *Department of Mathematics, Sir M. Visvesvaraya Institute of Technology, Bangalore, India*

ARTICLE INFO

Received: 07 Jul. 2021;
Received in revised form:
05 Nov. 2021;
Accepted: 09 Nov. 2021;
Published online:
12 Nov. 2021

Keywords:
Internal heat source
Solute Rayleigh number
Lewis number.

ABSTRACT

In the present study, the commencement of double-diffusive convection with an internal heat source is studied using a linear instability analysis. The system consists of a fluid layer on top of a porous layer saturated with the same fluid. The boundaries are insulating to temperature perturbations, and the regular perturbation technique is applied to obtain the Rayleigh number. The results of detailed stability characteristics are presented for crucial physical factors, such as thermal Rayleigh number, the inverse Lewis number, depth ratio, the solute Rayleigh number, and heat source strength.

1. Introduction

Double-diffusive convection, which depicts convection driven by two separate density gradients, has sparked many research activities in recent years because of its broad range of applications. Some unique areas of application include the growth of metal crystals, solar ponds, insulation of buildings and equipment, energy storage and recovery, geothermal energy extraction and reservoirs, dispersion of pollutants in the environment, the underground disposal of nuclear wastes and material and food processing (Nield [1], Straughan [2]). Among the most recent contributions are (Capone et al. [3], Chaya and Gangadharaiah [4], Malashetty and Biradar [5], Malashetty et al. [6], Gangadharaiah et al. camse [7], Chang [8], Hill and Carr [9], Hill and Straughan [10]).

Convective motion in composite layers due to volumetric heating has attracted immense attention in the current past because of its prevalence in energy-related and geophysics engineering problems, including underground disposal of radioactive waste materials, heat removal from nuclear fuel debris, storage of food-stuff, exothermic chemical reactions in the packed-bed reactor and so on. Recent contributions include (Carr [11], Suma et al. [12], Khalili et al. [13], Gangadharaiah et al. [14], Shivakumara et al. [15], Gangadharaiah[16], Gangadharaiah and Ananda [17], Straughan[18], and Gangadharaiah and Suma[19]).

[*]*Corresponding e-mail*: gangu.honnappa@gmail.com (Gangadharaiah Y H)

ScienceDirect

Materials Today: Proceedings

Volume 56, Part 3, 2022, Pages 1567-1574

Influence of tool offset on mechanical properties of solid-state-welded steel and AA7XXX joints

Prashant S Humnabad

Show more

Share Cite

https://doi.org/10.1016/j.matpr.2021.12.595

Get rights and content

Abstract

The objective of present work is to analyze the role of tool offset on mechanical properties of Friction Stir welded (dissimilar materials) AA7XXX and Steel joints. The major process parameters opted for current experimental study are, Tool Offset (T-OF), Tool Rotation Speed (TRS), and Tool Travel Speed (TTS). Tungsten Carbide (K-12) tool with cylindrical tapered pin is used to produce dissimilar butt welds. Steel plate is kept on advancing side and aluminum on retreating side during the joining process. Tensile, Impact, Bending and Hardness analysis are performed to assess the joint strength. Vickers Micro-hardness test was done along transverse direction of the joint to obtain hardness distribution at weld nugget. Experimental study divulge that, at tool rotational speed of 1400rpm, tool travel speed of 16mm/min and offset of +1mm towards steel (advancing side) yields better results, i.e. around 23.3% improvement as compared to tool at zero offset.

Introduction

In the present experimentation to join ferrous and Non-ferrous materials (Steel and Aluminium) Solid-State-Welding (Friction-Stir-Welding) technology is adopted. A cylindrical FS-Tool with tapered shape pin profile is impinged (plunge) into the plates of interests to be joined (either it may be left or right to the butted line). The tool traverse speed is initiated only after complete pin (while it is rotating) is plunges into the work-piece (plates) and held it at this state for few seconds (dwell time), so that sufficient amount of heat will be generated (i.e., at the surface and edges of the butted plates). This is due to rubbing action between tool shoulder with plate surface and tool pin with edges of the plate. This generated heat will soften the material around the pin which initiates the plastic deformation of the materials to be joined.

After this dwell time tool traverse is initiated along the weld line; due to the material movement takes place from advancing side to the retrieving side formation of a weld between butted plates. The technology adopted for this work is most economical method to join ferrous and non-ferrous materials. Since in this method of joining there is no additional filler material is used; which won't add any additional weight to the structure (which definitely saves cost in many ways) and also, during this process negligible amount of smoke is formed (i.e., less impact on the environment and also, on operator's health). This method is widely used in industries like automobile, shipping, aerospace, oil and gas (piping) and etc… [1]. S. M. Howard et al. [2], suggested various types of tools profiles can be used to join commercial yttria (Y2O3) dispersion-strengthened ferritic steel alloy or advanced ferritic steels. G. Madhusudhan

IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Vol. 8, Issue 6, June 2021

DOI: 10.17148/IARJSET.2021.8695

A Review of Project Life Cycle Management

Abhinand G. B.[1], Abhinav Agrawal[2], Dr. Prashant S H[3]

[1,2]Research Scholars, Dept. of Mechanical Engineering, Sir M. Visvesvaraya Institute of Technology, Bengaluru, Karnataka, India

[3]Assistant Professor, Dept. of Mechanical Engineering, Sir M. Visvesvaraya Institute of Technology, Bengaluru, Karnataka, India

Abstract: Product life cycle management (PLM) is the process of managing the entire lifecycle of a product from its inception through the engineering, design, and manufacture, as well as the service and disposal of manufactured products. PLM integrates people, data, processes and business systems and provides a product information backbone for companies and their extended enterprise. This article is about understanding and successfully manages a product's life cycle and how the company should develop strategies and methodologies like the Product Life Cycle Model Description, Analysis of Product Life Cycle Management, Product Life Cycle in Respect to The Technology Life Cycle and Use of Product Management for Successful Product Life Cycle.

Keywords: Product, Product Life cycle Management, Design, Analysis.

1. INTRODUCTION

Every service and product have different life cycles. The period from which the product's first launch into the market until its final withdrawal and split up in phases is called the life cycle. Changes are made in the way that the product is behaving into the market that is its refection in respect of sales to the company that introduced it into the market during this period. Product's life cycle management is very important since an increasing the profits is one of the major goals of the company that introduces a product into the market. Either the companies follow the basic rules of the different life cycle phase that are analysed later or use strategic planning.

The product's success or failure, its position in the market compared to other competitors and understanding and realise when it is time to introduce and withdraw a product from a market can be understood by studying the product life cycle management. For the company to completely understand the above and successfully manage a product's life cycle, the company has to develop strategies and methodologies which are discussed later on.

2. METHODOLOGY

2.1. Part 1: Product Life Cycle Model Description

The period of product's life cycle consists of five major steps or phases:

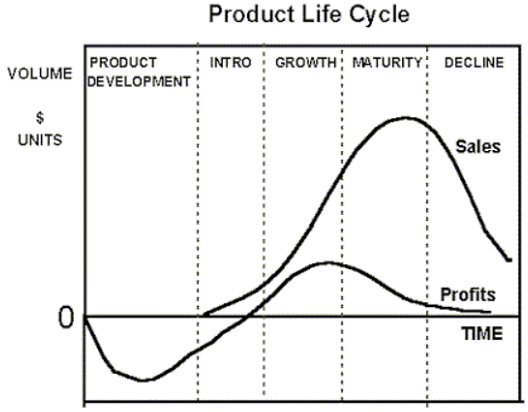

Fig. 1: Product Life Cycle Graph

2.1.1 Product Development Phase

When a company finds and develops a new product idea, product development phase begins. Translating various pieces of information and incorporating is involved into the new product. A product is usually undergoing several changes

International Journal of Advances in Engineering and Management (IJAEM)
Volume 3, Issue 9 Sep 2021, pp: 1185-1189 www.ijaem.net ISSN: 2395-5252

Thermo Electric Refrigerator Using Peltier Effect

Abhishek yadav[1], Lalithraj. S.T[2], Manoj .M[3], Prasanna[4], Asha Rani. A[5]

[123 4]*Students, Sir MVIT.*
[5]*Asst Professor, Dept. of Mechanical Engineering Sir MVIT, Karnataka, India*

Submitted: 10-09-2021 Revised: 19-09-2021 Accepted: 23-09-2021

ABSTRACT
Aim of the project is to reduce the usage of electricity and minimization of carbon dioxide evaporation compare with normal refrigerator. Thermoelectric refrigeration is done with the Peltier effect setup. As we know that refrigerator and air conditioners are the most energy consuming home appliances and due to this many researchers had come up with plenty of research in this field to overcome these issues, so we have come up with thermoelectric refrigerator as an advancement in this field. It has resolved the problems of power consumption, cooling performance, vibrations and maintenance. It has been proved to be one of the finest advancements in this scenario, which has overcome the above-mentioned issue, in this project, battery, is connected to the Peltier and followed with the fin which is inside the aluminium box.

Keywords: Refrigeration, Thermo-electrical system, Peltier effect

I. INTRODUCTION

In the field of military and medical science there are refrigerators used to cool samples or specimens for preservation. They include refrigeration units for storing blood plasma and other blood products, as well as vaccines and other medical or pharmaceutical supplies.They differ from standard refrigerators used in homes or restaurant because they need to be very hygienic and completely reliable. However, in case of transportation of component from one place to another place there is no refrigeration system.Due to such problem, portable refrigeration system is to be used. Thermoelectric refrigeration is new alternative because it can convert waste electricity into useful cooling, is expected to play an important role in meeting today fossil energy challenges.

Therefore, thermoelectric refrigeration is greatly needed, particularly for developing countries where long life and low maintenance are needed.As per globally increasing demand for refrigeration, food preservations, vaccine storage, air conditioning of thespace, medical services, cooling of electronic device led consumption of more electricity and ultimately morerelease of CO2 in the environment causing global warming.

1.1 Definition

Thermoelectric cooling uses the Peltier effect to create a heat flux between the junctions of two different types of materials. They can be used either for heating or for cooling (refrigeration), although in practice the main application is cooling. Thermoelectric cooler (TEC). Many researchers and companies are trying to develop Peltier coolers that are both cheap and efficient.

1.2 Basic Principles of Thermoelectric Modules

Thermoelectricity is based upon following basic principles:

1. Seebeck Effect
2. Peltier Effect
3. Thomson Effect

1.21 Seebeck effect

The Seebeck effect is a phenomenon in which a temperature difference between two dissimilar electrical conductors or semiconductors produces a voltage difference between the two substances.

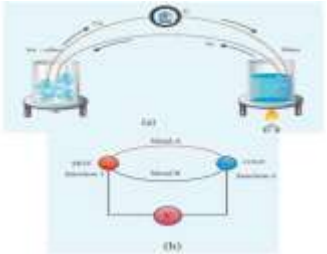

Fig 1.1: Seebeck effect

1.22 Peltier effect

The Peltier effect is the phenomenon that a potential difference applied across a thermocouple causes a

DOI : https://doi.org/10.56452/0128
ISSN: 0974-5823 Vol. 6 (Special Issue, Nov.-Dec. 2021)
International Journal of Mechanical Engineering

Study of Wear Characteristics of Ultra High Molecular Weight Polyethylene Nano Composite reinforced with Nano Al_2O_3

H S Yeshvantha [a*], A J K Prasad [b], Mallaradhya H M [c], B.K Muralidhra [d]

[a*] Assistant Professor, Department of Mechanical Engineering, Sir M.Visvesvarya Institute of Technology, Hunasmaranahalli, Yelahanka, Bangalore-562157,

[b] Associate Professor, Department of Mechanical Engineering, Sir M.Visvesvarya Institute of Technology, Hunasmaranahalli, Yelahanka, Bangalore-562157

[c] Assistant Professor, Department of Mechanical Engineering, SJC Institute of Technology, Chickballapura-562101,

[d] Professor, Department of Mechanical Engineering, Nitte Meenakshi Institute of Technology, Bangalore.

ABSTRACT

An attempt has been made in the present work to study the wear characteristics along with the effect of parameters on the wear behaviour of UHMWPE nano composite reinforced with nano Al2O3. Also optimization of parameters and the wear values with respect to the parameters is attempted using Response Surface methodology through MINITAB software. Three levels of three different parameters are considered for the study wherein the design of experiments is done using Taguchi technique. Most importantly the effect of different reinforcement percentage of Al2O3 is discussed so as to know the behaviour of composite under dry wear conditions and the corresponding influence of the presence of reinforcement in terms of quantity. The results shows that the addition of nano alumina with increased percentages imparts superior wear properties into the composite which can also be seen through the surface profile. The statistical analysis also shows the importance and effects of parameters on the wear rate during the experimentation

Keywords: UHMWPE, Al2O3, Response surface methodology, Taguchi, MINITAB, Design of Experiments.

1.0 Introduction

UHMWPE were seen to be developed in the early 1950s has now gained much popularity due to their superior bio-compatible property [1-4], self-lubrication, chemically stable [6], and high wear and impact resistance property, which leads of path in biomedical as well as various engineering applications.During the absence of wet lubrication mating parts which are metallic in nature requires some kind of coating to resist wear and friction up to a greater extent and this is done by the researchers by using UHMWPE due to their terrific Tribological characteristics leading to reduced friction and high wear resistance. Researchers adopted a technique wherein nano and hybrid composites were synthesized using UHMWPE with reinforcements in the form of nano fillers like carbon nano tubes [7, 8], graphene [9], nano clay [10] and nano clay/CNT [11].Reinforcing UHMWPE with different wt. % of nano clay and conducting Tribological tests upon them showed that the failure of 1.5% reinforcement did not happen until 100000 cycles with a normal load of 9N with a linear speed of 0.1m/s, but at a load of 15N it failed instantly [10]. To overcome this again UHMWPE with 1.5 wt% nano clay and 1.5wt% CNT were combined to form hybrid composite and observed that the load bearing capacity is increased above 15N [11].Reinforcements are used along with the polymer to produce polyethylene which find their applications in many orthopaedic parts like knee joints and bone joints which leads to the synthesis of ultra-high molecular weight materials which can be used as bio-materials in practice. The first application of UHMWPE was in the joint replacement which has now found a vast variety of applications through different combination or composition with different materials leading to mechanical properties which are improved and superior.One of the application of UHMWPE is in the replacement of a component serving load bearing function in joint and joint surface implants, in particular the acetabular cups in the hip prosthesis [12]. Polyethylene and polypropylene when compared to UHMWPE has high wear rate and friction co efficient leading to lesser bio-compatibility and hence the UHMWPE finds its application due to reduced wear rate and co efficient of friction. Although UHMWPE has got good Tribological properties, its application is restricted to load bearing components and cannot be used in any other non-load bearing components or as a direct replacement for bones due to their low strength compared to other polymers. Even from the past decade the UHMWPE is used in place of fibre sutures. When the family of materials is considered alumina is one such material which finds wide usage [13]. High purity Al2O3 has got superior properties in terms of bio compatibility, wear resistance and corrosion resistance properties and hence can also be used as replacements. Its cyto compatibility is not damaged due to its bio-inert nature. It has got a wide range of properties including high modulus of elasticity, and compressive strength towards higher side. Due to these properties when added with UHMWPE, the mechanical as well as the Tribological properties are enhanced and the material altogether behaves bio-compatible. With the discovery of its benefits different manufacturers combined UHMWPE with Al2O3 to

ScienceDirect

Materials Today: Proceedings

Volume 52, Part 3, 2022, Pages 2143-2147

Thermal analysis of Friction Stir welded Steel and Aluminum materials with varying Pre-heat temperature

Prashant S. Humnabad, S.B. Halesh

Show more

https://doi.org/10.1016/j.matpr.2021.12.461

Get rights and content

Abstract

The objective of this work is to carry out a thermal heat transfer study to acquire the time dependent temperature field in welding process of FS-Welded dissimilar materials with vary in preheat temperature. Joints were made with four mm thick Aluminum and Steel plates. Parameters selected for current study was temperature (100°C, 150°C and 200°C), rotational speed (1000, 1400, and 1800) rpm and traverse speed (16, 20, and 24) mm/min. In numerical model, welded plate was modeled as the weld line is the symmetric line. The work-piece has dimensions of 100x100x4 mm. The obtained result was compared with experimental result, which shows good agreement and within the acceptable limit. The peak temperature at the weld zone increases significantly with respect to increase in process time.

Introduction

Dissimilar materials like Aluminum and Steel are hard to join by fusion welding method, it's because formation of hard (or) brittle intermetallic compounds at the weld interface. Therefore, a unique method is desired to join these materials, such as Solid-State-Welding (Friction Stir Welding) method and is more suitable than other welding processes [1], [2], since, it needs minimum diffusion bonding time as compared to other joining methods. This method may also be adopted to weld various ferrous and non-ferrous materials and also, suitable to join metal matrix composite materials or plates [3], [4]. In this process the work-pieces are joined under the pressure or combination of both heat and pressure. The work-piece remains in the solid state as the temperature will not be more than the melting point of the base metal. If additional heat is applied, it must be lower than the base metal (steel, since only this material is preheated during the joining process) melting point temperature.

Section snippets

Thermal analysis of welded Joints

The welding simulation is based on sequentially coupled thermo-mechanical problem. To gain the time dependent temperature field in the welding process; a systematic thermal heat transfer analysis is made. In this analysis moving heat source, temperatures depending on thermal properties are considered [5]; from the weld region, area of cross section of weld is used according to heat input.

CHARACTERIZATION AND ANTIMICROBIAL ACTIVITY STUDIES OF CALCITE-ZINCATE NANOPARTICLES BY GREEN SYNTHESIS

Sampath Kumar.L*
Department of Mechanical Engineering,
Sir M. Visvesvaraya Institute of Technology
Bangalore, Karnataka, India,
sampathkumar_mech@sirmvit.edu
Shantha .V
Department of Mechanical Engineering,
Sir M. Visvesvaraya Institute of Technology
Bangalore, Karnataka, India,
shantha_mech@sirmvit.edu
Hariharan P
Department of Biotechnology Engineering,
Sir M. Visvesvaraya Institute of Technology
Bangalore, Karnataka, India,
hariharan_biotech@sirmvit.edu

Publication History
Manuscript Reference No: IJIRAE/RS/Vol.09/Issue10/OCAE10083
Research Article | Open Access | Double-blind Peer-reviewed
Article ID: IJIRAE/RS/Vol.09/Issue10/OCAE10083
Received Date: 08, October 2022 | Accepted Date: 19, October 2022 | Available Online: 31, October 2022
Volume 2022 | Article ID OCAE10084 https://www.ijirae.com/volumes/Vol9/iss-10/03.OCAE10083.pdf
Article Citation: Sampath,Shantha,Hariharan(2022). Characterization and Antimicrobial Activity Studies of Calcite-Zincate Nanoparticles by Green Synthesis. International Journal of Innovative Research in Advanced Engineering, Volume 9, Issue 10 of 2022 pages 426-434 https://doi.org/10.26562/ijirae.2022.v0910.03
BibTeX key
Academic Editor-Chief: Dr.A.Arul Lawrence Selvakumar

Abstract: Nanoparticles (Nps) are extremely useful in a extensive choice of industries, together with electronics, the environs, cosmetics, material science, and medicinal systems, among others. Calcium Carbonate ($CaCO_3$) and Zinc Oxide (ZnO) nanomaterials have long been popular research topics. It is frequently used in dentistry applications due to its biocompatibility. The purpose of this study was to produce and describe calcium carbonate/zinc oxide nanoparticles ($CaCO_3$/ZnO-NPs) prepared via precipitation method. The precipitation method has many advantages, including being more controllable and reproducible, as well as allowing for easy particle size control. Temperature and the calcination process both have an impact on the formation of nanoparticles. The calcination at high temperatures resulted in spherical-shaped particles, a reduction in aggregate size, and an increase in the crystalline nature of the NPs. Nitrates of calcium and zinc, sodium hydroxide were used, along with silk washed waste water containing sericin as a capping agent. $CaCO_3$/ZnO-NPs were produced at 60°C using calcination (500°C). The antibacterial activities of the nanoparticles against gram-positive bacteria Staphylococcus aureus and Enterococcus faecalis, as well as gram-negative bacteria Escherichia coli and Klebsiella pneumoniae, also, Fungus - Candida albicans were investigated, via the disk diffusion method. $CaCO_3$/ZnO-NPs were successfully produced and exhibited a crystalline nanostructure, confirmed the elements of $CaCO_3$/ZnO-NPs, and revealed that the $CaCO_3$/ZnO-NPs obtained had an irregular spherical shape. The nanoparticles were found to be void of contaminants and organic. The absorption group at nm points out the occurrence of $CaCO_3$, and the absorption group at 380 nm confirm the existence of ZnO. In addition, these $CaCO_3$/ZnO-NPs have improved antimicrobial activity with potential applications in dentistry.
Keywords: precipitation method; green synthesis;characterization; antibacterial;antifungal; disc diffusion method;

I. INTRODUCTION

Nanotechnology is defined as "the meticulous and precise employment, accuracy employment, exhibiting, size, and synthesis of ingredients at the nanoscale to a variety of material, arrangements, and maneuvers by basically unique features and tasks" [1].Humans have long been interested in "nano"-sized existence. Richard P. Feynman, a physicist and well-known Nobel Prize winner was generally credited with developing the idea of nanotechnology [2].

ScienceDirect

Materials Today: Proceedings

Volume 54, Part 2, 2022, Pages 137-140

Investigation on tensile behavior of glass-fiber reinforced polymer matrix composite with varying orientations of fibers

Prashant S. Hatti [a], Sampath Kumar L. [b], Anupama B. Somanakatti [c], Rakshith M. [d]

Show more

https://doi.org/10.1016/j.matpr.2021.08.196

Get rights and content

Abstract

The main objective of this work is to develop a new polymer based composite material having different reinforcement angle orientations and studies its tensile behavior. For fiber reinforced polymer matrix composites E-2 glass fiber reinforcement and epoxy resin for matrix is used. E-2 g1ass fiber has high strength, chemical resistance and good insulating properties. Epoxy being less viscous allows good adhesion to fibers used in laminate preparation, without misalignment of fibers. Hand layup technique has been adopted for preparation of laminate. Glass fibers are laid, mixture of epoxy resin and hardener is smeared on it alternately, until laminate of desired thickness is achieved, and is left to atmosphere for curing. 2.5mm laminate is prepared by placing glass fibers of 0.25mm thickness one above the other. The prepared laminate is then taken for cutting according to ASTM standards (D3039) of 3 sets of rectangular specimens. For first set comprises of 90° angle-oriented specimen, second and third sets for 45° and 30° respectively. These specimens are subjected to tensile test in Lloyd UTM and load being applied gradually at the rate of 2mm/min is continued until the material fails. The computer simulation plots the graph during the entire testing process and stops when the material fails.

Introduction

Past decades are focused on development of glass fiber reínforced polymer matrix composite due to the fact that, they have many technological advantages such as high specific strength, low weight, greater stiffness and long life compared to metals. Lee [1] reported vibrational analysis of multi delaminated beams and experimented on composite beams' longitudinal and lateral multiple delamination. The results concluded that, multiple delaminations significantly affect the dynamic characteristics of composite laminated. O'Brien et al. [2] investigated the transverse tension fatigue life characterization through the flexural testing of composite materials. Transverse tension fatigue life of glass- epoxy & carbon-epoxy is characterized by using flexural test on 90° 1aminates placed on three point bending & four point bending. Kant et al. [3] presented analytical formulations and solutions to the static analysis of simply supported composite sandwich plates in view of an higher order refined theory developed by the first main creator. To determine the failure of mechanically fastened fiber reinforced laminated composite joints Okutan [4] carried out a numerical and experimental investigation. E/glass–epoxy composites were used to fabricate the joints by taking the mechanical properties and qualities of the composite tentatively. Zhang et al. [5] studied on inter laminar shear fracture of chopped strand mat glass fiber-reinforced polyester laminates both experimentally and analytically. Lap shear (double-grooved) specimens were used to measure the inter-laminar shear strength and the cracking mechanism was studied using

ScienceDirect

Materials Today: Proceedings

Volume 54, Part 2, 2022, Pages 159-162

Study on flexural behavior of glass-fiber reinforced polymer matrix composite

Prashant S. Hatti [a], Harisha P. [a], Sampath Kumar L. [b], Anupama B. Somanakatti [c], Rakshith M. [d]

Show more

https://doi.org/10.1016/j.matpr.2021.08.200

Get rights and content

Abstract

The primary goal of this research is to analyze a new polymer-based composite material with various reinforcement angle orientations and to investigate its flexural behavior. E-2 glass fiber reinforcement and epoxy resin for matrix are used in fibre reinforced polymer matrix composites. Three sets of rectangular specimens are prepared according to ASTM standards (D7264). First set comprises of 30° angle-oriented specimen, second and third set comprises of 45° and 90° respectively. These specimens are subjected to flexural test in UTM and load being applied gradually until the material fails. It is evident from the results that the load bearing capacity of 90° orientation laminate is more when compared to 30° and 45°.These experimental results are compared with FEA results and found to have a good correlation.

Introduction

Composite material improves construction efficiency by reinforcing fibres in a polymer matrix, resulting in a new structure known as hybrid composite, which has a wide range of material properties. As a result, mechanical properties such as hardness, tensile strength, compression strength, and flexural strength must be investigated in order to apply the material for various applications. On the application of bending load, the deflection of test specimen takes place in such a way that upper portion of specimen is subjected to compression and the lower portion is subjected to tensile stress. Also, the mid-plane is subjected to shear stress. Because of the anisotropic nature of the specimen under investigation, combined stresses resulting on the account of tensile, shear and compressive force caused bending failure.

Jagannatha [1] investigated that the flexural properties of Carbon Fiber Reinforced Concrete (CFRP) and found that the strength of 60 percent carbon fiber reinforced composite is 64.9 percent higher than that of the 60 percent glassfiberreinforcedcomposite and 29.23 percent higher than that of the 30 percent glass fiber and 30 percent carbon reinforced hybrid composite. The strength of hybrid composites is lower than that of carbon fiber reinforced composites, butitismuchhigherthanthatofothercomposites. Junaid [2] not only investigated the load, strain and deflection in concrete and re-bars, but also failure modes and cracks. All of the tested beams have identical flexural and deflection properties. The results show that geopolymer concrete and fiber-reinforced geopolymer concrete beams are more efficient than ordinary concrete for a GFRP reinforced framework. Tolessa1 [3] presented the effect of increasing the weight percentage of jute fiber reinforcement in polypropylene (PP) based composites, it was thereby reported that, on increasing the jute percentage by weight, improved the mechanical properties up to 40%. Mohammed [4] suggested that, the physio-mechanical and thermo-chemical properties of natural fiber/polymer composites could be

World Journal of Advanced Research and Reviews
eISSN: 2581-9615 CODEN (USA): WJARAI
Cross Ref DOI: 10.30574/wjarr
Journal homepage: https://wjarr.com/

(RESEARCH ARTICLE)

Check for updates

Cell viability studies using human gingival fibroblast, human oral fibroblast cells and mechanical characterization of Calcite/Zincite nanoparticles

Sampath Kumar L *, Shantha V and Janardhana K

Department of Mechanical Engineering, Sir M. Visvesvaraya Institute of Technology, Bangalore, Karnataka, India.

World Journal of Advanced Research and Reviews, 2022, 16(03), 812–824

Publication history: Received on 12 October 2022; revised on 26 December 2022; accepted on 29 December 2022

Article DOI: https://doi.org/10.30574/wjarr.2022.16.3.1443

Abstract

Antibiotics are rapidly being replaced with nanoparticles (NPs) in order to eradicate bacteria and other organisms. Nanotechnology, in particular, could be useful in the fight against bacterial pandemics. Although the precise processes are still unknown, it is now understood that metal ion release, the induction of oxidative stress, and non-oxidative mechanisms all contribute to NPs' antibacterial effects. Because many gene alterations in the same bacterial cell are needed for the numerous concurrent modes of action against microorganisms, it is challenging for bacteria to develop NP resistance. As a result, this study also focuses on analyzing the antibacterial activity of the created nanoparticles. The use of PMMA in dentistry demonstrates the necessity for fillers to be added to PMMA to improve its performance. Nano fillers such as ZnO and $CaCO_3$ have unique uses in the field of dentistry due to their advanced features, which include antibacterial activity. However, no study has been conducted to yet on the synthesis of the nanomaterial composed of calcium carbonate and zinc oxide. As a result, an attempt is made in this study, which combines calcium carbonate (calcite) and zinc oxide (zincate), synthesized using precipitation method. Various amounts of human gingival fibroblasts (HGF) and human oral fibroblasts (HOF) were applied to test samples and found as non-toxic. The density increase for composites made by using precipitation method, NPs is about 45% of the PMMA. Shore hardness tests reveal an increasing trend in the hardness of the composites up to 4.5%.

Keywords: MTT Assay; Human gingival fibroblasts; Human oral fibroblasts; Density; Hardness

1 Introduction

Antibiotics are rapidly being replaced with nanoparticles (NPs) in order to eradicate bacteria and other organisms. Nanotechnology, in particular, could be useful in the fight against bacterial pandemics. Examples of the use of NPs to prevent bacterial infections and improve health include antibacterial vaccines, antibiotic distribution systems, bacterial detection systems, microbial diagnostics, and antibacterial coatings for implantable devices and pharmaceutical materials. Although the precise processes are still unknown, it is now understood that metal ion release [1], the induction of oxidative stress [2], and non-oxidative mechanisms [3] all contribute to NPs' antibacterial effects. Because many gene alterations in the same bacterial cell are needed for the numerous concurrent modes of action against microorganisms [4], it is challenging for bacteria to develop NP resistance. As a result, this study also focuses on analyzing the antibacterial activity of the created nanoparticles.

Counting live cells after staining with a vital dye has traditionally been used to determine the in vitro harmful effects of unknown substances. Alternative techniques include counting using automated counters and others that depend on dyes and cellular activity, as well as measuring the incorporation of radioisotopes as a measure of DNA synthesis. Utilizing mitochondrial dehydrogenases, the MTT method can assess the activity of live cells. The MTT technique produces repeatable results and is easy to use. MTT, also known as 3-[4, 5-dimethylthiazol-2-yl]-2, 5-diphenyl tetrazolium bromide, is the main ingredient. It is a water-soluble tetrazolium salt that produces a yellowish solution

* Corresponding author: Sampath Kumar .L

CellPress

Contents lists available at ScienceDirect

Heliyon

journal homepage: www.cell.com/heliyon

Research article

In silico evaluation of naturally isolated triterpene glycosides (TG) from *Gymnema sylvestre* towards diabetic treatment

Rashmi S Shenoy [a,b,d,*], Jagadeesh Kumar D [c], Nagendra HG [c], H.K. Manonmani [a,b]

[a] Department of Food Protectants and Infestation Control, CSIR-Central Food Technological Research Institute, Mysore, 570020, India
[b] Academy of Scientific & Innovative Research, CSIR-Central Food Technological Research Institute, Mysore, 570020, India
[c] Department of Biotechnology, Sir M. Visvesvaraya Institute of Technology, Bangalore, India
[d] Department of Biotechnology, B.M.S College of Engineering, Bangalore, India

ARTICLE INFO

Keywords:
Gymnema sylvestre
Antidiabetic
In silico docking
Dissacharidases
Inhibition

ABSTRACT

Diabetes is a metabolic disorder which is characterised by high levels of blood glucose. Most of the oral drugs available today for the treatment of diabetes are associated with various side-effects. Herbal medicines are considered relatively safer alternatives and *Gymnema sylvestre* (GS) is one such known traditional medicinal plant widely used for the treatment of diabetes. In our previous work, we isolated active triterpene glycosides (TG) from *Gymnema sylvestre* (GS) and screened for yeast α-glucosidase inhibitory activity *in vitro*. The present study aims to use *in silico* techniques to understand and predict the inhibitory role of the isolated triterpene glycosides (TG): Gymnemic acid I, IV, VII and gymnemagenin against disaccharidase enzymes. enzyme kinetic analysis using Lineweaver-Burk plot indicated that TG competitively inhibited yeast α-glucosidase at IC_{50} concentration with K_i 0.0028 μM. TG also exhibited significant inhibitory activity against mammalian sucrase and maltase respectively, compared to control.

Practical applications: The molecular docking simulation reveals that TG is capable of docking well with crystallographic structures of the selected enzyme targets. Inhibition of α-glucosidases could delay the absorption of glucose in the blood during post-meal digestion. Thus the current study highlights the dietary intervention of TG towards the selected enzyme targets, thus making TG a potential nutraceutical candidate towards management of blood glucose.

1. Introduction

Diabetes mellitus is characterized by an abnormal increase in plasma glucose, known as hyperglycemia, caused either by a deficiency in insulin secretion (Type1 diabetes mellitus or T1DM), resistance to insulin secretion (Type 2 diabetes mellitus or T2DM) or both (Willson et al., 2000; Shearer and Billin, 2007; Feldman et al., 2008). It has been estimated worldwide that 347 million people have diabetes with a prevalence of 8.3% (Woerle et al., 2004). Hyperglycemia and oscillating blood glucose concentrations attribute directly to the development of cardiovascular disease (Ceriello et al., 2008; Kato et al., 2008). Management of postprandial hyperglycemia is considered as a first therapeutic strategy for T2DM treatment. This can be accomplished by delaying the release of glucose through the inhibition of carbohydrate hydrolysing enzyme α-glucosidase (EC 3.2.1.20) in the digestive tract (Lee et al., 2012). Inhibiting this class of enzyme retards gastrointestinal absorption of dietary carbohydrates by restricting the breakdown of linear or branched oligosaccharide units like α-limit dextrins, maltose and maltotriose to produce glucose thereby preventing glucose absorption into blood stream (Lee et al., 2012). Commercially, α-glucosidase inhibitors are extensively used as monotherapy and in combination with other antidiabetic agents to reduce postprandial increase in blood glucose level (Fujisawa et al., 2005). But most of these are known to have certain adverse effects such as liver and gastrointestinal toxicity (Williams and Pickup, 1991; Rao et al., 1997). Thus, there is an increased demand for natural products with antidiabetic activity with no side effects. Indian traditional systems of medicine have a plethora of promising plants for treatment of diabetes, of which *Gymnema sylvestre (GS)* is most well established and extensively used (Shanmugasundaram et al., 1983). Several compounds have been isolated over the years from *GS* such as gymnemic acids, gymnemasaponins, gymnemasides, gymnemasins, deacylgymnemicacid, gymnemagenin, gymnestrogenin b and gymnemanol (Sahu et al., 1996; Saneja

* Corresponding author.
E-mail address: rashmi66@gmail.com (R.S. Shenoy).

https://doi.org/10.1016/j.heliyon.2021.e08407
Received 28 August 2020; Received in revised form 7 July 2021; Accepted 11 November 2021

Applied Ecology and Environmental Sciences, 2021, Vol. 9, No. 11, 914-918
Available online at http://pubs.sciepub.com/aees/9/11/1
Published by Science and Education Publishing
DOI:10.12691/aees-9-11-1

Assessment of River Water Quality Using Weighted Arithmetic Water Quality Index in the River Kabini at Nanjangud, Karnataka, India

Sudevi Basu[1,*], K S Lokesh[2]

[1]Department of Biotechnology, Sir M Visvesvaraya Institute of Technology, Bengaluru-562157, Karnataka, India
[2]Retired, India
*Corresponding author: sudevi_biotech@sirmvit.edu

Received September 17, 2021; Revised October 22, 2021; Accepted November 01, 2021

Abstract Two sampling stations N1 and N4a are selected on the River Kabini stretch at Nanjangud, Karnataka, India. In this research, the assessment of the 20 year-data (2000 – 2019) indicate Water Quality Index of 75.3 and 95.3 at stations N1 and N4a respectively, which categorizes the water quality of the River Kabini at this stretch as "very poor". This assessment is useful to policymakers in deciding future course of action to protect the river from anthropogenic deterioration. Also, statistical analysis in the form of t-test for the 17 – year, 3 – year and 20 – year period indicates the 'p' value (p = 0.29, 0.21 and 0.22) respectively, which is greater than the significant value 0.05. Similarly, the critical value during the 17 – year, 3 – year and 20 – year period is 2.06, 4.30 and 2.04 respectively and is also greater than measured t statistics values of -1.08, -1.79 and -1.26 respectively. This reveals that the difference in WQI of N1 and N4a monitoring stations is insignificant.

Keywords: *water quality index, t-test, t statistics*

Cite This Article: Sudevi Basu, and K S Lokesh, "Assessment of River Water Quality Using Weighted Arithmetic Water Quality Index in the River Kabini at Nanjangud, Karnataka, India." *Applied Ecology and Environmental Sciences*, vol. 9, no. 11 (2021): 914-918. doi: 10.12691/aees-9-11-1.

1. Introduction

Rivers are an indomitable source of water for various anthropogenic and industrial developments. However, in the last few decades, there has been a stupendous demand for fresh water due to an explosion of population and accelerated growth in industrialization. The result is the excessive dumping of untreated domestic, agricultural and industrial wastes into rivers beyond the rivers' self-purification capabilities, thereby making it a hub for disease causing microbes and a dump-yard for solid and liquid wastes. Hence, it is imperative for policy makers to assess and manage water quality of rivers and protect from further deterioration and in this direction, the Water Quality Index (WQI) serves as an effective tool to communicate information on the quality of water to the concerned policy makers.

Water Quality Index is a means to summarize the large amounts of water quality data into simple terms for determining the level of water quality in a given study area. Based on the water quality index data, policy makers can be alerted about the underlying need for interventions such as installation and maintenance of wastewater treatment plant to further prevent the deterioration of surface water quality. The main objective of this study is to assess the water quality of the Kabini River at Nanjangud, Karnataka in terms of water quality index for a period of 20 years (2000 – 2019). WQI is calculated using a view to assess the degree of pollution of the river Kabini and its suitability for human, agricultural and industrial usages.

2. Materials and Methodology

2.1. Study Area

River Kabini, a lifeline to the people of Nanjangud, is a tributary of the River Cauvery and flows along Nanjangud town, situated 20 km towards the south of Mysuru city. Nanjangud is a pilgrimage town and many industries are located in the vicinity of the banks of this river. The study area is shown in the location map in Figure 1.

2.2. Monitoring Stations

To assess the pollution load from various natural and anthropogenic sources, different sampling stations have been located to monitor the water quality in the River Kabini. The monitoring stations are shown in Figure 2. Station N1 is an upstream river station located near the Karnataka Industrial Area Development Board (KIADB) water intake point. Several industries are located near this station. Station N4a is located near the bathing ghat in the River Kabini. Bathing and washing of clothes are prominent along the right bank in a stretch of about 250 to 300 m in length.

Journal of Optoelectronic and Biomedical Materials Vol. 13, No. 4, October - December 2021, p. 151-169

An evaluation of noble nanocomposites based on zinc oxide: synthesis, characterization, environmental, optical and biomedical applications

G. K. Prashanth [a *], M. S. Dileep[b], P.A. Prashanth[c], S. S. Sreeja Mole[d], S. R. Boselin Prabhu[e], B. M. Nagabhushana[f], S. Ravichandran[g], N. P. Bhagya[h]
[a]*Department of Chemistry, Sir M. Visvesvaraya Institute of Technology, Bengaluru-562157, India, Affiliated to Visvesvaraya Technological University, Belagavi-590 018, India.*
[b]*Department of Physics, Sir M. Visvesvaraya Institute of Technology, Bengaluru-562157, India, Affiliated to Visvesvaraya Technological University, Belagavi-590018, India.*
[c]*Department of Chemistry, PES College of Engineering, Mandya-571401, Affiliated to Visvesvaraya Technological University, Belagavi-590018, India.*
[d]*Department of ECE, Christu Jyothi Institute of Institute of Technology and Science, Jangaon, Telangana-506167, India.*
[e]*Department of ECE, Surya Engineering College, Mettukadai-638107, India.*
[f]*Department of Chemistry, M. S. Ramaiah Institute of Technology, Bengaluru-560 054, Affiliated to Visvesvaraya Technological University, Belagavi-590018, India.*
[g]*Department of Chemistry, Lovely Professional University, Phagwara, Punjab-144001, India.*
[h]*Department of Chemistry, Sai Vidya Institute of Technology, Bengaluru-560064, Affiliated to Visvesvaraya Technological University, Belagavi-590 018, India.*

Metal oxide nanocomposites have concerned an obvious agreement of consideration because of their enormous applications in numerous domains like photocatalyst, catalysis, biological and sensors. The conservational purification technology is getting advanced by the development of heterostructured semiconductor photocatalysts. In this paper, we documented a comparative analysis of synthesis process (Solution-based methods, High temperature-based methods and Electrical methods) and characterisation techniques such as Transmission electron microscopy, X-ray diffraction, Fourier-transform infrared spectroscopy and Scanning electron microscopy on various noble Nanocomposites (NCs) of metal (M) - zinc oxide (ZnO/ZO). This review inclines over multiple stat-of-the-art applications like photocatalytic, catalyst, sensor and biological activities. It could be concluded from this study that, the catalytic activity of noble M-ZO nanostructures depends not only on the noble metal species, but on the catalytic material architecture as well. The future research and development challenges together with future prospects are critically presented.

(Received July 8, 2021; Accepted November 11, 2021)

Keywords: M-ZnO, NCs, Synthesis, Characterisation, Photocatalysis, Catalyst, Sensor, Biological activity, Thermal, Electrical, Antimicrobial, Mechanical and optical properties

1. Introduction

Recently, nanocomposites (NCs) of metal-oxide is one of the evolving research domain owing to its smaller size, unique structure, photocatalytic, thermal, electrical, antimicrobial, mechanical and optical properties [1],[2]. NCs of metal-oxide are mostly formed by the mixture of two or more metal oxides with specific concentrations [3]. NCs of metal oxide finds applicable in numerous applications like sensors, photocatalytic activity, catalytic activity, antimicrobial activity, Deoxy ribonucleic acid (DNA) binding property, anticancer activity, magnetic property,

* Corresponding author: eben4uever@gmail.com

Asian Journal of Chemistry; Vol. 34, No. 7 (2022), 1625-1632

ASIAN JOURNAL OF CHEMISTRY

https://doi.org/10.14233/ajchem.2022.23712

REVIEW

Alginate Hydrogel Adsorbents in Adsorption of Inorganic and Organic Pollutants: A Review

SELVARAJ SURESH[1,], S. RAVICHANDRAN[2,], ISHAN Y. PANDYA[3,], S.S. SREEJA MOLE[4,], S.R. BOSELIN PRABHU[5,*,] and G.K. PRASHANTH[6,]

[1]Department of Chemistry, St. Martin's Engineering College, Secunderabad-500100, India
[2]Department of Chemistry, Lovely Professional University, Phagwara-144 411, India
[3]Research & Development, Gujarat Ecological Education and Research (GEER) Foundation, Gujarat-382007, India
[4]Department of Electronics and Communication Engineering, Christu Jyothi Institute of Institute of Technology and Science, Jangaon-506167, India
[5]Department of Electronics and Communication Engineering, Surya Engineering College, Mettukadai-638107, India
[6]Department of Chemistry, Sir M. Visvesvaraya Institute of Technology (Affiliated to Visvesvaraya Technological University, Belagavi), Bengaluru-562157, India

*Corresponding author: E-mail: eben4uever@gmail.com

Received: 4 January 2022; *Accepted*: 25 March 2022; *Published online*: 15 June 2022; AJC-20832

The present review discusses various alginate hydrogel adsorbents with unique adsorption performance in environmental remediation. Novel alginate composites were developed with, high swelling capacity and capable of adsorbing toxic inorganic and organic pollutants. Alginate hydrogel adsorbents were developed with a single network and double network structure with excellent adsorption ability in removal of toxic inorganic and/or organic pollutants. Alginate with single or double network composite hydrogels were developed when alginate was combined with graphene/chitosan/polymer to get superior adsorbents in removal of toxic pollutants. Acrylic acid/alginate hydrogel in recent studies are efficient in the elimination of inorganic and organic contaminants. This review will generate interest to researchers to develop novel alginate composite hydrogels with unique properties in the adsorption of toxic inorganic, organic contaminants. This work provides a worthy challenge and the future possibility of designing novel alginate materials for various applications.

Keywords: Alginate hydrogel, Dye, Heavy metals, Adsorption, Adsorption capacity.

INTRODUCTION

The present worldwide concern on the toxicity of water pollutants such as, toxic inorganic elements, organic dyes, pharmaceutical and other industrial organic wastes is a great challenge in developing countries [1-7]. The agricultural and industrial discharges with toxic inorganic and organic pollutants are non-biodegradable water contaminants that lead to serious health hazards in human beings through the food chain [8-11]. Some organic and inorganic pollutants were encountered as worst contaminants in water bodies with persistent nature that adversely affect the aquatic environment [12]. Hence there is more interest to explore an efficient methodology for pollutant removal from contaminated water. A few remediation techniques were utilized for the evacuation of harmful toxins, for example photocatalytic degradation [13], chemical precipitation [14], reverse osmosis [15], adsorption [16-18], *etc.*, Some skill methods used in treatment are costly, difficult for operation and time consuming, however an advantageous simple and high efficient treatment method in the removal of pollutants is adsorption. In literature, preparation of alginate hydrogel was used as efficient adsorbents with good adsorption performance in removal of dyes, heavy metals, pharmaceutical, other organic wastes. Also some alginate hydrogel composites prove to be promising materials in removal of toxic organic and inorganic contaminants and this has created interest to various researchers and scientists to develop novel alginate hydrogel adsorbents with unique properties and superior adsorption performance in treating contaminated water.

Alginate hydrogel adsorbents: Sodium alginate is a nontoxic and inexpensive natural polysaccharide [19-21] having hydroxyl and carboxyl groups that can be effectively crosslinked with Ca^{2+}, Fe^{3+}, Y^{3+} ions. Alginate is usually modified using varying physico-chemical process to increase its

Journal of Pharmaceutical Research International

34(14A): 34-49, 2022; Article no.JPRI.83018
ISSN: 2456-9119
(Past name: British Journal of Pharmaceutical Research, Past ISSN: 2231-2919, NLM ID: 101631759)

Cisplatin and Nano-particle Formulations of Cisplatin for Cancer Therapy: A Review

Popsy Raj [a], Bharat Lal [a*], Manoj Gadewar [a], Anita Singh [b] and G. K. Prashanth [c]

[a] Department of Pharmaceutics, K. R. Mangalam University, Haryana, India.
[b] Sunder Deep Pharmacy Collage, Ghaziabad, India.
[c] Department of Chemistry, Sir M. Visvesvaraya Institute of Technology, Bengaluru, India.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JPRI/2022/v34i14A35636

Open Peer Review History:
This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: https://www.sdiarticle5.com/review-history/83018

Review Article

Received 10 December 2021
Accepted 14 February 2022
Published 22 February 2022

ABSTRACT

Cisplatin (cis-(diammine)dichloridoplatinum(II)) is the first platinum-based compound approved by the United States Food and Drug Administration (FDA) (U.S.). This is a first-line chemotherapeutic treatment used alone or combined with other anticancer drugs to treat a broad spectrum of malignancies, with cisplatin-based nano-formulations currently in clinical studies. Cisplatin has several drawbacks, including low aqueous solubility, drug resistance, and toxicity, all of which can be addressed by encapsulating the drug in Nemours nanocarriers. The various nano-delivery technologies developed for Cisplatin are covered in vast literature from different electronic databases. This review focuses on comparative findings over the recent advancements, developments, innovations, and updated literature for various CDDP nano-carrier systems.

Keywords: Cancer; cisplatin; nano-technology; nano-formulation; food; drug administration.

1. INTRODUCTION

Cervical cancer is the second-highest prevalent cancerous cancer in women worldwide, and it poses a significant health risk to women. Cervical cancer is thought to be caused by a persistent infection with the high-risk human papillomavirus (HPV) [1,2]. The established etiology has aided

**Corresponding author: E-mail: bharatlal049@gmail.com;*

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue VI June 2022- Available at www.ijraset.com

Hand Gesture Recognizer with Alert Message Display and Vocalizer for People with Disabilities Using Deep Learning

Dr G. C. Bhanuprakash[1], Meghana Dinesh[2], Ishaka Fatnani[3], Nevethitha Prasad[4], Mansi M[5]
[1]*Professor And Head, Department Of Computer Science & Engineering, Sir M Visvesvaraya Institute Of Technology, Bengaluru, Karnataka, India.*
[2, 3, 4, 5]*Student, Department Of Computer Science & Engineering, Sir M Visvesvaraya Institute Of Technology, Bengaluru, Karnataka, India.*

Abstract: ***Communication is the basic medium by which we can interact and understand each other but unfortunately this process can prove to be difficult for the people with disabilities. This project is a small contribution to address this issue and help them communicate better. It uses the concept of neural networks in order to help the people with disabilities communicate better with just their hand gestures. The hand gesture recognizer and actuator system acts as an interface between computer and human using hand gestures. This project is a combination of gesture identification, classification and it displays the message pertaining to the gesture while simultaneously reading the message out loud. The user has to perform a particular gesture, the webcam captures this and identifies and recognizes it against a set of known gestures and displays and vocalizes the gesture. This is a very useful hands-free approach. There could be an emergency situation for them and in order to inform people around them, this system is an effective tool. The system has a set of samples to be trained against and then the trained model is tested against a set of test data.***

Keywords: Hand Gesture Detection, Neural Networks, Deep Learning, Alert, People with Disabilities.

I. INTRODUCTION

People with disabilities are an integral part of our society. With the advent of science and technology, efforts are being made to develop certain systems that allow accessibility. Hand gestures or sign languages have always been used by people with hearing and speech difficulties to communicate but it is not always easy to find someone who understands sign language and can translate it. Human-computer interaction system can be installed and used anywhere possible. Gestures are basically the physical action performed by a person to convey a message. Hand gesture is a technique of non-verbal communication for human beings.

Object detection is a computer technology related to computer vision and image processing that deals with detecting instances of semantic objects of a certain class (such as humans, buildings, or cars) in digital images and videos. Well-researched domains of object detection include face detection and Pedestrian Detection. This technology has applications in many areas of computer vision, including image retrieval and video surveillance. In recent times a lot of papers have been published that make use of CNN to build a hand gesture recognition system but there are a very few of them connecting the recognized hand gesture to perform useful tasks. Our motive through this project was not only to build a hand gesture recognizer but also an actuator to perform required tasks such as displaying of an alert message dedicated to that particular hand gesture and also vocalizing the message in order to grasp the attention of the people around them.

This project is a small contribution to addressing this issue and assisting people with disabilities in communicating more effectively. It employs the concept of neural networks to assist them in communicating short messages using only hand gestures. An interface between the computer and the user is provided by the hand gesture recognizer and actuator system. This project combines gesture recognition with message classification; based on the gesture, it displays and vocalises the appropriate message. The user must make a specific gesture that the webcam records, recognises against a database of recognised gestures, and then displays the message that goes with it. This hands-free technique is incredibly practical. A set of training samples are sent to the system, and the trained model is then tested using a set of test data. Once a suitable accuracy is achieved, the final step is making use of TensorFlow to load the model. Media Pipe is then used to recognize the gesture and feed it to the model. The webcam is then activated wherein the real time video is captured and the message corresponding to the gesture is displayed as well as vocalized.

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue VI June 2022- Available at www.ijraset.com

Comparison of Signature Forgery Detection Architectures

Teja E[1], N Arpith Mathew[1], Pragathi M[2]
[1]*Scholar,* [2]*Assistant Professor, Department Of Computer Science & Engineering,*
Sir M Visvesvaraya Institute Of Technology, Bengaluru, Karnataka, India.

Abstract: ***In today's society, we use signatures for many important documents like passports, driving licenses, bank cheques, etc. But signatures can be forged in multiple ways, which can create a number of problems, such as identity theft, hacking, fake identification, etc. To reduce these problems, our project is about developing a system for detecting whether a signature is forged or real from a dataset of signatures. For our project, we are developing an offline signature verification system. This system is based on CNN (Convolutional Neural Network) and SNN (Siamese Neural Network). In this project, we will be comparing both CNN's and SNN's to find which produces a better result. We are implementing the project using a custom CNN, a CNN with VGG16 architecture, a custom SNN and a SNN using the SigNet architecture.***
Keywords: CNN, SNN, VGG16, SigNet, Signature, Verification.

I. INTRODUCTION

A signature is a distinct form of a person's name that represents the said person. A signature acts as a form of identification for a person. It is a critical means of identification as it is used in many things such as legal documents, identification cards, and cheques, etc. Since signatures are used widely, there are many malicious actors trying to forge signatures for some personal gain. Handwritten signatures are one of the most important forms of biometric authorization that is used universally to authorize and verify documents. Therefore, sophisticated signature verification methods are necessary. Online signature verification methods extract features and record the trajectory and variations in the signature while it is being performed. They record features with time and compare them to a database containing the signature sample. It usually yields very high accuracy in identifying forged signatures. Offline signature verification methods use feature extraction and check for discrepancies in the signature. It is less accurate than online verification methods. We are implementing offline signature verification methods using CNN (Convolutional Neural Network) and SNN (Siamese Neural Network) models. A Convolutional neural network (CNN) is a neural network that has convolutional layers and is used mainly for image processing, classification, segmentation, and other auto-correlated data. Siamese networks are used when performing verification, identification, and recognition tasks, with the most popular examples being face recognition and signature verification. Hence, we are comparing the accuracy produced by a custom CNN, a CNN based on VGG16, which is trained on the ImageNet dataset using transfer learning, and a SNN that implements the SigNet Architecture, and hence we proposed an SNN implementation with fewer parameters and faster training time.

II. LITERATURE REVIEW

A. HANDWRITTEN SIGNATURES FORGERY DETECTION - Kshitij Swapnil Jain, Udit Amit Patel, Rushab Kheni

Kshitij Swapnil Jain, et al. (2021) have defined the objective of their research to verify if a signature is original or forged, while understanding the characteristics of the signatures and implementing a system to detect if the signature is forged. Due to the many variations in handwriting styles and the professionalism of forgers, even highly skilled experts cannot achieve a high degree of accuracy in the detection of forged signatures. An automatic recognition system can be significantly more effective in verifying signatures with high accuracy and differentiating between a genuine and a forged signature. In the proposed method, a CNN is used as a feature extractor and classifier. The feature extractor extracts features from the input data via convolution filtering and down sampling. The research was carried out under the assumption that upon training a CNN classifier for forged and genuine signatures, the trained CNN should be capable of distinguishing behavioral characteristics, such as delays and hesitation in the signature with the extracted features. Deep networks will pose a problem for this implementation as the gradient decreases exponentially and reaches zero as the backpropagation continues from the final to the first layer. Hence, a ResNet is used since it can skip a few connections and prevent the gradient from falling to an insignificant value. The proposed methodology increases the efficiency and accuracy of forgery detection.

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue VII July 2022- Available at www.ijraset.com

To Develop an Efficient Critical Vehicle Seamless Movement Technique using AI and ML Methods

Prof. Dr. Soumya Patil[1], Sujith N E[2], Yalamanchili Sai Gokul[3]
[1]*Guide,* [2,3]*Student, Department Of Computer Science & Engineering, Sir M Visvesvaraya Institute Technology, Bengaluru, Karnataka, India.*

Abstract: ***Traffic congestion is becoming one of the critical issues by posing significant hurdles to critical vehicles, to nature by posing significant pollution. Not only can traffic congestion delay the movement of essential vehicles, but it can also extend travel times, contribute to driver stress, and increase fuel consumption and pollution. Megacities struggle the most from traffic congestion, despite the fact that they seem to be everywhere. Because of this, real-time road traffic density calculations are necessary for better signal control and traffic management. The traffic controller is one of the key elements influencing traffic flow. Therefore, in order to better fulfil this expanding demand, traffic control needs to be improved. Our system's objective is to use real-time traffic junction camera photos to compute traffic density using AI and image processing. It also focuses on the algorithm for changing traffic signals based on the movement of essential vehicles and vehicle density to reduce congestion, speed up the movement of essential vehicles and reduce pollution.***

Keywords: Traffic control, Traffic light system, Traffic management, Intelligent transport systems, Smart surveillance, Computer Vision, Machine Learning, Object detection, YOLO.

I. INTRODUCTION

One of the many problems the globe is experiencing as a result of population growth and the quick increase in vehicles is traffic congestion. The rate of road construction is only one-third that of vehicle growth in nations like India. Statistics show that the current annual growth rate of autos is above 11%, whereas the annual expansion rate of roads is just approximately 4%. The consequences of increased traffic congestion are numerous. Congestion stifles economic progress by delaying services, wasting fuel, and harming the environment. According to studies, traffic congestion wastes 2.5 lakh liters of non-renewable fuel in a single day. This can not only slow the flow of vehicles, but also obstruct the movement of emergency vehicles. Traditional traffic signals make it challenging for an emergency vehicle to pass through a signal. Since every second is as valuable as a life, emergency vehicles are crucial for saving lives. Delays in the emergency firemen services in an emergency situation have resulted in several lives and properties being lost. By creating an intelligent automated system that is integrated with a traffic control system and recognises and prioritises emergency vehicles, we can resolve these problems. We must develop a system that can identify cars and categorise them as either emergency or non-emergency vehicles. In this study, the problem is solved by using CCTV footage of the traffic junction to find the emergency vehicle. Images are captured by a CCTV camera at regular intervals. After discovering each automotive, they classified it as either an emergency vehicle or a regular vehicle. Our initiative focuses on the detrimental effects that traffic congestion has on the transportation system for emergency vehicles. Critical vehicles have a tough time navigating through traffic in places like India, where the road width and length make it hard to build a dedicated lane for emergency vehicles.

II. LITERATURE SURVEY

A. Arduino-UNO based traffic control system

Vogel, I. Oremović, R. Šimić and E. Ivanjko proposes an Arduino-UNO based system that aims to reduce traffic congestion and waiting time. Through the camera, this system captures photos, which are then processed in MATLAB to remove saturation and colours and transform the image to a threshold image from which the traffic density is estimated. The simulation packages are preconfigured, and USB is used to connect MATLAB and Arduino. The Arduino determines each lane's green light time based on traffic volume and density. But there are a number of problems with this approach. It is challenging to accurately count the number of vehicles on the road since the cars frequently overlap. Additionally, diverse things hampered detection because they were also turned to black and white, making it unable to distinguish between common objects like billboards, poles, and trees with vehicles. Vehicle Detection using Image Processing. Kanungo, A. Sharma and C. Singla, makes use of a support vector machine algorithm along with image processing techniques. From live video. images in small frames are captured and the algorithm is applied. Small frames of photos are taken, and the algorithm is then used. OpenCV is used for image processing, and before SVM is used, the images are transformed to grayscale. This device may identify red light violations in addition to traffic density.

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue VI June 2022- Available at www.ijraset.com

Comparison of Signature Forgery Detection Architectures

Teja E[1], N Arpith Mathew[1], Pragathi M[2]
[1]*Scholar,* [2]*Assistant Professor, Department Of Computer Science & Engineering,*
Sir M Visvesvaraya Institute Of Technology, Bengaluru, Karnataka, India.

Abstract: ***In today's society, we use signatures for many important documents like passports, driving licenses, bank cheques, etc. But signatures can be forged in multiple ways, which can create a number of problems, such as identity theft, hacking, fake identification, etc. To reduce these problems, our project is about developing a system for detecting whether a signature is forged or real from a dataset of signatures. For our project, we are developing an offline signature verification system. This system is based on CNN (Convolutional Neural Network) and SNN (Siamese Neural Network). In this project, we will be comparing both CNN's and SNN's to find which produces a better result. We are implementing the project using a custom CNN, a CNN with VGG16 architecture, a custom SNN and a SNN using the SigNet architecture.***
Keywords: CNN, SNN, VGG16, SigNet, Signature, Verification.

I. INTRODUCTION

A signature is a distinct form of a person's name that represents the said person. A signature acts as a form of identification for a person. It is a critical means of identification as it is used in many things such as legal documents, identification cards, and cheques, etc. Since signatures are used widely, there are many malicious actors trying to forge signatures for some personal gain. Handwritten signatures are one of the most important forms of biometric authorization that is used universally to authorize and verify documents. Therefore, sophisticated signature verification methods are necessary. Online signature verification methods extract features and record the trajectory and variations in the signature while it is being performed. They record features with time and compare them to a database containing the signature sample. It usually yields very high accuracy in identifying forged signatures. Offline signature verification methods use feature extraction and check for discrepancies in the signature. It is less accurate than online verification methods. We are implementing offline signature verification methods using CNN (Convolutional Neural Network) and SNN (Siamese Neural Network) models. A Convolutional neural network (CNN) is a neural network that has convolutional layers and is used mainly for image processing, classification, segmentation, and other auto-correlated data. Siamese networks are used when performing verification, identification, and recognition tasks, with the most popular examples being face recognition and signature verification. Hence, we are comparing the accuracy produced by a custom CNN, a CNN based on VGG16, which is trained on the ImageNet dataset using transfer learning, and a SNN that implements the SigNet Architecture, and hence we proposed an SNN implementation with fewer parameters and faster training time.

II. LITERATURE REVIEW

A. HANDWRITTEN SIGNATURES FORGERY DETECTION - Kshitij Swapnil Jain, Udit Amit Patel, Rushab Kheni

Kshitij Swapnil Jain, et al. (2021) have defined the objective of their research to verify if a signature is original or forged, while understanding the characteristics of the signatures and implementing a system to detect if the signature is forged. Due to the many variations in handwriting styles and the professionalism of forgers, even highly skilled experts cannot achieve a high degree of accuracy in the detection of forged signatures. An automatic recognition system can be significantly more effective in verifying signatures with high accuracy and differentiating between a genuine and a forged signature. In the proposed method, a CNN is used as a feature extractor and classifier. The feature extractor extracts features from the input data via convolution filtering and down sampling. The research was carried out under the assumption that upon training a CNN classifier for forged and genuine signatures, the trained CNN should be capable of distinguishing behavioral characteristics, such as delays and hesitation in the signature with the extracted features. Deep networks will pose a problem for this implementation as the gradient decreases exponentially and reaches zero as the backpropagation continues from the final to the first layer. Hence, a ResNet is used since it can skip a few connections and prevent the gradient from falling to an insignificant value. The proposed methodology increases the efficiency and accuracy of forgery detection.

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue VI June 2022- Available at www.ijraset.com

Hand Gesture Recognizer with Alert Message Display and Vocalizer for People with Disabilities Using Deep Learning

Dr G. C. Bhanuprakash[1], Meghana Dinesh[2], Ishaka Fatnani[3], Nevethitha Prasad[4], Mansi M[5]
[1]*Professor And Head, Department Of Computer Science & Engineering, Sir M Visvesvaraya Institute Of Technology, Bengaluru, Karnataka, India.*
[2, 3, 4, 5]*Student, Department Of Computer Science & Engineering, Sir M Visvesvaraya Institute Of Technology, Bengaluru, Karnataka, India.*

Abstract: ***Communication is the basic medium by which we can interact and understand each other but unfortunately this process can prove to be difficult for the people with disabilities. This project is a small contribution to address this issue and help them communicate better. It uses the concept of neural networks in order to help the people with disabilities communicate better with just their hand gestures. The hand gesture recognizer and actuator system acts as an interface between computer and human using hand gestures. This project is a combination of gesture identification, classification and it displays the message pertaining to the gesture while simultaneously reading the message out loud. The user has to perform a particular gesture, the webcam captures this and identifies and recognizes it against a set of known gestures and displays and vocalizes the gesture. This is a very useful hands-free approach. There could be an emergency situation for them and in order to inform people around them, this system is an effective tool. The system has a set of samples to be trained against and then the trained model is tested against a set of test data.***

Keywords: Hand Gesture Detection, Neural Networks, Deep Learning, Alert, People with Disabilities.

I. INTRODUCTION

People with disabilities are an integral part of our society. With the advent of science and technology, efforts are being made to develop certain systems that allow accessibility. Hand gestures or sign languages have always been used by people with hearing and speech difficulties to communicate but it is not always easy to find someone who understands sign language and can translate it. Human-computer interaction system can be installed and used anywhere possible. Gestures are basically the physical action performed by a person to convey a message. Hand gesture is a technique of non-verbal communication for human beings.

Object detection is a computer technology related to computer vision and image processing that deals with detecting instances of semantic objects of a certain class (such as humans, buildings, or cars) in digital images and videos. Well-researched domains of object detection include face detection and Pedestrian Detection. This technology has applications in many areas of computer vision, including image retrieval and video surveillance. In recent times a lot of papers have been published that make use of CNN to build a hand gesture recognition system but there are a very few of them connecting the recognized hand gesture to perform useful tasks. Our motive through this project was not only to build a hand gesture recognizer but also an actuator to perform required tasks such as displaying of an alert message dedicated to that particular hand gesture and also vocalizing the message in order to grasp the attention of the people around them.

This project is a small contribution to addressing this issue and assisting people with disabilities in communicating more effectively. It employs the concept of neural networks to assist them in communicating short messages using only hand gestures. An interface between the computer and the user is provided by the hand gesture recognizer and actuator system. This project combines gesture recognition with message classification; based on the gesture, it displays and vocalises the appropriate message. The user must make a specific gesture that the webcam records, recognises against a database of recognised gestures, and then displays the message that goes with it. This hands-free technique is incredibly practical. A set of training samples are sent to the system, and the trained model is then tested using a set of test data. Once a suitable accuracy is achieved, the final step is making use of TensorFlow to load the model. Media Pipe is then used to recognize the gesture and feed it to the model. The webcam is then activated wherein the real time video is captured and the message corresponding to the gesture is displayed as well as vocalized.

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue VII July 2022- Available at www.ijraset.com

To Develop an Efficient Critical Vehicle Seamless Movement Technique using AI and ML Methods

Prof. Dr. Soumya Patil[1], Sujith N E[2], Yalamanchili Sai Gokul[3]
[1]*Guide,* [2,3]*Student, Department Of Computer Science & Engineering, Sir M Visvesvaraya Institute Technology, Bengaluru, Karnataka, India.*

Abstract: ***Traffic congestion is becoming one of the critical issues by posing significant hurdles to critical vehicles, to nature by posing significant pollution. Not only can traffic congestion delay the movement of essential vehicles, but it can also extend travel times, contribute to driver stress, and increase fuel consumption and pollution. Megacities struggle the most from traffic congestion, despite the fact that they seem to be everywhere. Because of this, real-time road traffic density calculations are necessary for better signal control and traffic management. The traffic controller is one of the key elements influencing traffic flow. Therefore, in order to better fulfil this expanding demand, traffic control needs to be improved. Our system's objective is to use real-time traffic junction camera photos to compute traffic density using AI and image processing. It also focuses on the algorithm for changing traffic signals based on the movement of essential vehicles and vehicle density to reduce congestion, speed up the movement of essential vehicles and reduce pollution.***

Keywords: Traffic control, Traffic light system, Traffic management, Intelligent transport systems, Smart surveillance, Computer Vision, Machine Learning, Object detection, YOLO.

I. INTRODUCTION

One of the many problems the globe is experiencing as a result of population growth and the quick increase in vehicles is traffic congestion. The rate of road construction is only one-third that of vehicle growth in nations like India. Statistics show that the current annual growth rate of autos is above 11%, whereas the annual expansion rate of roads is just approximately 4%. The consequences of increased traffic congestion are numerous. Congestion stifles economic progress by delaying services, wasting fuel, and harming the environment. According to studies, traffic congestion wastes 2.5 lakh liters of non-renewable fuel in a single day. This can not only slow the flow of vehicles, but also obstruct the movement of emergency vehicles. Traditional traffic signals make it challenging for an emergency vehicle to pass through a signal. Since every second is as valuable as a life, emergency vehicles are crucial for saving lives. Delays in the emergency firemen services in an emergency situation have resulted in several lives and properties being lost. By creating an intelligent automated system that is integrated with a traffic control system and recognises and prioritises emergency vehicles, we can resolve these problems. We must develop a system that can identify cars and categorise them as either emergency or non-emergency vehicles. In this study, the problem is solved by using CCTV footage of the traffic junction to find the emergency vehicle. Images are captured by a CCTV camera at regular intervals. After discovering each automotive, they classified it as either an emergency vehicle or a regular vehicle. Our initiative focuses on the detrimental effects that traffic congestion has on the transportation system for emergency vehicles. Critical vehicles have a tough time navigating through traffic in places like India, where the road width and length make it hard to build a dedicated lane for emergency vehicles.

II. LITERATURE SURVEY

A. Arduino-UNO based traffic control system

Vogel, I. Oremović, R. Šimić and E. Ivanjko proposes an Arduino-UNO based system that aims to reduce traffic congestion and waiting time. Through the camera, this system captures photos, which are then processed in MATLAB to remove saturation and colours and transform the image to a threshold image from which the traffic density is estimated. The simulation packages are preconfigured, and USB is used to connect MATLAB and Arduino. The Arduino determines each lane's green light time based on traffic volume and density. But there are a number of problems with this approach. It is challenging to accurately count the number of vehicles on the road since the cars frequently overlap. Additionally, diverse things hampered detection because they were also turned to black and white, making it unable to distinguish between common objects like billboards, poles, and trees with vehicles. Vehicle Detection using Image Processing. Kanungo, A. Sharma and C. Singla, makes use of a support vector machine algorithm along with image processing techniques. From live video. images in small frames are captured and the algorithm is applied. Small frames of photos are taken, and the algorithm is then used. OpenCV is used for image processing, and before SVM is used, the images are transformed to grayscale. This device may identify red light violations in addition to traffic density.

Soldier Tracking and Health Monitoring System

Naveen I G[1*], Apoorv Ranjan[2], Ayush Dubey[3], Binit Kumar Jha[4], Gyan prakash[5]

[1] *Department of ECE Sir M. Visvesvaraya Institute Of Technology Bengaluru, India*

[2] *Department of ECE Sir M. Visvesvaraya Institute Of Technology Bengaluru, India*

[3] *Department of ECE Sir M. Visvesvaraya Institute Of Technology Bengaluru, India*

[4] *Department of ECE Sir M. Visvesvaraya Institute Of Technology Bengaluru, India*

[5] *Department of ECE Sir M. Visvesvaraya Institute Of Technology Bengaluru, India*

SMART RATION CARD AND RATION DISTRIBUTION SYSTEM USING RFID CARD AND IOT

Naveen I G N[1], Devaraju V N[2], Guruprasad G N[3], Lokesh Reddy N[4], Theerthesha N H N[5],
1, Professor, Department of Electronics and Communication, Sir MVIT, Bangalore, Karnataka, India
2,3,4,5 Student, Department of Electronics and Communication, Sir MVIT, Bangalore, Karnataka, India

Abstract – In this paper, we proposed a smart IOT based automated public ration dispensing system that overcomes the major challenges present in the existing Public Distribution System (PDS) which are irregular measurement of goods, erroneous entries in the stock register of center containing incorrect stock information of the commodities that are delivered to the consumers, this results in inaccurate distribution of the goods to the beneficiary. We overcome those drawbacks by incorporating smart measuring automated electronic device which authenticate user, measures the goods accurately, updates it in data base periodically about the availability of goods, and thereby digitizing the dispense tracking, which improves the transparency of the PDS.

Keywords- Microcontroller-ARM, GSM module, Automation, Digitization, Database management, RFID reader, LCD Display

1. INTRODUCTION

The Public distribution system is a one of the important part of government's policy for management of food in the country , The present public ration distribution system has so many disadvantages like low processing speed , material theft and they giving less quantity , large waiting time , The Number of BPL family's (poverty family) Depend up on the government ration distribution system , As we know about public distribution system is everywhere corrupted Due to Poor people's not able to raise the voice against the system , that's why we are introduced Digitalized smart ration card It will help to avoid corruption around 70% TO 80% in the Public Ration distribution system

The objective of this project is replacing the RFID smart ration cards instead of normal ration cards ,The smart ration card is one of Advance Technology and its novel approach out in the PDS valuable for more effective , The distribution of ration method is precise and mechanized .The RFID smart ration card containing the details all about the customer and it will notify by the massage before taking a ration and after taking a ration this process will help to increases awareness to the people and they will easily understood how much stock is contained in the ration distribution shops .

2. OBJECTIVES

The objective of the project is to automate the task of distribution of items efficiently. The project is aimed to stop corruption and discrepancies created in distribution shops. Here the system must perform the following: Validate the Smart Ration Card of the beneficiaries; Avoiding irregularities in distribution of grains; SMS notification on the mobiles of the beneficiaries; Stock maintenance in the distribution center

3. PROBLEM STATEMENT

There is a lack of transparency between the dealer and consumer. Public ration distribution system faces challenges like leakage and diversion of food-grains, inclusion/exclusion errors; fake and bogus ration card; lack of transparency; week grievance redressal and social audit mechanism viability of fair price shops etc.…

International Journal of Innovative Research in Science, Engineering and Technology (IJIRSET)

| e-ISSN: 2319-8753, p-ISSN: 2347-6710| www.ijirset.com | Impact Factor: 7.569|

|| Volume 11, Issue 1, January 2022 ||

| DOI:10.15680/IJIRSET.2022.1101119 |

Activity Resolver with Provisioning Automation

Vasantha S[1], Raghavendra Rao B G[2], Maithri K P[3]

Assistant Professor, Department of Computer Applications, Sir MVIT, Bangalore, Karnataka, India[1]

Assistant Professor, Department of Computer Applications, Sir MVIT, Bangalore, Karnataka, India[2]

PG Student, Department of Computer Applications, Sir MVIT, Bangalore, Karnataka, India[3]

ABSTRACT: Business intelligence and separation technique for managing privileged deferential process based on different types of projects can be acknowledged with the help of the system. Multiple undertakings of the clients can be organized at the same time where most of the activities will be based on automation. Make the working flexible separation technique will be used so that each and every identity can be recognized individually and the activities will be promote it with different types of eventual regulations. The considerations of the triggered activity will help Global extension for the organizations and better behavioral communication can be achieved which will be helpful to make an identity.

KEYWORDS: Intelligence, Automation, Activity, Collaborative phenomena

I. INTRODUCTION

The abstraction of different types of business intelligence is quite important for the organizations as they can perform the Global task in more efficient way so the system is being designed to provide multiple types of intelligent considerations and Automations. Various types of subjects are acknowledged when the system is being designed so that multi consideration activities can be directly managed from a single console. The system can be optimized with the help of multiple alert and trigger mechanism so that the flexibility in reference to manage multiple operations can be properly obtained. System is being designed for the larger organizations those who required to deal with various types of client related operations with Global consideration.

The system provides multiple types of identity associations which will be helpful to get the working done properly from a central reference and this includes various types of clients and employee. The structure permissions which are needed for the users to be maintained will be provided and the system is also divided into multiple types of paintings so that individual reference of the identities those were supposed to be added can be maintained. The system provides detailed structuring of the permission, preferences, signatures, profiling and other notification references which has to be individually setup. Multiple types of categories can also be associated within the system and can be controlled from a central console with the help of direct categorical status set up.

Multiple types of categories that are associated from a central console helps the organizations to manage multiple types of activities at the same time, add a particular category which will be associated for a particular type of activity for example escalations. Multiple types of subjects related to a particular category can also be added so that at the same time multiple types of users can be structured and parallel working can be encouraged. System includes article knowledge base which will be helpful to promote self-knowledge. With the help of this option multiple types of pants and designing can be acknowledged by the authenticated user in the real-time based on the category or the type of activity that is being assigned to particular user related content can be referenced.

II. LITERATURE REVIEW

In the existing system it has been acknowledged that multiple types of Logistic support to handle multiple clients worldwide are required as the companies will be managing multiple types of business domains. In the existing system it has been also acknowledged that problems based on automation and business intelligence is been acknowledged. Multiple types of operational task which are related with different scenarios are required to be handled with individual

SJIF Impact Factor 2022: 8.197| ISI I.F. Value:1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 7 | Issue: 5 | May 2022 - Peer Reviewed Journal

DATA MINING TECHNIQUE TO FIND LOW-COST GROCERIES

Amrutha B[*1], Muthuramalingam B[*2]
[*1]*Dept. of MCA, Sir M Visvesvaraya Institute of Technology, Bengaluru, India.*
[*2]*Dept. of MCA, Faculty of MCA, Sir M Visvesvaraya Institute of Technology, Bengaluru, India.*

ABSTRACT

An e-store, internet shop, web shop, online store, or virtual store is the physical equivalent of purchasing goods or services from a real business or shopping center. This is known as business-to-consumer (B2C) online shopping. The shopping cart project must design a shopping cart system to organize product data and other consumer information. When a customer adds a product to their cart, the algorithm compares data from other stores to find low-cost alternatives. Sentimental analysis is used to determine the pricing of the items in the cart. It compares the prices of each product across different stores and delivers a result that allows you to acquire everything for a low price. The data is evaluated using the Naive Bayes classifier, which looks at each product in the dataset and assesses if it is being purchased at a low cost.

KEYWORDS: *Naive Bayes classifier, Sentimental analysis, Low-cost prediction.*

I. INTRODUCTION

Online grocery shopping has greatly increased in recent years. In the current system, we can purchase products from a variety of sellers, such as e-bay, Amazon, and Flipkart, which are all associated marketing websites. Customers can purchase merchandise from a variety of vendors. However, there is no effective suggestion system in place to locate a low-cost product in the current system. Everyone wants to get a good deal on a product. People want to save money therefore they can't check each store to see what things are available at a low price. The primary goal of online grocery is to create and develop new models, as well as to optimize relationships between grocery stores and their customers. Changing from supermarket to online grocery shopping can increase the productivity of an online grocery retailer by shortening supply chains, lowering overhead costs, and enabling "just in time" service. Most grocery store chains provide online shopping with free in-store pick up, and a few even provide home delivery for free. In this study, the developers create an online grocery system that will reduce the customer's effort and time spent wandering around, as well as the proposed system will be used to identify the product that can be brought for a low cost.

The project is being designed to eliminate a time-consuming and inconvenient system in which customers must go to a store or shop and select products at a lower price in a neighboring store. This approach is more cost-effective and saves a lot of money for the user. The program evaluates the prices of various things in various stores and determines the store where all of the items are available for a lower price.

To locate a low-cost grocery store, sentimental analysis is being applied. This research is based on a dataset that includes all of the stores in the area. The Naive Bayes classifier algorithm is used to evaluate the product's low cost. This analyses each product in the various shops and provides an accurate result indicating which store has the product with the lowest cost.

II. METHODOLOGY

A. SENTIMENTAL ANALYSIS

Sentiment analysis is textual mining that discovers and extracts subjective information from the source material, allowing an organization to understand the social sentiment of its brand, product, or service while monitoring online conversations. In this designed system the analysis is made on the set of stores. With the sentimental analysis, the nearest available store which contains the grocery can be found.

B. NAIVE BAYES CLASSIFIER

The Bayes theorem encompasses the Naive Bayes classification technique. It is one of the most basic supervised learning algorithms. The Naive Bayes classifier algorithm is fast, accurate, and consistent. On large datasets, Naive Bayes classifiers perform well in terms of accuracy and speed.

The Naive Bayes classifier is based on the assumption that the effect of one feature in a class is independent of the effects of other features. The Naive Bayes classifier calculates the probability of an event in the following steps:

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:04/Issue:05/May-2022 Impact Factor- 6.752 www.irjmets.com

EFFECTIVE FILE SHARING WITH TWO FACTOR AUTHENTICATION FOR WEB-BASED CLOUD COMPUTING SERVICES

Prem Sagar M Y*1, Muthuramalingam B*2

*1Dept. Of MCA, Sir M Visvesvaraya Institute Of Technology, Bengaluru, India.

*2Dept. Of MCA, Faculty Of MCA, Sir M Visvesvaraya Institute Of Technology, Bengaluru, India.

ABSTRACT

A new Secure and Effective File Sharing with two factor Authentication for web-based cloud computing services. In this paper, it has two factor authentication such as both secret key and trustee acceptance certificate as a user cannot access the system if they do not hold both, the mechanism can enhance the safety of the system, especially in those scenarios where many users share an equivalent computer for web-based cloud services. Here we are adding cloud to upload the encrypted files for security, i.e., the cloud server only knows that the user fulfills the required predicate but has no idea on the exact identity of the user. Finally, we also perform a simulation to demonstrate the practicality of our proposed 2FA system.

Keywords: SEM (Security Mediator), Hashing And Exponentiation, Secret Key And Trustee Issued Certificate.

I. INTRODUCTION

Cloud computing may be a virtual host computing system that permits enterprises to shop for, lease, sell, or distribute software and other digital resources over the web as an on-demand service. It does not depend on a server or variety of machines that physically exist, because it may be a virtual system. There are many applications of cloud computing, like data sharing data storage, big data management medical data system etc. The benefits of web-based cloud computing services are huge, which include the ease of accessibility, reduced costs and capital expenditures, increased operational efficiencies, scalability, flexibility and immediate time to market. This paper concerning of both privacy and security for web-based cloud services. As sensitive data could also be stored within the cloud for sharing purpose or convenient access; and eligible users can also access the cloud system for various applications and services, user authentication has become a critical component for any cloud system. A user is required to login before using the cloud services or accessing the sensitive data stored within the cloud. There are two problems for the normal account/password-based system. First, the normal account/password-based authentication isn't privacy-preserving. However, it is well acknowledged that privacy is an essential feature and that must be considered here in the cloud computing systems. Second, it's common to share a computer among different people. There may be changed to hack the login password using some spyware. A recently proposed access control model called attribute-based access control may be a good candidate to tackle the primary problem. It not only provides anonymous authentication but also further defines access control policies based on different attributes of the requester, environment, or the data object. In an attribute-based access control system, each user features a user secret key issued by the authority. In practice, the user secret key's stored inside the private computer. When we consider the above mentioned second problem on web-based services, it is common that computers may be shared by many users especially in some large enterprises or organizations. For example, let us consider the following two scenarios: • In a hospital, computers are shared by different staff. Dr. Henry uses the computer in room A when she is on duty in the daytime, while Dr. Mark uses the same computer in the same room when he is on duty at night. • during a university, computers within the undergraduate lab are usually shared by different students. In these cases, user secret keys might be easily stolen or employed by an unauthorized party. Even though the pc could also be locked by a password, it can still be possibly guessed or stolen by undetected malwares. A safer way is to use two-factor authentication (2FA). 2FA is used for web-based e-banking services. In addition to a username/password, the user is also required to have a device to display a onetime password. Some systems may require the user to possess a mobile while the one-time password is going to be sent to the mobile through SMS during the login process. By using 2FA, users will have more confidence to use shared computers to login for web-based e-banking services. For an equivalent reason, it'll be better to possess a 2FA system for users within the web-based cloud services to extend the safety level within the system.

Effective and Protected Software Access Authentication System

R Latha
Dept of Master of Computer Applications
Sir M Visvesvaraya Institute of Technology
Bengaluru, India

Md. Faizan Ansari
Dept of Master of Computer Applications
Sir M Visvesvaraya Institute of Technology
Bengaluru, India

Abstract— **In the associations, the information must be kept up with in the got way whatever records or programming's assuming they keeping up with from their own motivation that ought to be more gotten so the information won't get spilled to other people. Since the interest of developing the innovation level is extremely high on the planet. Thus, it ought to be more classified and whenever accessibility. In any case, the ventures had been expecting to further develop the improvement side programming items ought to get safeguard from the programmers. Aside from this the step by step hacking process is going on in the associations. They need upgrade the capacity of the product improvement by the creativity level cycle must be superior in the worldwide standard methodologies. In this undertaking, discussed about a security level of emotionally supportive network cycle to upgrade the method for assisting with doing safer programming. Other than that, it will give the sub handling mode in it. Thus, to know we really want to give programming to appropriate register specialist from the organization who are completely joined as new and the administrator module of this page could keep up with the subtleties of the specialist from their place itself likewise they could relegate the legitimate programming to them who can access and who can't get to, every one of the freedoms the administrator page is holding it.**

Keywords— Information Security; Security Engineering; Software Security; Process to Support Software Security.

I. INTRODUCTION

A. Problem Statement

In the current frameworks, there is no security for the product download in all the organization [2]. So in this application a rundown of programming to be download for the representative since all the organization has some rundown of programming must be downloaded if not the worker will introduce a portion of the undesirable programming and the whole framework will be get harmed.[5][7] Before there is no limitation for the product to be downloaded in the organization and everybody can ready to download the product without the authorization of the administrator and there could be no legitimate observing of the worker framework so there might be chance of downloading the malware programming and they can ready to hack every one of the subtleties from the organization.

B. Objective

The fundamental target of this task is to expanding reliance on programming framework to prompt significant positions done suggests that product's worth now not lies completely in that frame of mind to support or support efficiency and power. All things being equal, its worth also gets from its capacity to go on in activity reliably even inside the essence of occasions that compromise it,[3][4] the adaptability to believe that product framework can remain trustworthy beneath all conditions, with an even degree of certainty, is that the target of programming framework affirmation.

C. Description of the Project

[5]In the association, the information must be kept up with in the got way whatever records or programming assuming they keeping up with from their own motivation that ought to be more gotten. With the goal that the information won't get spilled to other people. Since the interest of developing the innovation level is exceptionally high on the planet. Along these lines, it ought to be more secret and whenever accessibility. [1]In any case, the speculations had been expecting to further develop the improvement side programming items ought to get safeguard from the programmers. Aside from this, the step by step hacking process is going on in the associations. In this task, experimented a security level of emotionally supportive network cycle to improve the method for assisting us with doing safer programming.

II. LITERATURE SURVEY

A. Existing System

The majority of the product, still they are broadly will make their work by utilizing the old techniques and it isn't protected and there might be chance of information spillage and missing of information. So there was no security and productivity in the old strategy.

[7][8]The product needs to keep up with such a lot of records and records and once in a while the reports get network up and utilizing the document system is undeniably challenging. On the off chance that everything is computerized, it will be not difficult to get to. In the event that anybody has more number of clients, it will be tremendous work to keep up with their records.

The client is Mr. John whose office situated in the London so they remembered to keep up with the records in the conventional document configuration and they need to change into the automated application to make the application extremely simple to access for every one of the clients and they chose to make one application which will be valuable for all the product to expand their business.

[6][10]To mechanize every one of the works then they will get to the framework more simpler and every one of the exercises

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:04/Issue:05/May-2022 Impact Factor- 6.752 www.irjmets.com

A FRAMEWORK FOR BIOMEDICAL ENGINEERING APPLICATIONS THAT IS PATIENT-ORIENTED USING C-MEANS CLUSTERING WITH BIG DATA

Vishnu R.S*1, Latha R*2

*1Dept. Of MCA, Sir M Visvesvaraya Institute Of Technology, Bengaluru, India.

*2Dept. Of MCA, Faculty Of MCA, Sir M Visvesvaraya Institute Of Technology, Bengaluru, India.

ABSTRACT

Big data and machine learning have revolutionized healthcare research in recent years. Patients can now benefit even more from data from electronic health records (ehrs) and other clinical sources. Using big data analytics (bda) on healthcare data, it is possible to predict the outcome or effects of medications, as well as the risk of developing disease, on the human body. Several machine learning algorithms, such as clustering and classification, are used to analyze healthcare data. This paper proposes a c-means clustering-based system for biomedical engineering applications. The framework will help both professionals and patients. This framework can be used by a clinician to determine whether or not to prescribe a specific medicine to a patient. keywords: traffic signboards, convolutional neural network (cnn), the German traffic sign benchmarks dataset, voice alert.

I. INTRODUCTION

Prescription drug and pharmaceutical services are undergoing significant modifications. Analysts can predict not only whether or not disease would develop in the human body, but also the severity of the illness. They can utilize knowledge on social insurance to aid in their planning. Researchers are now equipped to recognize when cell damage or tumors may arise in the human body by using ai systems (clustering, etc.) In biological research (e.g., regression, classification, etc.). Drug when two or more medications are taken at the same time or in the same order, this is referred to as a combination medication. In terms of treatment and clinical outcomes, it has a very high level of consistency. Up to 82 Americans are expected to use one or more drugs, with 29 using multiple substances. Mixing several medications [1-5] Consider everything. The likelihood of side effects from medications is low. Combining numerous requirements broadens the range of alternatives. In general hazard

II. LITERATURE SURVEY

1)A Patient Oriented Framework using Big Data & C-means Clustering for Biomedical Engineering Applications.

Authors: Md Mahbub Mishu ,

In recent years, big data and machine learning have transformed healthcare research. Data from Electronic Health Records (EHRs) and other clinical sources can now be leveraged to aid patients even more. It is feasible to anticipate the outcome or effects of pharmaceuticals or the danger of developing disease on the human body by using Big Data Analytics (BDA) on healthcare data. To analyze healthcare data, several machine learning algorithms such as clustering and classification are applied. In this paper, a framework for Biomedical Engineering applications based on C-means Clustering is proposed. Both professionals and patients will benefit from the framework. A clinician, for example, can use this framework to decide whether or not to give a suitable medicine to a specific patient.

2) Magnetic Field Distribution and Application of a Transcranial Magnetic Stimulation for Drug Addicts

Authors: Yu Chang, Miao Song, Bin Gao, Ningning Chen, Ling Li, Hongxing Wang

This article introduces the property of magnetic field distribution and application of TMS developed by BJUT. The TMS generates time-varying magnetic field to stimulate the particular area in human brain. To obtain the distribution of magnetic density, we carried out survey by utilizing a Gauss meter, from three aspects: the distribution of magnetic density in axial direction, in radial direction and around the circle which hold the maximal magnetic density. Moreover, further experiment on heroin addicts is developed as an application of TMS. As a result of a course of treatment, the amplitude and latency of N270 generated by heroin addicts were decreased or shortened, and the brain function of heroin addicts changed as well. TMS, consequently, has effective therapy on heroin addicts.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:04/Issue:05/May-2022 Impact Factor- 6.752 www.irjmets.com

TOWARD PRACTICAL PRIVACY-PRESERVING FREQUENT ITEMSET MINING ON ENCRYPTED CLOUD DATA USING AES ALGORITHM

Vidyasagar*1, Mr. Raghavendra Rao BG*2

*1Dept. Of MCA, Sir M Visvesvaraya Institute Of Technology, Bengaluru, India.

*2Dept. Of MCA, Faculty Of MCA, Sir M Visvesvaraya Institute Of Technology, Bengaluru, India.

ABSTRACT

Frequent itemset mining, which is the essential operation in association rule mining, is one of the most widely used data mining techniques on massive datasets nowadays. With the dramatic increase on the scale of datasets collected and stored with cloud services in recent years, it is promising to carry this computation-intensive mining process in the cloud. Amount of work also transferred the approximate mining computation into the exact computation, where such methods not only improve the accuracy also aim to enhance the efficiency. However, while mining data stored on public clouds, it inevitably introduces privacy concerns on sensitive datasets.

In this paper, we propose a new framework for enforcing privacy in frequent itemset mining, where data are both collected and mined in an encrypted form in a public cloud service. We specifically design three secure frequent itemset mining protocols on top of this framework. To guarantee data privacy and computation efficiency, we adopt two different homomorphic encryption schemes and design a secure and effective comparison scheme. Our first protocol achieves more efficient mining performance while our second protocol provides a stronger privacy guarantee. In order to further optimize the performance of the second protocol, we leverage a minor trade-off of privacy to get our third protocol. Finally, we evaluate the performance of our protocols with extensive experiments, and the results demonstrate that our protocols obviously outperform previous solutions in performance with a similar security level.

I. INTRODUCTION

Cloud computing is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet). The name comes from the common use of a cloud-shaped symbol as an abstraction for the complex infrastructure it contains in system diagrams. Cloud computing entrusts remote services with a user's data, software and computation. Cloud computing consists of hardware and software resources made available on the Internet as managed third-party services. These services typically provide access to advanced software applications and high-end networks of server computers.

Cloud Computing comprises three different service models, namely Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), and Software-as-a-Service (SaaS). The three service models or layer are completed by an end user layer that encapsulates the end user perspective on cloud services. The model is shown in figure below. If a cloud user accesses services on the infrastructure layer, for instance, she can run her own applications on the resources of a cloud infrastructure and remain responsible for the support, maintenance, and security of these applications herself. If she accesses a service on the application layer, these tasks are normally taken care of by the cloud service provider.

II. LITERATURE SURVEY

1) Dynamic itemset counting and implication rules for market basket data

AUTHORS: S. Brin, R. Motwani, J. D. Ullman, and S. Tsur,

We consider the problem of analyzing market-basket data and present several important contributions. First, we present a new algorithm for finding large itemsets which uses fewer passes over the data than classic algorithms, and yet uses fewer candidate itemset than methods based on sampling. We investigate the idea of item reordering, which can improve the low-level efficiency of the algorithm. Second, we present a new way of generating "implication rules," which are normalized based on both the antecedent and the consequent and are truly implications (not simply a measure of co-occurrence), and we show how they produce more intuitive results than other methods. Finally, we show how different characteristics of real data, as opposed by synthetic data, can dramatically affect the performance of the system and the form of the results.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:04/Issue:06/June-2022 Impact Factor- 6.752 www.irjmets.com

ASSOCIATING VIRTUAL ENTERTAINMENT TO INTERNET BUSINESS

Sumana Basavaraja Arali*1, Vasantha S*2

*1Dept. Of MCA, PG Student, Sir M Visvesvaraya Institute Of Technology, Bengaluru, India.

*2Dept. Of MCA, Asst. Professor, Sir M Visvesvaraya Institute Of Technology, Bengaluru, India.

ABSTRACT

Recent trends have blurred the line between e-commerce and social networking. Several e-commerce websites support social login mechanisms that allow users to login with social network identities such as Facebook or Twitter. You can also embed links to the e-commerce product web pages into your microblog if you have just purchased something. A novel solution is proposed in this paper to recommend products from e-commerce websites to users at social networking sites in cold-start situations, an issue that has barely been explored before. In order to recommend cross-site cold-start products, social networking and information extraction knowledge must be leveraged. In our proposal, we propose using the users' social networking features as a bridge to provide product recommendations on e-commerce sites that have also made purchases on social networking sites. With a modified gradient boosting trees method, we will transform users' social networking features into user embeddings, using the data collected from e-commerce websites in order to learn both users' and products' feature representations. Our approach involves developing an approach that leverages the learned embeddings of users to provide cold-start product recommendations based on the feature-based matrix factorization. This framework has been demonstrated on a large dataset constructed from SINA WEIBO, the largest Chinese microblogging site, and JINGDONG, the most popular China B2C e-commerce website.

I. INTRODUCTION

Data mining software is one of a number of analytical tools for analysing data. It allows users to analyse data from. Many different dimensions or angles, categorize it, and summarize the relationships identified. Technically, data mining is the process of finding correlations or patterns among dozens of fields in large relational databases. While large-scale information technology has been evolving separate transaction and analytical systems, data mining provides the link between the two. Data mining software analyses relationships and patterns in stored transaction data based on open-ended user queries. Several types of analytical software are available: statistical, machine learning, and neural networks.

II. LITERATURE SURVEY

Most of existing e-commerce recommender systems aim to recommend the right product to a user, based on whether the user is likely to purchase or like a product. On the other hand, the effectiveness of recommendations also depends on the time of the recommendation This paper studies the new problem: how to recommend the right product at the right time? We adapt the proportional hazards modeling approach in survival analysis to the recommendation research field and propose a new opportunity model to explicitly incorporate time in an e-commerce recommender system.

Retail sales prediction and item recommendations using customer demographics at store level

This paper outlines a retail sales prediction and product recommendation system that was implemented for a chain of retail stores. The relative importance of consumer demographic characteristics for accurately modeling the sales of each customer type are derived and implemented in the model. Data consisted of daily sales information for 600 products at the store level, broken out over a set of non-overlapping customer types. A recommender system was built based on a fast online thin Singular Value Decomposition. A brief overview of how the primary methods discussed here were extended to a much larger data set is given to confirm and illustrate the scalability of this approach.

Amazon.com recommendations: Item-to-item collaborative filtering

AUTHORS: G. Linden, B. Smith, and J. York

Recommendation algorithms are best known for their use on e-commerce Web sites, where they use input about a customer's interests to generate a list of recommended items. Many applications use only the items that customers purchase and explicitly rate to represent their interests, but they can also use other attributes,

Soil Fertility and Yield Prediction of Coffee Plantation using Machine Learning Technique

Varshitha D. N and Savita Choudhary

Research Journal of Agricultural Sciences
An International Journal

P- ISSN: 0976-1675
E- ISSN: 2249-4538

Volume: 13
Issue: 02

Res. Jr. of Agril. Sci. (2022) 13: 514–518

CARAS

Feature extraction and genre-classification using customized kernel for Music information retrieval

Mr. Karthik V[a], Dr. Savita Choudhary[b]
[a]Assistant Professor, Department of Information Science and Engineering, Ramaiah Institute of Technology, Bengaluru, India
[b] Associate Professor, Department of Computer Science and Engineering,Sir M. Visvesvaraya Institute of Technology, Bengaluru, India

AbstractMusic feature extraction and genres form a natural way to consolidate audio and they share related rhythm and texture. We will be building a customizedfeature extraction genre classification model using customized kernel in support vector machine that will use features representing timbre, rhythmic and pitch analysis of the audio. We train various classifiers like k-Nearest neighbor, Support vector machine, Logistic Regression, Neural Network on the GTZAN dataset provided by MARYSAS. We are able to get good accuracy using Customized kernel and ensemble voting classifier and support vector machine on both 10-genre and 4-genre classification.
Keywords: Genreclassification, Support vector machine, feature extraction GTZAN dataset.

1. Introduction

With the advent of digital music, it has become very important to group music files for various tasks like search-retrieval and recommender systems. Manual annotation of such a huge dataset is an impossible task, and hence" Automatic Music Genre Classification" has been a widely studied research topic in the field of Multimedia Information Retrieval (MIR).Automated Music Genre Classification has been studied by numerous researchers and still remains a challenging topic in Music Information Retrieval (MIR) community due to the fuzzy nature of features and the ambiguity associated with human perception of genres. Ground breaking work in this field was performed by Tzanetakis, etc. al in [1], by using acoustic features through audio analysis done on a dataset consisting of 1000 audio files. This dataset, now provided by MARSYAS, has been widely used in approaching this problem. This work has also proposed various content-based features which we are using in our approach as well.

Materials and Methods

1. Dataset: The 1000 songs are considered for feature extraction, exploring and exploiting the different methods of audio data. The labeled data in the range of [-1,1] and sampling frequency average is considered as 4.2Hz.the work carried out with the dataset of GTZAN from MARSYAS audio data is distributed into several genres like hip hop, classical, pop, metal, rock, reggae, blues, disco, jazz and country. File length is 30seconds and 22050 Hz and it is 16-bit sample and used 67% for training and 33% for testing.

2. Music data processing for machine Learning: (i) Time domain features, (ii) Frequency domain features, (iii) Time-Frequency domain features. In Time domain features analog signals are edited and manipulated by computers. Analog digital conversion process sample and quantize the analog songs to get digital signals, once the digitized process is done next step is to do with framing and bundle together with a bunch of samples, for example frame1: sample1=128 frames are overlapped, and it is perceivable audio chunk 1 sample = 44.1khz = 0.0227ms, human can receive sound with 1 sample <10ms, duration of frame(df) = 1/sampling rate * total number of samples in frame. Sample rate is nothing but duration of single sample. 1/44100*512 = 11.6ms.

   Next step is to compute features then to aggregate using mean, median, Gaussian mixture model were we get feature value/vector/matrix and these are the snapshots for the complete duration of audio signals and pipeline include Figure 1.

Indonesian Journal of Electrical Engineering and Computer Science
Vol. 25, No. 3, March 2022, pp. 1688~1695
ISSN: 2502-4752, DOI: 10.11591/ijeecs.v25.i3.pp1688-1695

An artificial intelligence solution for crop recommendation

Varshitha D. N., Savita Choudhary
Department of Computer Science and Engineering, Sir M Visvesvaraya Institute of Technology, Bengaluru, India

Article Info

Article history:

Received Sep 20, 2021
Revised Dec 9, 2021
Accepted Jan 20, 2022

Keywords:

Deep learning
Deep neural network
Machine learning classifiers
NPK
Prediction

ABSTRACT

Agriculture is the major occupation in India. The development of India is in the hands of farmers. Farmers are said to be our nation's backbone, so there is a need to support our farmers technologically so that the difficulties of traditional agricultural practices would be overcome and also there will be positive impact on the yield, harvest, healthy crop output and the income of the farmers. Farmer needs awareness about his soil and the methods to improve his soil to grow the healthy crops. We propose an approach which involves deep learning and some IoT features to help our farmers. Soil parameters such as nitrogen, phosphorous, potassium (NPK), pH, organic carbon, moisture content and few more things are considered for predicting the fertility of the soil and also to predict the right crops to be grown and nutrition required for it. We have developed a deep neural network model to predict the crop which can be suitably grown in the soil. We have also implemented the other machine learning classifiers on the same collected dataset to test the accuracies of each classifier and our deep neural network model.

Corresponding Author:

Varshitha D. N.
Department of Computer Science and Engineering, Sir M Visvesvaraya Institute of Technolgy
Bengaluru, Karnataka, India
Email: varsha.swara@gmail.com

1. INTRODUCTION

Majority of rural India is still dependent on agriculture for the livelihood; also agriculture is the biggest sector of economy. Though India has revolutionized in the area of agriculture, still there is scope for improving the methods of agriculture and crop yield enhancement using more scientific and innovative approaches. A lot of researches happen in the area of agriculture every day. Farmers still resist to apply modern techniques for agriculture because of difficulty faced in getting adopted to new approaches [1], [2]. If the approaches are easily accessible with cost and time efficient methods, then the number of farmers switching to modern techniques from tradition way will be more. Agriculture is not only the main sector of economy, it also provides food to people and gives the raw materials to industries. The growing demand to provide food also encourages to improve the agricultural methodologies

A lot of farmers still need awareness about the soil to promote healthy crop growth and to increase the yield and income. Soil is the vital component of agriculture. Information regarding the soil like fertility, estimated yield, lacking components in the soil, the crops which can be grown from the soil and many more soil related things would be beneficial to all the farmers to choose the correct crops which can be grown in their land, farmer should know which crop's growth is facilitated and which are not so that unpredictable circumstances are avoided after sowing the seeds. If farmer grows the crops by considering his economic conditions, soil parameters and available facilities, it would turn into a boon for him in future as he can expect healthy crop growth, more yield and better income. So, if farmers are guided in this right direction using modern technologies, well-being of the farmers are assured and country's growth is also possible.

Original Article

Antiproliferative, Apoptosis-inducing activity and Molecular docking studies of Sydnones compounds

Syed Lidia Hossain, Manoj Mathews[3], Veerabhadra Swamy Bhyranalyar Nagarajappa[1], B. Kiran Kumar[2], Channabasa Veshwar Veerappa Yelamaggad [1], Rajendra Singh C

Department of Biotechnology, Sir M Visvesvaraya Institute of Technology, Bengaluru, [1]Centre for Nano and Soft Matter Sciences, Bengaluru, [2]Department of Biotechnology, S.E.A. College, Bengaluru, [3]Department of Chemistry, St. Joseph's College (Autonomous), Devagiri, Calicut, Kerala, India

For correspondence: Dr. Rajendra Singh C, Department of Biotechnology, Sir M Visvesvarya Institute of Technology, Via, Yelahanka, International Airport Road, Bengaluru - 562 157, Karnataka, India. E-mail: rajendrabiochem@gmail.com

ABSTRACT

Objective: To evaluate the antiproliferative and apoptosis inducing activity of different sydnones on cancer cell lines and their interaction with cancer proteins by molecular docking studies.

Material and Methods: Antiproliferative activity was carried out by MTT assay and apoptosis inducing activity was performed by DAPI and Annexin V and propidium iodide staining. Molecular docking studies were performed using AutoDock Tools 1.5.6. Pharmacokinetics properties like ADME and toxicity were analysed by pkCSM web server.

Result: In this study, four new sydnone compounds 3-(4-nonylbiphenyl-4'-yl) sydnone (MC-182), 3-(4-propylbiphenyl-4'-yl) sydnone (MC-454), 3-(4-hexylbiphenyl-4'-yl) sydnone (MC-433), and 3-(4-methylbiphenyl-4'-yl) sydnone (MC-431) were screened for antiproliferative and apoptotic effect against BT-474 (human breast cancer), HeLa (human cervical cancer) and Jurkat (human myeloid leukemia) Mostly, all the sydnone compounds exhibited decent antiproliferative effectiveness, but compound MC-431, MC-433, and MC-454 showed more antiproliferative activity (IC50 1.71, 10.09 and 2.87 μM against BT-474, Hela and Jurkat cell line, respectively). The changes of morphological characteristics of cancer cells determined by staining techniques indicate the apoptotic cell death. The molecular docking and interaction studies were carried out between sydnones with cancer proteins (epidermal growth factor domain receptor tyrosine kinase [EGF-TK], tumor necrosis factor-alpha [TNF-α] and Caspase3. Among all four sydnone molecules, two compounds MC-454 and MC-431 showed good binding energy with targeted proteins. Drug-like property was predicted by ADME toxicity study.

Conclusion: The results indicate sydnone compounds were found to exhibit anticancer activity by inducing apoptosis. The molecular docking study of sydnones with cancer proteins showed a decent interaction affinity. The results of absorption, distribution, metabolism, excretion and toxicity studies by the Insilco approach also proved that MC-454 sydnone showed better In-Vivo administration. Thus, the current research work indicates that these sydnone compounds would be prospective in developing anticancer medicines.

KEY WORDS: Sydnones, apoptosis, cancer proteins, Binding energy, toxicity

INTRODUCTION

Cancer is known as an important cause of death in humans and according to the WHO more than 70% of all cancer deaths happen in developing countries.[1] Recently, there has been an increase in deaths from different types of cancers globally, with a prediction of 12 million deaths in 2030.[2] In spite of the improvement in the understanding of bioorganic procedures linked with carcinogenic potential, significant challenges are still there for effective treatment of cancer because of the general toxicity of conventional cancer chemotherapeutic agents. Thus, the search for a new medication to treat cancer is still an essential and demanding job for researcher.

Recently, many scientists have shown a path in drug discovery based on the biological properties of liquid crystal pharmaceutical (LCP). The LCP molecule Tolecine was identified for antitumor, antibacterial and antiviral properties.[3] Sydnone derivatives have liquid crystalline properties that flow like liquids but maintain some of the ordered structure of its molecules.[4] Sydnones are novel mesoionic compounds due to their versatile applications in various fields.

Cite this article as: Hossain SL, Mathews M, Bhyranalyar Nagarajappa VS, Kumar BK, Veerappa Yelamaggad CV, Singh CR. Antiproliferative, apoptosis-inducing activity and molecular docking studies of sydnones compounds. J Can Res Ther 2022;18:681-90.

Submitted: 26-Nov-2020
Revised: 19-Jan-2021
Accepted: 23-Feb-2021
Published: 25-Oct-2021

Access this article online
Website: www.cancerjournal.net
DOI: 10.4103/jcrt.JCRT_1614_20
Quick Response Code:

Conversion of palm oil sludge to biodiesel using sulphuric acid as catalyst

Manjunath R.[1*], Narula Archna[2] and R.R. Siva Kiran[2]
1. Department of Biotechnology, Sir M Visvesvaraya Institute of Technology, Bangalore-562157, INDIA
2. Department of Chemical Engineering, MS Ramaiah Institute of Technology, Bangalore-560054, INDIA
*manjunathr385@gmail.com

Abstract

The present study focuses on utilizing palm oil sludge (POS) as low-cost feed stock for biodiesel production. The esterification reaction was performed by varying sulphuric acid dosage (2–5% wt), methanol to palm oil sludge molar ratio (3.5:1–9.5:1), reaction time (30–120 min), temperature 60 ℃ and stirred speed 400 rpm. The free fatty acids (FFA) considerably reduced from 17.76% to 1.34% and maximum esters yield was observed to be 91.56% at optimal conditions, 4 wt % H_2SO_4, methanol to palm oil sludge ratio 7.5:1 and 60 min.

The biodiesel was produced by transesterification process by varying sodium hydroxide catalyst concentration from 0.25 to 1.5 wt%. The maximum biodiesel yield of 92.2% was obtained at 0.25 wt% of NaOH. The biodiesel was tested for the fuel properties as per the IS 1448 protocol and compared with normal diesel fuel with reference to ASTM D6751 standards.

Keywords: Esterification, Free Fatty Acid (FFA), Indian Standards (IS), Methanol, Sludge Palm Oil (SPO), Transesterification.

Introduction

Biodiesel is the mixture of fatty acid methyl esters (FAMEs) or fatty acid ethyl esters (FAEE) produced from vegetable oils like palm oil, canola oil, soybean oil, sunflower oil and waste frying oil[6]. In 2021, world palm oil production was 76.538 million tons as reported by US Department of Agriculture[12] and for every ton of palm oil, approximately equal amount of palm oil sludge is generated. It is considered that the wastage generated by palm oil production mill has great impact on environmental pollution, contributing to 80% of the total palm oil industrial pollution[5].

Muanruksa et al[9] defined that the supernatant layer of wastewater release by palm oil processing plants is classified as palm oil sludge (POS) whose characteristics might vary according to the palm oil production process and raw materials utilized (Figure 1). POS contains high concentrations of organic material, oil and greases and suspended solids, high BOD and COD[2]. The problem with the POS feed stock is its high free fatty acid content making it unsuitable for the biodiesel production. The current study aims at reducing the FFA content using sulphuric acid catalyst through esterification reaction followed by transesterification reaction with a base catalyst for biodiesel production.[13-15]

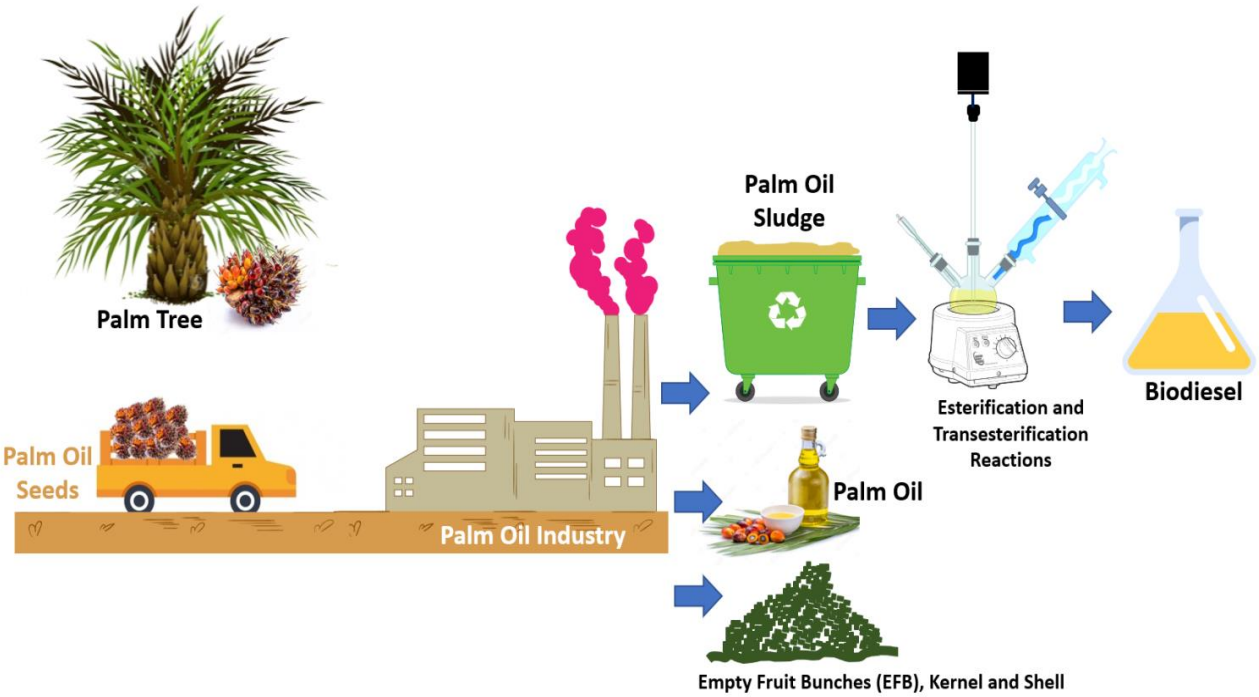

Figure 1: Flow diagram showing utilization of palm oil sludge for the production of biodiesel using esterification and transesterification reactions

Asian Journal of Chemistry; Vol. 33, No. 9 (2021), 2082-2092

ASIAN JOURNAL OF CHEMISTRY

https://doi.org/10.14233/ajchem.2021.23297

in vitro DNA Binding, Anticancer and Molecular Docking Studies of New Sydnone Compounds

SYED LIDIA HOSSAIN[1], MANOJ MATHEWS[2], B.N. VEERABHADRASWAMY[3], B. KIRANKUMAR[4], C.V. YELMAGGAD[3] and C. RAJENDRA SINGH[1,*]

[1]Department of Biotechnology, Sir M. Visvesvaraya Institute of Technology, Bangalore-562157, India
[2]Department of Chemistry, St. Joseph's College (Autonomous), Devagiri, Calicut -673008, India
[3]Centre for Nano & Soft Matter Science, Bangalore-562162, India
[4]Department of Biotechnology, SEA College of Science, Commerce and Arts, K.R. Puram, Bangalore-560049, India

*Corresponding author: E-mail: rajendrabiochem@gmail.com

Received: 10 May 2021; *Accepted*: 21 June 2021; *Published online*: 20 August 2021; AJC-20469

Sydnones have been a novel class of mesoionic compound due to versatility of their applications in various fields. Sydnone derivative have seen as an interesting structure grouped in the heterocyclic community, which is having regions of both positive and negative charges linked with a poly-heteroatomic system. This structural characteristic allows them to cross biological membranes and interact with biomolecules. Four sydnones namely 3-(4-decyloxybiphenyl-4′-yl) sydnone (MC-176), 3-(4-octyloxy-2,3-difluorobiphenyl-4′-yl) sydnone (MC-192), 3-(4-biphenyl-4′-yl) sydnone (MC-450) and 3-(4-butylbiphenyl-4′-yl) sydnone (MC-456) were evaluated for biophysical interactions between DNA and sydnones and antiproliferative activity. The UV-visible spectroscopic study indicates interaction between sydnone and dsDNA with a slight red and hypochromic shift in absorption spectra, which shows the intercalation mode of binding. The binding constant of DNA-Sydnone complexes were in the range from 1.4×10^4 M^{-1} to 7.1×10^4 M^{-1} for different sydnone compounds (MC-176, MC-192, MC-450, MC-456). FTIR spectra indicated that sydnone interaction with DNA occurs through base pairs and the phosphate backbone of the DNA. The cytotoxic and apoptotic effects of a sydnone derivatives on human cervical cancer (HeLa) and breast tumor (BT) 474 cancer cell lines were determined. The compounds possess antiproliferative activity in a concentration-dependent mode. The changes of morphological characteristic of cancer cells were determined by fluorescent staining techniques indicate the apoptotic cell death. The molecular docking studies of sydnone compounds with caspase 3 and EGF-TK showed better interactions (according to docking score) along with commercially available breast cancer drug molecule anastrozole. The docking score of sydnone molecules (MC-456, MC-450, MC-192 and MC-176) with EGF-TK enzyme were -6.44, -6.42, -5.46 and -4.53, respectively. The binding energy of anastrozole with EGF-TK was -6.41. As well Caspase 3 inhibition with sydnone compounds MC-456, MC-450, MC-192 and MC-176 were -6.09, -6.48, -5 and -3.49, respectively. The binding energy of anastrozole with caspase 3 was -6.24. All sydnone compounds were studied for ADME toxicity studies along with Lipinski rule of five to assess their drug likeness properties by *in silico* approach. MC-450 found to have good ADMET (absorption, distribution, metabolism, excretion and toxicology) properties among all the sydnone compounds. Thus, the present work indicates that these sydnone compounds would be a well prospective in developing anticancer medicines.

Keywords: Sydnone, Liquid crystal, Apoptosis, Cell lines, Molecular docking.

INTRODUCTION

Cancer is the one of most eminent diseases in the world causes death around 9.6 million death cases reports were reported in 2018. According to WHO reports occurring and death cases of cancer showing around 70% in middle and low-income countries [1]. Cervical cancer and breast cancer are common among most of the cancers seen in women throughout the globe [2]. Chemotherapeutic drugs are essential to fight against cancer, which has helped the humans to lead quality life. Over the ancient and earlier days, the health issues are under risk because of generally used chemotherapeutic drugs to treat cancer has been less effective due to increase in drug resistant and also many of them have adverse reactions [3]. It is crucial to explore new molecules to treat the cancer and other diseases. Recently many scientists have showed a path in drug discovery by the biological properties of liquid crystal pharmaceutical (LCP). The LCP molecule Tolectin was identified as effective against

JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue

JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)

An International Scholarly Open Access, Peer-reviewed, Refereed Journal

A NEW APPROACH OF STEEL MANUFACTURING FLASH BAINITE TECHNIQUE: REVIEW

[1]Pradeepa.S,[1]Anitha .J,[1]Ramya.N,[1]N.Tamil Selvi, [2] H. Ravi Kumar

[1]Assistant Professor , Department of Civil Engineering, Sir MVIT

[2]Associate Professor , Department of Civil Engineering, Sir MVIT

Abstract : Treating heat with steel t yields the Strongest, Most Ductile, Lean alloyed, Readily Weldable, Least Cost and Maximum Strength Metal known to man.

It can be used in concrete as it is low cost and stronger than the conventional steel. Steel building components can be manufactured to rely on much higher tensile strength. Significantly lighter roof trusses could be constructed from Flash Bainite members with greater tensile strengths. Tensioning components such as wire and re-bar may positively impact the bridge and highway building industries. The Combination of high strength and increased quality of steel allows engineers to design vehicles made from parts that are lighter yet stronger than the existing parts making the vehicle more efficient.

It employs rapid thermal cycling to strengthen steel sheets and tubing into AHSS (Advanced High Strength Steel). This process is environment friendly and consumes less than half Kilowatt of energy per Kilogram of steel processed. Flash Bainite is still a new field for study. More information and principles regarding this topic is still needed to be developed. This review paper has been set up to serve those purposes and fulfill the missing information for any furtherstudy.

The aim of this paper is to give a review about the various properties and uses of Flash Bainite for the improvement of the strength of the structures based on various studies done abroad. The paper also gives a review about the process involved, their production and advantages over conventional steel used regularly without awareness.

IndexTerms **– Tensioning, flash bainite, thermal recycling.**

I. INTRODUCTION

Steel is the leading construction material for sustainability. When a steel-framed building is demolished, its components can be reused or returned to the steelmaking process to create brand new components. Various types of steels have been developed throughout these years to serve the requirements of industries. Different combinations of compositions and processing of this steel yield different characteristics of steels for various uses. Some of them is utilized for mechanical purposes, Civil purposes and some of them have been developed to serve other applications.

In 2010, ARDEC was contacted about Flash Bainite (FB). They produced a steel microstructure of high strength and good elongation and toughness. The process was demonstrated on plain carbon and lean alloyed steels and has been performed on a variety of different forms including sheet, plate, and tubing (round and rectangular).

Flash bainite is the latest method of microstructure development by the method of heat treatment process called "Flash Processing". Using this process high performance steel is obtained by treating it for only a short period of time. It is a mixed microstructure of bainite and martensite.

The microstructure of bainite and martensite With Flash Processing, the microstructure developed is claimed to be a mixture of about 20 percent of bainite and 80 percent of martensite. The resulting steel undergoing Flash Process is called "Flash Bainite".the process is still new and more details need to be discovered. This is why this research has been set up: to study details of flash process and the flash-processed steels. The study aims to develop understanding of the flash process and the characteristics of steels after undergoing the process.

To meet the properties requirements, compositions and processing of the steels plays an important role. So, in order to achieve the desired mechanical properties, the suitable heat treatment process has to be considered and designed.

JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

INVESTIGATION OF IRON ORE TAILINGS IN PRODUCTION OF MASONRY BLOCKS

[1]Anitha.J, [1]Pradeepa.S , [1]N.Tamil Selvi , [1]Ramya.N, [2] H. Ravi Kumar
[1]Assistant Professor , Department of Civil Engineering, Sir MVIT
[2]Associate Professor , Department of Civil Engineering, Sir MVIT

ABSTRACT : THIS PAPER AIMS TO DEAL WITH UTILIZATION OFWASTE IRON TAILINGS IN BUILDING BLOCKS. THE EXPLOITATION OF MINERAL RESOURCES SUCH AS IRON ORE WOULD PROMOTE THE DEVELOPMENT OF ECONOMY AND SOCIETY, BUT IT GENERATES MASSIVE OVERBURDEN IN THE FORM OF IRON ORE TAILINGS, THAT MAY POLLUTE THE ENVIRONMENT. THEREFORE, COMPREHENSIVE UTILIZATION OF WASTE IRON TAILINGS IS IMPORTANT IN SAVING RESOURCES, IMPROVING SURROUNDINGS ANDFOR SUSTAINABLE DEVELOPMENT. MASONRY UNITS MADE OF IRON ORE TAILINGS ARE WIDELY ACCEPTED AS ENERGY EFFICIENT ALTERNATIVES TO BURNT CLAY BRICKS. IN THIS STUDY, ATTEMPTS WERE MADE TO INVESTIGATE THE SUITABILITY AND RELIABILITY OF IRON ORE TAILINGS IN MANUFACTURE OF BUILDING BLOCKS.

IndexTerms – Iron tailings, compressive strength, Quarry Dust, Alternative Material.

I. INTRODUCTION

Masonry is widely used to construct both small andlarge structures because of its structural versatility and attractive appearance. Masonry is of considerable volume in most of the structures and masonry units are consumed in bulk quantities. Compressive strength of masonry greatly depends onstrength of the masonry units. In order to cater to thedifferent needs of construction, various masonry units have been developed and used.

Masonry is the building of structures from individualunits laid in and bound together by mortar; the term masonry can also refer to the units themselves. The common materials of masonry construction are brick, stone, marble, granite, limestone, concrete block. Masonry is generally a highly durable form ofconstruction. However, the materials used, the quality of the mortar and workmanship, and thepattern in which the units are assembled can significantly affect the durability of the overall masonry construction.

India has large reserves of metal bearing ore and it occupies sixth position in the world with regard to iron ore reserves. Further, India is one of the important iron ore producers and exporter in the world. However, the rapid growth in production, especially from large surface mines, have already caused ecological imbalance in their respective regions and emerge as the source of main environmental hazards. The waste/tailings that are ultra-fines or slimes, having diameter less than 150μm, are not useful and hence are discarded. In India approximately 1500 to 2000 million tons of such mined ore is lost as tailings. The safe disposal or utilization of such vast mineral wealth in the formultra-fines or slimes has remained a major unsolved and challenging task for the Indian iron ore industry.This work has been done to exploit the waste of industry mainly iron ore tailing and been used in concrete for their improvement in strength.

II. LITERATURE REVIEW

Need for Alternative Building Materials:

By using the Alternative materials instead ofconventional materials, we would not only be preserving the natural precious resources, but also solving the problems of disposal of waste generated from various industries, which has become a national problem. Since the need for alternative building materials is growing at an alarming rate, in order to meet the demand for new buildings, new ways and techniques must be evolved.

Manufacturing of building materials like brick, cement, steel, aggregates etc. which are consumed inbulk quantities, puts great pressure on natural resources and are highly energy demanding.

Therefore, the use of alternative materials for construction should be encouraged.

* High amount of decreasing building materials suchas sand, aggregate, top soil for brick, timber.
* Consumption of large amount of energy in building materials.Utilization of waste or recycled materials for environmental or health issues. The materials are Iron ore tailings, fly ash, agriculture waste, quarry dust, debris etc.
* High cost of building materials and greater the distance of transportation.
* Environmental friendly and cost effective construction purpose.

2021-22 CV

ISSN 2394-3777 (Print)
ISSN 2394-3785 (Online)
Available online at www.ijartet.com

International Journal of Advanced Research Trends in Engineering and Technology (IJARTET)
Vol. 8, Issue 10, October 2021

Design of Roof top Rainwater Harvesting in Suggata Village – Bangalore North

Ravi Kumar. H., Shivanna S., Anitha. J., Vyshnavi D R, Pradeepa S.
Department of Civil Engineering
Sir M Visvesvaraya Institute of Technology, Bangalore 562 157
Corresponding author: sshivanna65@gmail.com

Abstract: Water is the most important resource on the earth, it requires for various activities in our day-to- day life At the rate in which India's populace is expanding. India will without a doubt supplant China from its main position of most thickly populated nation of the world. This will prompt high rate of utilization of most significant characteristic asset "Water" bringing about expansion of weights on the allowed freshwater assets and supply of it is decreasing at a rapidly safe on this planet. Keeping in mind the end goal to ration and take care of our day-to-day demand of water prerequisite, we have to think for elective savvy and moderately simpler mechanical strategies of conserving water. The technical aspect of this study is rainwater harvesting collected from rooftop which is considered to be catchment for Suggatta village. The study starts by collecting some important researches on rainwater harvesting and studied them. After proper field planning work conducted to Suggata for proper visualize the situation of village and to measure the dimension of roof catchment area. Then other required data are collected i.e. hydrological, rainfall and meteorological data. The collected water from different types of roofs is tested for physical, chemical as well as biological aspects. The volume of water will calculate for determining to provide combined water tank for the people of Suggata village. Water harvesting potential for the village will calculate, and on the basis of tank capacity with suitable design will be considered. The key factor of this study is the filter unit which will be design efficient and economical and feasible to implement in the village or anywhere.

Keywords: Rooftop harvesting, filter design, groundwater recharge.

I. INTRODUCTION

1.1 Present water scenario in Suggatta village

At present people in Suggatta village depends their water requirements through local water supply tankers to the tune of 50% involving huge expenditure and the remaining 50% is met through the ground water abstraction structures located in the village. This is due to not taking sustainable measures for recharge to groundwater in the village. Suggatta with an area of 50 acres is a perfect location to implement the rain water harvesting and artificial recharge to ground water through different conservation structures over a period of time.

Spare Water and Save Nation from Water Crisis and Saving Rainwater Saves Money", helps the Environment. The more water is utilized, the less the need to utilize chlorinated or other treated faucet water. The more we utilize water, the less that will go into storm sewers where it is blended with oil and other harmful buildups from boulevards, parking areas. With rooftop harvesting, most any surface — tiles, metal sheets, plastics, but not grass used will intercept the flow of rainwater. To provide a household with high-quality drinking water and year-round supply for gardens, livestock, and irrigation, etc. rainwater harvesting is a need of the hour.

Rooftop harvesting collecting/water reaping is the strategy through which rain water is caught from the roof top catchments and water is put away in tanks, wells and stores. Collected rain water can be put away in sub-surface ground water repository by receiving manufactured energize strategies to meet the family unit needs through capacity in tanks. Groundwater asset gets normally revived through permeation. Be that as it may, due to in separate improvement and fast urbanization, uncovered surface for soil has been decreased definitely with

JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue

JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)

An International Scholarly Open Access, Peer-reviewed, Refereed Journal

EXTERIOR INSULATION AND FINISHING SYSTEMS

[1] H.Ravi Kumar, [2] Pradeepa.S, [1] K V R Prasad, [2]Anitha J, [2] N.Tamil Selvi

[1]Associate Professor , Department of Civil Engineering, Sir MVIT

[2]Assistant Professor , Department of Civil Engineering, Sir MVIT

*Abstract:*Differential temperature in the cement structure causes cracks, spalling and eventually allows chlorides, sulphates & other ions to penetrate through the porous spaces causing the structural problems. These detrimental factors are limited if the cement has the ability to repel water. Here water repellency is achieved through internal &external surface application of water proofing compounds. Existing durable materials such as metals and ceramics are generally hydrophilic & require polymeric modifiers to render them hydrophobic properties. Plaster drain provides a cavity drainage system, suitable for remedial works, and is used to provide a key for plaster and render finishes. Water is an essential ingredient in cement structures, but uncontrolled excessive moisture can create whole host damage. The purpose of this research is to give an idea about insulation of building with the finishing systems like plastering and painting. Using good quality of materials and sustainable materials increases the durability of the structural component. It also gives knowledge about R value of individual component used, how to create a crack free finishing systems with eco-friendly materials.

IndexTerms **- EIFS, Insulation, R-value, Moisture, sustainability, durable structures.**

I. INTRODUCTION

Exterior Insulation and Finishing System's (EIFS) are a type of building material that is used as the exterior facing of a building's exterior wall. EIFS is composed of a number of layers. EIFS is a type of wall surfacing system and needs to be thought of as such a system.

EIFS is unique in that it is the only wall material that provides insulation, a finished exterior surface & weather proofing, in a single seamless product. This "single product does it all" attributes accounts for its popularity; EIFS is a good value.

EIFS looks like stucco (Portland Cement Plaster), Stucco is a "natural" product, composed of sand, Portland cement & other materials. EIFS is a synthetic product, unlike Stucco, EIFS can be made in large areas without any joints and also with a wide variety of shapes, colors and textures. EIFS is also called as synthetic stucco.

Here in this research incorporation of EIFS is directly done in the exterior finishing systems i.e. plastering by selecting few components of EIFS. So EXTERIOR INSULATION in FINISHING SYSTEM is a way of providing thermal insulation for the building. This system even concentrates on providing protection for building against moisture and also aims at crack proof finishing using sustainable green materials.

The expression deep energy retrofit lacks precision but broadly suggests a program of existing building improvement that has as one its goals a dramatic improvement in the level of energy efficiency while providing a healthier living environment and improving durability and safety. Adding insulation to exterior walls is often a key piece of a deep energy retrofit. However, this measure is often cost prohibitive and there are formidable challenges to altering the thermal envelope of existing, older structures.

II. OBJECTIVES

To provide the finishing system for external walls of the building with: -

1. Crack free surface:

Water plays a vital in the construction field. The surface exposed to external atmosphere is subjected to various kinds of attacks. Making the external surface to resist various sorts of attacks increases the durability of the structure. If the surface is crack free and having uniform temperature throughout makes the structure durable and sustainable.

2. Resistance to moisture attack:

Majority of the buildings in olden days was wood framed buildings, these buildings were facing water infiltration problems which leads to structural dampness and strength reduction in buildings. By incorporating EIFS system which includes drainage path to let water drain out behind the cladding system.

IJASRM

International Journal of Advanced Scientific Research and Management, Volume 6 Issue 10, Oct 2021

www.ijasrm.com

ISSN 2455-6378

Groundwater Pollution Due to Agricultural Activity in Hosakote Taluk, Bangalore Rural District, Karnataka, India: A Case Study

Shivanna S[1]., Vyshnavi D R[1] and Sriram Mustapure[2]

1. Department of Civil Engineering, Sir MVIT, Bangalore – 562 157
2. Department of Civil Engineering, EWCE, Bangalore- 560 064

Abstract

The present study highlights the impact of increased agricultural activity on groundwater in Hosakote taluk, Bangalore Rural district, Karnataka, India. The study area lies between the Lat. 12° 50' and 13° 25' and Long. 77° 35' to 78° 00' with an aerial extent of 548 square kilometers The results are based on the chemical analysis of groundwater samples. The Bangalore metropolis being close to the study area, it depends on the life support on the suburbs. As a result, farmers of the study area have shifted from the traditional agricultural practices to cash crops such as fruits, vegetable and floriculture, which is more lucrative. This has paved way for over-exploitation of groundwater without proper management. The indiscriminate use of chemical fertilizers, insecticides and pesticides for increased production has resulted in pollution of groundwater. The chemical constituents such as Na, K, Cl, SO_4 and NO_3 show the increase anomaly in the study area. These anomalies can be related to the excess use of fertilizers and pesticides in the agricultural practices, which has deteriorated the groundwater quality. The deterioration of the water quality if more localized in nature and can be overcome by judicious usage of chemical fertilizers and pesticides.

*Keywords:*Groundwater, Pollution, Agrochemical, Landuse, Hosakote

1. Introduction

The increased agricultural activities have polluted groundwater to an extent which needs attention before it attains a point of non-return. The present day increase in agricultural activity to meet the food grains target of growing population has adversely affected the quality of water as well as land. The economic interest in agriculture has pushed the ecological importance of agricultural activity to the background. Due to urbanization about 12-12.5 million hectares of fertile land is lost each year around the globe resulting in more stress on available land for usage causing over-exploitation and degradation due to various agricultural activities. Thus, agrochemicals input has become a source of pollution to the groundwater. The usage of fertilizers and pesticides in agricultural practices by developed countries is far more than developing countries like India, but due to non-judicious usage it has become a primary source of contamination of groundwater in developing countries. The usage of fertilizers and pesticides is more in case of horticulture than agriculture in contaminating the groundwater. The close proximity of the study area to Bangalore metropolis has given thrust in developmental activity in Hosakote taluk both on industrial and agricultural fronts. The metropolis depends for life support particularly for fresh fruits, vegetable, flowers etc, on its suburbs. As a consequence, this the farmers in the study area have shifted from traditional crops to more lucrative cash crops to meet the city demands. Thus, resulting in over-exploitation of groundwater, with indiscriminate usage offertilizers and pesticides causing pollution.

2. Location

Hoskote taluk is in Bangalore rural area and forms the eastern part of the district. It falls in the Survey of India (SOI) toposheet Nos. 57 G/12, 57 G/16, 57 H/9 and 57 H/13 and lies between 12°51' to 13°15' N.Latitude and 77° 41' to 77° 58' E Longitude, covering an area of 602 sq.km (Fig.1). Physiographically, the area is characterized by undulating terrain. The highest elevation is found near Nandagudi hill, which rises 940m above the

https://doi.org/10.36282/IJASRM/6.10.2021.1839

JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue

JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)

An International Scholarly Open Access, Peer-reviewed, Refereed Journal

STUDY AND ANALYSIS OF CHIKKABANAVARA LAKE, BANGALORE URBAN DISTRICT, KARNTAKA, INDIA

Shivanna S[1] and Vyshnavi D R[2]

[1]Associate Professor, Department of Civil Engineering, Sir MVIT, Bangalore

[2]Assistant Professor, Department of Civil Engineering, Sir MVIT, Bangalore

Abstract: Chikkabanavara lake is a naturally formed lake which is located at a distance of 1.5 km north of Chikkabanavara Railway Station along Bangalore – Tumkur railway line, situated between Chikkabanavara and Kereguddadahalli village, It lies between Lat. 13^{0}08'N and longitude of 77^{0}50'E. The lake is accessible by Hesaraghatta Road from 8th mile (T. Dasarahalli) junction on the Bangalore -Tumkur highway (NH4). The total extent of the lake is 105 acres and 15 guntas (according to Bangalore Development Authority (BDA) records. This lake is situated outside BBMP area coming under the custody of BDA North Division. The Chikkabanavara lake gets water from rain fall having catchment in nearby chimney hills due to the topography of land the natural in flow runoff water reaches the lake from all the sides of lake. In the present study water chemistry of the lake water and encroachment of lake has been discussed.

IndexTerms - Water quality, Urbanization, Water pollution, Chikkabanavara lake

I. INTRODUCTION

Chikkabanavara lake is a naturally formed sub watershed which was having an area of 170 acres of watershed (which is now reduced to 105 acres and 15 guntas), Several city folks who had their farms in Chikkabanavara village therefore still remember that this lake used to be just around 700 metres from the railway line. The encroachment over the lake can be gauged from the fact that it has been pushed almost1.5km away from the railway line. In past years the lake water was used for irrigation, agricultural, fishing purposes by the surrounding villages. The lake water was even used drinking and cooking by people nearby in the past decades. The water was used to washing clothes by the Dobhi (dry cleaners) from surrounding locality in western part of lake nearby waste weir nearly 10 years before. Few decades ago, the road which was connecting the Chikkabanavara village and Abbigere village via Dasappanapalya village is now completely submerged by lake and became un existed for nearly two decades from now. It is learnt that the reasons for the un-existence of road is mainly because of the increase in the volume of water in lake, encroachment of the lake, and lack of planning for up-gradation of bunds and waste weir of the lake. In 2013, the huge number aquatic life (fishes) was killed due the increase in the pollution of water, which was also reported in the Paravani, The Hindu, Deccan Herald newspapers. Influent on the eastern part of the lake started producing lather/foam due the entry of the sewage. The aerial view and encroachments in the study area is shown in the Figures 1,2 and 3.

II OBJECTIVES OF THE STUDY

The main objective of the present study is to evaluate the water quality parameters of Chikkabanavara lake and to find the extent of encroachment of lake has happened due urbanization. This lake is one of the main lakes constructed by the founder of Bangalore. Since the Bangalore city is far from perennial rivers of the State, several lakes have been constructed to meet the demand of water for domestic usage and irrigation. The water samples from the lake have been collected from different locations of the lake for chemical analysis. The chemical analysis data has been presented here. The main reason for different chemical anomalies is due the entry of municipal waste water and improper disposal of solid waste especially during the festival times.

III METHODOLOGY

Field study has been carried to check present condition of the lake. During the filed study it is observed that lot of encroachment has occurred and lake bed area has been damaged due to urbanization. It is also noticed that demolished waste of the buildings has also been dumped at some places in the lake bed area.

2021-22

(7) CV

IJSTE - International Journal of Science Technology & Engineering | Volume 8 | Issue 2 | August 2021
ISSN (online): 2349-784X

Groundwater Quality and Management in Devanahalli Taluk, Bangalore Rural District, Karnataka, India: A Case Study

Shivanna S
Department of Civil Engineering
Sir MVIT, Bangalore, India

Vyshnavi D R
Department of Civil Engineering
EWCE, Bangalore, India

Sriram Mustapure
Department of Civil Engineering
EWCE, Bangalore, India

Abstract

The quality and quantity of groundwater depends upon climate, physiography, geology and human settlement. Earlier groundwater was considered to be less vulnerable for contamination when compared to surface water. But of recent it is at the peak of contaminations, envisaging for proper management techniques. The present study area being close to Bangalore metropolis, the impact of urbanization on the taluk on various fronts has been observed. The area lies between Lat 13^0 5' to 13^0 23' and Long. 77^0 33' to 77^0 51', with an aerial extent of 582 sq. kms. The average rainfall is 725mms. The area is covered by lateritic and lateritic gravely soils followed by red soils. The major rocks types are granites and granitic gneisses with pegmatite veins intruding. The inference drawn are based on the analysis of groundwater samples collected in the study area. Bangalore city being close to this area, it depends on day-to-day life for fresh fruits and vegetable. As a consequence, the farmers of this area, along with traditional crops have resorted to grow vegetable, groundnut, ginger, mulberry, grapes and citrus fruits to meet the city demand, which is more lucrative for them. This has resulted in over exploitation of groundwater. The important factor in deterioration of groundwater quality from non-point source contamination wherein chemical laced water is seen due to excess usage of chemical fertilizers, pesticides and insecticides in agricultural activity. The anomalies are noticed with respect to constituents such as Ca, Na, K, Cl and NO_3.

Keywords: Groundwater, Pollution, Agrochemical, Rainfall, Devanahalli

I. Introduction

The variation in monsoon has created a situated wherein the dependence on groundwater is significant fora agricultural practices. The vast source of groundwater is being grossly misused due to various factors and a situation is seen where managing it, in a most efficient way is order of the day. For management of this resource, an integrated approach is necessary as the resource is becoming scarce due various developmental activities. Groundwater was less vulnerable for contamination when compared to surface water, but of recent it is most debated issue envisaging for proper management techniques to overcome contamination. Though quality and quantity depend on factors such as climate, physiography, geology and human settlement. The present study highlights the impact of urbanization of Bangalore metropolis on the Devanahalli taluk on various fronts of groundwater resource.

II. Location

The study area lies between Lat. 13^0 5' to 13^0 23' and long. $77^0$33' to 77^0 51' with an aera of 582 sq kms. The mean annual precipitation is 725mms. The area under present study is 35 kms from Bangalore metropolis and Bangalore – Hyderabad National Highway passes Devanahalli town. The taluk is drained by South Pinakini and Arkavathy rivers. The nearest airport is Kempegowda International Airport, Bangalore.

III. Geology and Soils

The rock formations in the study area are granites and granitic gneisses with intrusions of pegmatitic veins. The granites in the study are exposed very well in several places as small plutons and these out crops of the granites weathered to a large extent. Due to weathering of granites and granitic gneisses formation of red soil is noticed several places. The weathering of rock types has been observed to a depth of 20-25mtrs. The soils of the taluk are lateritic and lateritic gravely, followed by red loamy soils. The soils are highly alkaline in character and potash content in the soil is very high. The soils have an infiltration rate of 1.60 to 3.50

IJSTE - International Journal of Science Technology & Engineering | Volume 7 | Issue 10 | April 2021
ISSN (online): 2349-784X

Morphometric Analysis of Hesaraghatta Watershed, Bangalore Rural District, Karnataka

Shivanna S
Department of Civil Engineering
Sir M Visvesvaraya Institute of Technology, International Airport Road, Bangalore, India

Vyshnavi D R
Department of Civil Engineering
Sir M Visvesvaraya Institute of Technology, International Airport Road, Bangalore, India

H P Mahendra Babu
Department of Civil Engineering
Sir M Visvesvaraya Institute of Technology, International Airport Road, Bangalore, India

Abstract

The Hesaraghatta watershed is a part of Arkavathi river basin. Morphometric analysis has been carried out to understand the hydrological condition of the watershed. Geographic Information System has been used in the elevation of linear, aerial and relief aspects of the study area. The different morphological parameters like number of streams, stream frequency, stream length, and bifurcation ratio and aerial aspects drainage density (Dd) and drainage frequency (Df) of the basin reflect its hydrological response of the watershed. The geo-morphological analysis of the drainage network of a watershed gives information about the relationship between the surface runoff, infiltration of surface water and relative permeability of rocks in the study area. The Hesaraghatta watershed is the 6th order basin, dendritic pattern of drainage indicating moderate permeability and high runoff of the catchment. The watershed obeys Horton's Law of relating linear and aerial aspects. The GIS study has brought out the relation between lithology, structure and morphometric characters.

Keywords: Morphometric Analysis, Drainage, Watershed, GIS

I. Introduction

A qualitative morphometric analysis of any basin reflects its hydrological behavior and is therefore useful in evaluating the hydrological responses of the basin. Hesaraghatta watershed has been studied to quantify its morphometric characteristics that will reveal its geomorphic behavior. The study area exhibits dendritic pattern of drainage that produces moderate to nil flood intensity. In order to assess the quantum of water available for utilization a systematic hydrological study is essential. In this context a systematic geomorphological study of the Hesaraghatta watershed has been carried out and results presented in this paper.

II. Study Area

Hesaraghatta watershed is a part of Arkavathi river basin and is located between 77° 20' to 77° 42' E longitude and 13° 10' to 13° 24' N latitude with an aerial extent of 600 square kilometers. Hesaraghatta village is located 18 Km to the northeast of Bangalore and the village is mainly occupied by lake, a man-made freshwater reservoir that covers a catchment area of 73.83 square kilometres. The lake is often called as "the Malnad of Bangalore" as it served the Bangalore city by providing drinking water since 1896 up to 1994. Geologically the Hesaraghatta watershed is predominantly underlined by granites, gneisses with pockets of schistose rocks and migmatites of Archean age. The area is covered under the semiarid and subtropical climate characterized by medium to hot weather and normal average annual rainfall is 767mm. The area is an undulatory terrain.

III. Methodology and Data Collection

Morphometric analysis of Hesaraghatta watershed has been carried out by using digital data of geo-referenced and mosaic multispectral data of IRS-1D LISS III. Visual interpretation of satellite imagery was carried out to delineate various geomorphic units and landform features. The drainage has been delineated using merged satellite data of geocoded FCC bands on 2.3 and 4 on 1:50.000 scale and using Survey of India toposheets 57G/7, 57G/8, 57G/11 and 57G/12. The water samples of the Hesaraghatta have also been collected to check the quality and the extent of its pollution.

IV. Geology of the Area

Geologically the Hesaraghatta watershed is predominantly underlain by granites and gneisses with pockets of schistose rocks and migmatites of Archean age and popularly designated as hard rocks. The gneisses are often found to be intruded by dyke rocks,

JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue

JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)

An International Scholarly Open Access, Peer-reviewed, Refereed Journal

GROUNDWATER CONTAMINATION DUE AGRICULTURAL PRACTICES IN MANDYA TALUK, KARNATAKA, INDIA

Shivanna S[1]., Vyshnavi D R[2]., Pradeepa S[2]., Bhavya S[2]

[1]Associate Professor , Department of Civil Engineering, Sir MVIT

[2]Assistant Professor , Department of Civil Engineering, Sir MVIT

Abstract : The present study highlights the impact of agricultural practices on groundwater quality. The study area lies between Long. 76° 40' to 77° 00' and lat. 12° 25' to 12° 45' with an aerial extent of 720 km². The area falls in Kaveri River basin and its tributaries. The interpretations are based on 28 water sample from both dug wells and bore wells. The area under study has an annual rainfall of 700 mm, but vigorous agricultural activities are mainly due to network of canals in the entire taluk connected to the major reservoirs. Hence the water availability is assured throughout the year for agricultural practices paving way for more drylands being brought under irrigation. Thus, the farmers started cultivating cash crops, sugarcane, groundnut, paddy etc. resulting in indiscriminate usage of bio-manure, chemical fertilizers and pesticides for higher crop yield. This has caused deterioration of groundwater quality, resulting in the anomalies for the constituents like Na, K, Cl, and SO^4. These anomalies can be related to the excess usage of fertilizers, rather than lithology and soils of the taluk. To overcome this problem of groundwater quality further, the farmers must be educated about the judicious usage of input products such as fertilizers and pesticides.

IndexTerms **– Groundwater, Contamination, Anomaly, Fertilizer, Mandya**

I. INTRODUCTION

The green revolution in India is both boon and bane for the population and environment. The reason is that population grew by staggering number, hence the need for more food grains and other essentials are increased. This resulted in achieving green revolution to meet the basic minimum requirement and this has paved way for various agricultural projects. As a result, many governments aided projects and schemes came into being and the target was well achieved. But repercussions of these schemes were not considered, because the aim was to achieve more production/hectare. The farmers were encouragedto go in for application of more of chemical fertilizers and pesticides (Alymoreand Kookana1993). without thinking their impact on the groundwater quality. The consumption of fertilizers per hectare, earlier to green revolution was an average of 50kg/hectare, but of late it is about 100kg/hectare and also an average pesticide used is 1kg/hectare. Hence the indiscriminate use of chemical fertilizer is seen and that too not in optimal quantity at an appropriate time.

The input which is not completely utilized percolated into the ground by water action and other agricultural activities thus, contaminating the groundwater in the study area. This paper highlights the impact of agricultural activities on groundwater quality in Mandya taluk, Karnataka, India, which is considered to be one of the bowls of paddy and sugarcane production in the State. The study area is cri-crossed by a network of canals of major irrigation projects thus, water is available in plenty throughout the year for growing various types of crops. The average rainfall is 700mm per year with an average 40 rainy days. The maximum temperature is 35° C and minimum is 21° C.

Location:

The study area lies between Long. 76° 40' to 77° 00' and lat. 12° 25' to 12° 45' with an aerial extent of 720 km². The area falls in Kaveri River basin and its tributaries. (Fig.1)The State highway linking Mysore and Bangalore passes through the study area and Mandya is 95kms from Bangalore

Influence of Manufactured Sand on Mechanical Properties of Self Compacting Concrete

[1]Anitha J, [1]Pradeepa S, [1]N Tamil Selvi, [1]Ramya N and [2]M Anwar Haris
[1]Assistant Professor, Department of Civil Engineering, Sir MVIT.
[2]Final year student, Department of Civil Engineering, Sir MVIT.

Abstract - This experimental work aims to investigate the effect of manufactured sand on mechanical behavior of self-compacting concrete. In the present study, natural river sand has been replaced by manufactured sand for fine aggregates, in the percentages of 0, 25, 50, 75, and 100. A total of 54 cubical specimen measuring 0.15 x 0.15 x 0.15 meters, 45 cylindrical specimen measuring 0.15 x 0.15 x 0.3 meters and 20 prism specimen measuring 0.5 x 0.1 x 0.1 meters were cast respectively to study the compressive, tensile and flexural strength of the self – compacting concrete after a curing period of 7, 14 and 28 days. It was observed that the addition of manufactured sand enhanced the mechanical properties of self-compacting concrete.

Index Terms – Self-compacting concrete, Self-consolidating concrete, Artificial sand, Manufactured Sand, M-sand.

I. INTRODUCTION

Self-compacting also known as self-consolidating concrete, is a concept that was proposed by Prof. Okamura at Ouchi University – Japan, in 1986. During that time skilled labor was in a limited supply, and this caused major setbacks in the construction industry. Self-compacting concrete was designed to flow under its own weight, thus eliminating the need for external compaction using vibrators, especially in structures where heavy reinforcements were provided to handle the loads coming on them. Heavy structures require provision of heavy reinforcement and concrete with medium to high strength. The self-compacting concrete met these requirements at the time when the construction industry was suffering with shortage in skilled labor.

The construction industry is continuously facing challenges of depleting resources and increasing carbon emissions. Sustainable development and use of alternative building materials to replace the conventional materials used in concrete, is the need of the hour, to meet these challenges. Manufactured-sand, is one such material, which has been allowed as a replacement to natural river sand by Bureau of Indian Standards (IS 383:1970), to be utilized in concrete as fine aggregates. Manufactured-sand is much more angular and has cubical shaped particles when compared to that in the natural river sand. Angular shape of these fine aggregate particles, leads to improved strength, when used in concrete, due to better internal interlocking of particles.

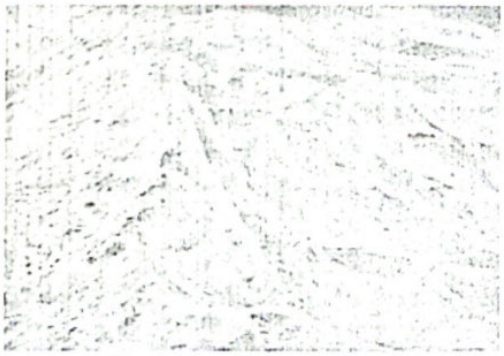

Fig. 1 Manufactured Sand

II. RESEARCH OBJECTIVES

The main object of this experimental process is to study the rheological and mechanical behavior of self – compacting concrete using manufactured-sand.

JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue

JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)

An International Scholarly Open Access, Peer-reviewed, Refereed Journal

STUDY ON THE WATER CHEMISTRY OF CHIKKABANAVARA LAKE, BANGALORE URBAN DISTRICT, KARNATAKA, INDIA

Shivanna S[1], Vyshnavi D R[2], Pradeepa S[2]

[1]Associate Professor, Department of Civil Engineering, Sir M Visvesvaraya Institute of Technology, Bangalore – 562 157

[2]Assistant Professor, Department of Civil Engineering, Sir M Visvesvaraya Institute of Technology Bangalore – 562 157

Abstract: Chikkabanavara lake is a naturally formed lake which is located at a distance of 1.5 km north of Chikkabanavara Railway Station along Bangalore – Tumkur railway line, situated between Chikkabanavara and Kereguddadahalli village, It lies between Lat. 13° 08'N and longitude of 77° 50'E. The lake is accessible by Hesaraghatta Road from 8th mile (T. Dasarahalli) junction on the Bangalore –Tumkur National Hhighway (NH4). The total extent of the lake is 105 acres and 15 guntas (according to Bangalore Development Authority (BDA) records. This lake is situated outside BBMP area coming under the custody of BDA North Division. The Chikkabanavara lake gets water from rain fall having catchment in nearby chimney hills due to the topography of land the natural in flow runoff water reaches the lake from all the sides of lake. Due urbanisation in recent years the lake is not able to get the rainwater as most of the natural drains were disturbed, instead the lake is collecting municipal and industrial waste water. In the present study chemical parameters of the lake water has been done and to compare the results one bore well water near to the lake and municipal water one samples were analysed for comparision.

I INTRODUCTION

Chikkabanavara lake is one of the naturally formed sub watershed of Arkavathi river basin was having an area of 170 acres of watershed (which is now reduced to 105 acres and 15 guntas The encroachment over the lake can be gauged from the fact that it has been pushed almost1.5km away from the railway line. In past years the lake water was used for irrigation, agricultural, fishing purposes by the surrounding villages. The lake water was even used drinking and cooking by people nearby in the past decades. The water was used to washing clothes by the Dobhi (dry cleaners) from surrounding locality in western part of lake nearby waste weir nearly 10 years before. Few decades ago, the road which was connecting the Chikkabanavara village and Abbigere village via Dasappanapalya village is now completely submerged by lake and became un existed for nearly two decades from now. It is learnt that the reasons for the un-existence of road is mainly because of the increase in the volume of water in lake, encroachment of the lake, and lack of planning for up-gradation of bunds and waste weir of the lake. In 2013, the huge number aquatic life (fishes) was killed due the increase in the pollution of water, which was also reported in the Prajavani, The Hindu, Deccan Herald newspapers. Influent on the eastern part of the lake started producing lather/foam due the entry of the sewage. The aerial view and encroachments in the study area is shown in the Figures 1 and 2. In the present study five lake water samples and one sample from municipal water supply and one from bore well near the to the lake have been collected for chemical analysis for various water chemistry parameters. The parameters analysed are Na, Ca, Mg, Mn, S, Boron, Carbonates, Bicarbonates and metallic elements like iron, copper and zinc as the lake very close to the some metal fabricating industries. The analysed parameters are shown in Table 1. The results of the water chemistry parameters are discussed in details to find the reason for their higher concentration.

JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue

JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)

An International Scholarly Open Access, Peer-reviewed, Refereed Journal

STUDY ON SMART IRRIGATION SYSTEM IN CHIKKABALLAPUR TALUK, KARNATAKA, INDIA

SHIVANNA S[1], VYSHNAVI D. R[2]., PRADEEPA S[2]

[1]Associate Professor, Department of Civil Engineering, Sir M Visvesvaraya Institute of Technology, Bangalore.

[2]Assistant Professor, Department of Civil Engineering, Sir M Visvesvaraya Institute of Technology, Bangalore.

Abstract : Irrigation is the controlled application of water for agricultural purposes through manmade systems to supply water requirements that are not satisfied by the rainfall. Crop irrigation is vital throughout the world in order to provide the world's ever-growing populations with enough food. Many different irrigation methods from traditional to smart ones are used over worldwide, including: surface, sub-surface, sprinkler, drip, and advanced or smart to satisfy the plants thrust. In this paper efforts have been made to present the basics of different irrigation systems adapted by the Indian farmers to grow their crops.

Water management is the most important issue on which the growth of agriculture sector largely depends. Indian agriculture sector is in dire need of investment to meet the expenses. To fuel the capital needs of the agricultural economy and also to ensure that the benefits of growth percolate to bottom of the socio-economic pyramid, farming has to be projected as an avenue of investment for the urban population. The improvement in irrigation system using wireless network is a solution to achieve water conservation as well as improvement in irrigation practices. This irrigation system allows farmers to reduce runoff from over watering saturated soils, avoid irrigating at the wrong time of day and in effect improve the crop yield by ensuring adequate water supply when needed. Smart irrigation aims to minimize their environmental footprint through efficient water use, and must also run a profitable business. This allows them to reinvest in new and improved technologies which ensure sustainable and responsible irrigation over time.

IndexTerms – Smart irrigation, Groundwater, Chikkaballapur

I. INTRODUCTION

In India, where 60-70% economy depends on agriculture, there is a great need to modernize the conventional agricultural practices for the better productivity. Due to unplanned use of water the ground water level is decreasing day by day, lack of rains and scarcity of land water also results in decrement in volume of water on earth. Nowadays, water shortage is becoming one of the biggest problems in the world. We need water in each and every field. In our day-to-day life also, water is essential. Agriculture is one of fields where water is required in tremendous quantity. Wastage of water is the major problem in agriculture. Every time excess of water is given to the fields. There are many techniques to save or to control wastage of water in agriculture. The objective of the system is to:

a) conserve energy & water resources
b) handles the system manually and automatically
c) detects the level of water.

Due to the climatic changes and lack of precision, agriculture have resulted in poor yield as compared to population growth. Irrigation is mostly done using canal systems in which water is pumped into fields after regular interval of time without any feedback of water level in field. This type of irrigation affects crop health and produces a poor yield because some crops are too sensitive to water content in soil.

India has many rivers whose total catchment area is estimated to be 252.8 million ha (mha) Out of about 1869 km^3 of surface water resources, about 690 km^3 of water is available for different uses. The ultimate irrigation potential of the country has been estimated to be 139.5 mha. India has acquired an irrigation potential of about 84.9 mha against the ultimate irrigation potential. About 360 km^3 of groundwater is also available for irrigation. Water is the most critical input for enhancing agricultural productivity, and therefore expansion of irrigation has been a key strategy in the development of agriculture in the country If we analyse agricultural growth during the past four decades, we find that high-yielding varieties, irrigated area expansion and fertilizer use have been the major factors contributing to the achievement of green revolution in India. There has been a steady increase in the irrigation potential from groundwater. The contribution of groundwater to total food grain production of the country is significant, as more than 50 per cent of the irrigated area is using groundwater and in several

ISSN 2394-3777 (Print)
ISSN 2394-3785 (Online)
Available online at www.ijartet.com

International Journal of Advanced Research Trends in Engineering and Technology (IJARTET)
Vol. 2, Issue 9, February 2022

Proposals and Remedial Measures to Decongest Yelahanka Police Station Junction

K V R Prasad[1], Ravi Kumar.H[2]

Associate Professor, Dept of Civil Engg, Sir MVIT, Bangalore, Karnataka, India [1]

Associate Professor, Dept of Civil Engg, Sir MVIT, Bangalore, Karnataka, India [2]

Abstract: *Rapid population growth in recent years ,mainly because of IT and other associated industries in and around Bengaluru led to an increase in the vehicular population to about 1.5 million, with an annual growth rate of 7-10%,. There has been a phenomenal growth in the population of vehicles as well especially the two and four wheelers in this period due to rising household incomes. Two wheelers constitute more than 70% of the total volume, while cars comprise 15%, autos 4% and the remaining 8% includes other vehicles such as buses, vans and tempos. The number of motor vehicles registered has already crossed 49 Lakhs. In the absence of adequate public transport system, people are using the personalized modes which is not only leading to congestion on limited road network but also increasing environmental pollution. Yelahanka police station Junction which connects International air port road with the city is one of the busiest intersections in Bengaluru. This paper examines the traffic problems and sustainable improvement of road intersection at above junction. The causes of traffic congestion were studied and suggested different remedial measures to reduce number of accident and make traffic flow smooth. The three phased signalized intersections at Yelahanka junction was considered as the primary study area. At the intersection present signal timing, classified volume count, stopped delay, queue length and optimum cycle length were measured and analysed. Analysis of the collected data revealed that the improper planning of the junctions, lack of traffic signals and unauthorized parking are the major factors contributing to the traffic congestions. Various remedial measures are also proposed, focusing on junction improvement, alternative operation plan and junction signalization.*

Keywords:
Signalised intersection, traffic signal design, stopped Delay, grade separated intersection

I. INTRODUCTION

The world is facing traffic congestion which is a global issue. The growth of vehicles has increased due to urbanization and industrialization. Bangalore is a rapidly growing city. The city core is an old city leading to International Airport Road surrounded by planned development which is currently sprawling within the natural limits. The North part of the city forms the heavy population of the city and is accessed through all direction, which today is amongst busiest street junctions. The streets connecting the junction serve as the major commercial streets, especially towards the eastern side and airport on its northern sides. These junctions and streets were functional without hassle when the city had a very few numbers of motor vehicles.Traffic signal at this junction was designed in 2003 and at that time there were very less number of vehicles but now days due to infrastructure development ,due to more vehicles, congestion is taking place. Increase in traffic volume has caused problems in traffic operations like accidents, delay, congestion, fuel consumption, pollution.

1.1 Physical characteristics of the area

1.1.1Population growth

As of 2011 India census—Yelahanka had a population of 3,00,000. Males constituted 54% of the population and females 46%. The literacy rate was 75%, higher than the national average of 59.5%: male literacy was 80%, and female literacy was 68%. Eleven percent of the population were under 6 years of age.

1.1.2Growth of motor vehicles

Number of motor vehicles registered in the past has increased which a direct effect in the congestion has caused at Yelahanka junction. The number of people using public transport has

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 12 | Dec 2020 www.irjet.net p-ISSN: 2395-0072

A Review on Cyberbullying Detection using Machine Learning

Nideeksha B K[1], P Shreya[2], Sudharani Reddy P[3], Mohamadi Ghousiya Kousar[4]

[1,2,3]*B.E. Student, Department of CSE, Sir M Visvesvaraya Institute of Technology, Bengaluru, India*
[4]*Assistant Professor, Department of CSE, Sir M Visvesvaraya Institute of Technology Bengaluru, India*

Abstract - *Social media is being extensively used today. This has led to a form of bullying that is Cyberbullying. Bullies use various network sites to attack victims with offensive comments and posts. This has been so devastating that many youngsters undergo depression, commit suicide, lose their self-confidence, and much more. With anonymity and lack of supervision this form of bullying has increased exponentially. It is also very challenging and difficult to monitor such cases. This leads us to find a way to help people out and protect them from such vulnerable attacks. Machine Learning has various algorithms that help us in detecting cyberbullying with some algorithms outperforming the others thereby leading us to the best algorithm.*

***Key Words*: cyberbullying, machine learning, convolutional neural network, deep learning, feature extraction, text classification.**

1. INTRODUCTION

Cyberbullying has been a major cause of worry for the amount of serious impact it has on people. Although social media is a secure place for communication it is prone to cyberbullying. It is found to be more dangerous than traditional bullying because the humiliation is visible to an unlimited online audience. Since the physical appearance of the victim is not required it can go on nonstop. Many networking sites don't even need a real name to be registered as a user making the bullies braver. The victims who have undergone bullying lose their self-confidence, become antisocial and this has a bad effect on their mental health as well. This leads us to detect cyberbullying. Hence machine learning techniques are employed in this paper. The steps involved are:

- Collecting datasets from networking sites which consist of videos, images, posts, and comments.
- Pre-processing data so that it contains only relevant information
- Classification of data into positive and negative instances of cyberbullying.

2. LITERATURE SURVEY

In 2020, Vimala Balakrishnan *et al.* [1] presented an automatic cyberbullying detection taking Twitter users' psychological features into account. The three main stages discussed in improving cyberbullying detection are Twitter data collection, feature extractions, and cyberbullying detection and classification. The annotated dataset contained 9484 tweets, out of which 4.5% of users are labelled as bullies, 31.8% as spammers, 3.4% as aggressors, and 60.3% as normal. However, the final dataset contained 5453 tweets as a result of the pre-processing step which included removing non-English tweets, profiles containing no data, and special characters. The features extracted were text features, user features, and network features. The model was executed using WEKA 3.8 with 10-fold cross-validation. Since Naïve Bayes performed poorly during preliminary experimental analysis it was eliminated while Random Forest and J48 continued to perform well. The classifiers were trained using manually annotated data.

In 2020, Jaideep Yadav *et al.* [2] proposed a novel pre-trained BERT model developed by Google researchers that generates contextual embeddings and task-specific embeddings. In the proposed method, for the base model, a deep neural network called the Transformer is used. The Bert contains 12 layers to encode the input data and is built on top of a base model. The data is tokenized and padded accordingly and is fed into the model which generates the final embeddings. The classifier layer classifies the embeddings generated by the previous layers and generates the final output accordingly. Using a pre-trained BERT model they were able to achieve efficient and stable results in comparison to the previous models to detect cyberbullying.

In 2020, Sudhanshu Baliram Chavan *et al.* [3] proposed the approach to detect cyberbullying on Twitter. The required dataset was collected from sources like GitHub, Kaggle. Initially, the data is pre-processed and features are extracted using a TFDIF vectorizer algorithm. These tweets are then passed through the naive Bayes and SVM model and are classified accordingly. When a tweet is categorized as bullying, ten other tweets from that users' account will be fetched and passed through naive Bayes and SVM classifiers again. If the overall probability of that user's tweets lies above 0.5 then it will be considered as a bullied tweet. Based on the accuracy score and the results it was evident that the SVM model outperformed the naive Bayes with the accuracy score of 71.25%.

LETTER RECOGNITION USING DEEP LEARNING

[1]*Mrs. Supriya H S*, *Asst. Prof, Dept. of CSE, Sir MVIT,Bangalore*
[2]*Vishwas Bhushan*, *Dept. of CSE, Sir MVIT*
[3]*Vaibhav Sinha*, *Dept. of CSE, Sir MVIT*
[4]*Subrata Mondal*, *Dept. of CSE, Sir MVIT*
[5]*Rohan S Roshan*, *Dept. of CSE, Sir MVIT*

Abstract — In this paper we present inventive techniques for offline handwritten character discovery utilizing deep neural networks. In this day and age it has gotten simpler to prepare deep neural networks on account of accessibility of tremendous measure of information and different Algorithmic advancements which are occurring. Now-a- days the measure of computational force expected to prepare a neural network has expanded because of the accessibility of GPU's and other cloud based services like Google Cloud stage and Amazon Web Services which give assets to prepare a Neural network on the cloud. We have created a system that recognizes and predicts handwritten digits from 28x28px images created in paint. In our system we have also made use of OpenCV for performing Image processing and have used Tensorflow for training a the neural Network. Our front end is in the form of a web app and a mobile app.s We have developed this system using python programming language.

I. INTRODUCTION

As we are aware, in this day and age AI(Artificial Intelligence) is the new Electricity. New breakthroughs are occurring in the field of computerized reasoning and deep-learning each day. There are several fields in which deep-learning is being utilized. Handwriting Recognition is an important area where deep neural networks are being used. Perceiving handwriting is a simple undertaking for people yet an overwhelming task for computers.

Recognition of handwriting has been explored over numerous years. Handwriting recognizable proof framework can be utilized to fix many confounded issues and work with the work of creatures.

To perceive handwriting, deep learning has been often used. Text is inspected after it is composed in offline handwriting recognition. The binary output of a character against a backdrop is the sole information that can be examined. The handwriting of client is accessible as a picture. Handwriting recognition is difficult in view of many reasons. The reason being that various individuals have various styles of writing. The best reason is that, there are numerous characters like Capital letters , Small letters , Digits and Special images. As a result, a huge dataset is needed to prepare a close exact neural network model. To foster a decent framework an exactness of atleast 90% is required. However even the most modern and commercially available systems have not been able to achieve such a high accuracy.

II. LITERATURE REVIEW

In [1] a preprocessing strategy is introduced for improvingTesseract Optical Character Recognition (OCR) execution onimages with vivid foundation. The proposed strategy consists of two stages. Right away, a content division strategy is performedwhich endeavors to remove the content from the vivid background.This step depends on input picture grouping into k pictures. In thesecond step, a classifier is utilized to distinguish the picture containingtext among k pictures coming about because of theprevious step. OCR is then performed on the distinguished image.The proposed preprocessing strategy further develops Tesseract OCRperformance by around 20%.

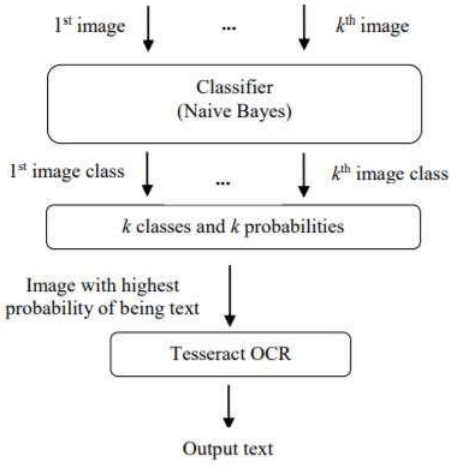

Fig 1

In [2] there are quite a few Optical Character Recognition (OCR) versatile applications available running on cell phones, both android and iOS (iPhone, iPad, iPod) stages. The impediments of cell phone processor ruin the conceivable execution of computationally serious applications that need less season of cycle. This paper proposes a structure of Optical Character Recognition (OCR) on cell phone utilizing worker based preparing. Correlation techniques proposed by this paper by directing a progression of tests utilizing independent and worker put together OCR with respect to cell phones, and look at the consequences of the exactness and time needed for the

Sentiment Analysis of Kannada Political Tweets using Support Vector Machines

Shankar R, Suma Swamy, Pranav Raikote

Keywords: kannada sentiment analysis, kannada opinion mining, kannada tweets analysis, support vector machine

ABSTRACT

Sentiment analysis is a process of computationally identifying and categorizing opinions from a piece of text and determine whether the writer's attitude towards a particular topic or the product is positive, negative or neutral. Understanding the sentiments or emotions has become important in the current world as it can be proved as the game-changer in improving the user experience over a wide variety of applications. Looking from a business point of view, many industries rely completely on the opinions of the users for their product improvisations. This analysis when manually being done becomes tedious and time consuming. So, by applying Machine Learning algorithms, this can be done with ease and with incredibly good accuracy. Much of the work has been done for the opinions or reviews which is in English language. India is predominantly considered as a country with wide variety of regional languages like Kannada, Telugu, Tamil etc. Understanding the sentiments of languages apart from English is greatly beneficial in reaching the local people. In this article, the texts of Kannada Tweets collected from various political parties and politicians are analyzed to classify the tweets as positive or negative or neutral interpretations. These interpretations helps a political party or politicians to improve the worthiness. Support vector machines which is a supervised algorithm has been used to work on a set of hyper planes resulting in a better classification

Finger Vein Authentication using Deep Learning

Dr. Pallavi R[1], Amala Renita[2], Jasmine Karam[3], Umama Amin[4], Yuthika MB[5]
[1] *Professor, Department of Computer Science & Engineering, Sir M Visvesvaraya Institute of technology*
[2,3,4,5] *Student, Department of Computer Science & Engineering, Sir M Visvesvaraya Institute of technology*

Abstract **- The main aim of the project is to use finger vein for authentication. Finger vein recognition technology is one of the new biometric technologies, which has been gaining a significant amount of attention. It uses the vein pattern underneath the skin for authentication. This technique captures the finger vein pattern by shining an infrared light on the fingers. If the finger vein matches with the person's vein pattern which is stored in the database a success message is displayed. If it does not match a buzzer sound will be played.**

I.INTRODUCTION

Finger vein is the vascular pattern underneath our skin which is unique to a person. Finger vein authentication system helps us to uniquely identify a person by using their finger vein pattern. Some current identity verification systems such as password, smart cards, etc carry the risk of theft, forgery and unauthorized use. This has lead to a lot of financial loss. Finger vein authentication has been lately gaining a lot of attention due to its many advantages. Some advantages of using finger vein for authentication are-It has a high accuracy of identifying a person. It cannot be easily forged, unlike the fingerprint and iris of a person, as it is present under the skin. The fingerprint of a person changes as he ages i., it starts to wear off and a person's iris pattern can also change if he/she gets some surgery done. This is not the case with the finger vein patter which remains exactly the same throughout a person's life. The finger vein is obtained by using a near-infrared reader.

II. LITERATURE SURVEY

In paper [1] a method is proposed which extracts the vertical cross-sectional profiles to determine the approx. positions of the vein regions in a given finger-vein image. The proposed method correctly detects the positions of the vein regions of the finger by checking the depth of the vein profile using various depth thresholds. Based on the detected positions, the proposed method measures the quality of the finger-vein. Image using the number of detected vein points (NDVP) relative to the depth thresholds, which allows one's variations in the vein density to be considered for quality assessments. In this study, the vein points are all the image pixel points on the detected vein lines. Finally, this proposed method assesses the quality of input finger-vein images and images of inferior quality are not used for recognition, thereby enhancing the accuracy of finger-vein recognition. Capturing a clear vein pattern in the finger-vein image is very important in finger-vein recognition.

In paper[2], they have presented a finger-vein based biometric security system that can be used for security based electronic devices. The method can extract the finger-vein feature for recognition from the NIR images. This method uses single sample and is convenient to the application. This work can be extended with increasing the database for further verification

In paper [3] they have discussed recent approaches to solving the problem of varying finger lengths and proposed using a set of images of same size interval in a selected sub-block approach. For each image sub-block, wavelet moment was performed and PCA features extracted. LDA transform is performed, and the two features were combined for recognition. For Finger Vein Recognition 53 matching and identification, we proposed a method of fuzzy matching scores. Experimental results show that wavelet moment PCA fusion method achieved good recognition performance; error rate FAR was 0.7%, rejection rate FRR of 1.05%.

In paper [4] they propose precise extraction of finger vein pattern is a elementary step in developing finger vein based biometric authentication systems. Finger veins have textured patterns, and the directional map of a finger vein image represents an intrinsic nature of the image. The finger vein pattern extraction method

IJRAR.ORG E-ISSN: 2348-1269, P-ISSN: 2349-5138

INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS (IJRAR) | IJRAR.ORG

An International Open Access, Peer-reviewed, Refereed Journal

BRAIN TUMOR DETECTION THROUGH IMAGE SEGMENTATION

Prof. Dr. Savita Choudhary[*1], Rhea Nataraj[*2], Shreya H M[*3], Vinaya H Naikar[*4]

[*1]Guide,Department of Computer Science & Engineering, Sir M Visvesvaraya Institute Of Technology,Bengaluru,Karnataka,India

[*2,3,4]Student,Department of Computer Science & Engineering, Sir M Visvesvaraya Institute Of Technology,Bengaluru,Karnataka,India

ABSTRACT

Brain cancers (e.g. glioblastomas) are some of the deadliest types of cancers and are some of the most difficult to treat due to their anatomical location. Early tumor detection is crucial for a good prognosis but oftentimes the diagnosis is difficult because the tumor is too small and not easily detectable.The segmentation of brain tissue in an MRI (magnetic resonance image) is critical for detecting the existence of outlines related to a brain tumor. Traditional diagnosis techniques include a brain scan (i.e. MRI), which can be time-consuming for doctors to analyze. An alternative, efficient technique for diagnosis (analysis of the MRI) is the use of machine learning, which can be used with an image classifier for fast and accurate detection. Here, we used open-source MRI datasets that are trimmed and resized for accurate results. We implement TensorFlow's Convolutional Neural Networks (CNN) as the architecture for our model. The images that we used in our algorithm were made up of 46% that had tumors and 54% that were not cancerous. The program takes about 3.47 seconds to load the model and produce predictions. Our model has a validation loss of 0.122 and a 99.50% max validation accuracy. Although our model focuses on brain tumors, its use can be extended to other types of cancers that are diagnosed with similar methods (e.g MRI). In addition, the suggested method guarantees that brain tumor detection, classification, and segmentation would be exceedingly efficient and exact.This model is written in Python 3 using the Tensorflow library and uses Keras to build a neural network to classify images. Importantly, the training data was cleaned and cropped to unnecessary backgrounds. After the training, the model and its weights were saved to a file.This interface is built using Streamlit and uses this mechanism to allow for a fast and intuitive analysis of given data.

Keywords: Brain tumor detection,CNN.

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 12 | Dec 2020 www.irjet.net p-ISSN: 2395-0072

A Review on Cyberbullying Detection using Machine Learning

Nideeksha B K[1], P Shreya[2], Sudharani Reddy P[3], Mohamadi Ghousiya Kousar[4]

[1,2,3]*B.E. Student, Department of CSE, Sir M Visvesvaraya Institute of Technology, Bengaluru, India*
[4]*Assistant Professor, Department of CSE, Sir M Visvesvaraya Institute of Technology Bengaluru, India*

Abstract - *Social media is being extensively used today. This has led to a form of bullying that is Cyberbullying. Bullies use various network sites to attack victims with offensive comments and posts. This has been so devastating that many youngsters undergo depression, commit suicide, lose their self-confidence, and much more. With anonymity and lack of supervision this form of bullying has increased exponentially. It is also very challenging and difficult to monitor such cases. This leads us to find a way to help people out and protect them from such vulnerable attacks. Machine Learning has various algorithms that help us in detecting cyberbullying with some algorithms outperforming the others thereby leading us to the best algorithm.*

***Key Words*: cyberbullying, machine learning, convolutional neural network, deep learning, feature extraction, text classification.**

1. INTRODUCTION

Cyberbullying has been a major cause of worry for the amount of serious impact it has on people. Although social media is a secure place for communication it is prone to cyberbullying. It is found to be more dangerous than traditional bullying because the humiliation is visible to an unlimited online audience. Since the physical appearance of the victim is not required it can go on nonstop. Many networking sites don't even need a real name to be registered as a user making the bullies braver. The victims who have undergone bullying lose their self-confidence, become antisocial and this has a bad effect on their mental health as well. This leads us to detect cyberbullying. Hence machine learning techniques are employed in this paper. The steps involved are:

- Collecting datasets from networking sites which consist of videos, images, posts, and comments.
- Pre-processing data so that it contains only relevant information
- Classification of data into positive and negative instances of cyberbullying.

2. LITERATURE SURVEY

In 2020, Vimala Balakrishnan *et al.* [1] presented an automatic cyberbullying detection taking Twitter users' psychological features into account. The three main stages discussed in improving cyberbullying detection are Twitter data collection, feature extractions, and cyberbullying detection and classification. The annotated dataset contained 9484 tweets, out of which 4.5% of users are labelled as bullies, 31.8% as spammers, 3.4% as aggressors, and 60.3% as normal. However, the final dataset contained 5453 tweets as a result of the pre-processing step which included removing non-English tweets, profiles containing no data, and special characters. The features extracted were text features, user features, and network features. The model was executed using WEKA 3.8 with 10-fold cross-validation. Since Naïve Bayes performed poorly during preliminary experimental analysis it was eliminated while Random Forest and J48 continued to perform well. The classifiers were trained using manually annotated data.

In 2020, Jaideep Yadav *et al.* [2] proposed a novel pre-trained BERT model developed by Google researchers that generates contextual embeddings and task-specific embeddings. In the proposed method, for the base model, a deep neural network called the Transformer is used. The Bert contains 12 layers to encode the input data and is built on top of a base model. The data is tokenized and padded accordingly and is fed into the model which generates the final embeddings. The classifier layer classifies the embeddings generated by the previous layers and generates the final output accordingly. Using a pre-trained BERT model they were able to achieve efficient and stable results in comparison to the previous models to detect cyberbullying.

In 2020, Sudhanshu Baliram Chavan *et al.* [3] proposed the approach to detect cyberbullying on Twitter. The required dataset was collected from sources like GitHub, Kaggle. Initially, the data is pre-processed and features are extracted using a TFDIF vectorizer algorithm. These tweets are then passed through the naive Bayes and SVM model and are classified accordingly. When a tweet is categorized as bullying, ten other tweets from that users' account will be fetched and passed through naive Bayes and SVM classifiers again. If the overall probability of that user's tweets lies above 0.5 then it will be considered as a bullied tweet. Based on the accuracy score and the results it was evident that the SVM model outperformed the naive Bayes with the accuracy score of 71.25%.

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 12 | Dec 2020 www.irjet.net p-ISSN: 2395-0072

A Review on Cyberbullying Detection using Machine Learning

Nideeksha B K[1], P Shreya[2], Sudharani Reddy P[3], Mohamadi Ghousiya Kousar[4]

[1,2,3]*B.E. Student, Department of CSE, Sir M Visvesvaraya Institute of Technology, Bengaluru, India*
[4]*Assistant Professor, Department of CSE, Sir M Visvesvaraya Institute of Technology Bengaluru, India*

Abstract - *Social media is being extensively used today. This has led to a form of bullying that is Cyberbullying. Bullies use various network sites to attack victims with offensive comments and posts. This has been so devastating that many youngsters undergo depression, commit suicide, lose their self-confidence, and much more. With anonymity and lack of supervision this form of bullying has increased exponentially. It is also very challenging and difficult to monitor such cases. This leads us to find a way to help people out and protect them from such vulnerable attacks. Machine Learning has various algorithms that help us in detecting cyberbullying with some algorithms outperforming the others thereby leading us to the best algorithm.*

***Key Words*: cyberbullying, machine learning, convolutional neural network, deep learning, feature extraction, text classification.**

1. INTRODUCTION

Cyberbullying has been a major cause of worry for the amount of serious impact it has on people. Although social media is a secure place for communication it is prone to cyberbullying. It is found to be more dangerous than traditional bullying because the humiliation is visible to an unlimited online audience. Since the physical appearance of the victim is not required it can go on nonstop. Many networking sites don't even need a real name to be registered as a user making the bullies braver. The victims who have undergone bullying lose their self-confidence, become antisocial and this has a bad effect on their mental health as well. This leads us to detect cyberbullying. Hence machine learning techniques are employed in this paper. The steps involved are:

- Collecting datasets from networking sites which consist of videos, images, posts, and comments.
- Pre-processing data so that it contains only relevant information
- Classification of data into positive and negative instances of cyberbullying.

2. LITERATURE SURVEY

In 2020, Vimala Balakrishnan *et al.* [1] presented an automatic cyberbullying detection taking Twitter users' psychological features into account. The three main stages discussed in improving cyberbullying detection are Twitter data collection, feature extractions, and cyberbullying detection and classification. The annotated dataset contained 9484 tweets, out of which 4.5% of users are labelled as bullies, 31.8% as spammers, 3.4% as aggressors, and 60.3% as normal. However, the final dataset contained 5453 tweets as a result of the pre-processing step which included removing non-English tweets, profiles containing no data, and special characters. The features extracted were text features, user features, and network features. The model was executed using WEKA 3.8 with 10-fold cross-validation. Since Naïve Bayes performed poorly during preliminary experimental analysis it was eliminated while Random Forest and J48 continued to perform well. The classifiers were trained using manually annotated data.

In 2020, Jaideep Yadav *et al.* [2] proposed a novel pre-trained BERT model developed by Google researchers that generates contextual embeddings and task-specific embeddings. In the proposed method, for the base model, a deep neural network called the Transformer is used. The Bert contains 12 layers to encode the input data and is built on top of a base model. The data is tokenized and padded accordingly and is fed into the model which generates the final embeddings. The classifier layer classifies the embeddings generated by the previous layers and generates the final output accordingly. Using a pre-trained BERT model they were able to achieve efficient and stable results in comparison to the previous models to detect cyberbullying.

In 2020, Sudhanshu Baliram Chavan *et al.* [3] proposed the approach to detect cyberbullying on Twitter. The required dataset was collected from sources like GitHub, Kaggle. Initially, the data is pre-processed and features are extracted using a TFDIF vectorizer algorithm. These tweets are then passed through the naive Bayes and SVM model and are classified accordingly. When a tweet is categorized as bullying, ten other tweets from that users' account will be fetched and passed through naive Bayes and SVM classifiers again. If the overall probability of that user's tweets lies above 0.5 then it will be considered as a bullied tweet. Based on the accuracy score and the results it was evident that the SVM model outperformed the naive Bayes with the accuracy score of 71.25%.

LETTER RECOGNITION USING DEEP LEARNING

[1]*Mrs. Supriya H S*, *Asst. Prof, Dept. of CSE, Sir MVIT,Bangalore*
[2]*Vishwas Bhushan*, *Dept. of CSE, Sir MVIT*
[3]*Vaibhav Sinha*, *Dept. of CSE, Sir MVIT*
[4]*Subrata Mondal*, *Dept. of CSE, Sir MVIT*
[5]*Rohan S Roshan*, *Dept. of CSE, Sir MVIT*

Abstract — In this paper we present inventive techniques for offline handwritten character discovery utilizing deep neural networks. In this day and age it has gotten simpler to prepare deep neural networks on account of accessibility of tremendous measure of information and different Algorithmic advancements which are occurring. Now-a- days the measure of computational force expected to prepare a neural network has expanded because of the accessibility of GPU's and other cloud based services like Google Cloud stage and Amazon Web Services which give assets to prepare a Neural network on the cloud. We have created a system that recognizes and predicts handwritten digits from 28x28px images created in paint. In our system we have also made use of OpenCV for performing Image processing and have used Tensorflow for training a the neural Network. Our front end is in the form of a web app and a mobile app.s We have developed this system using python programming language.

I. INTRODUCTION

As we are aware, in this day and age AI(Artificial Intelligence) is the new Electricity. New breakthroughs are occurring in the field of computerized reasoning and deep-learning each day. There are several fields in which deep-learning is being utilized. Handwriting Recognition is an important area where deep neural networks are being used. Perceiving handwriting is a simple undertaking for people yet an overwhelming task for computers.

Recognition of handwriting has been explored over numerous years. Handwriting recognizable proof framework can be utilized to fix many confounded issues and work with the work of creatures.

To perceive handwriting, deep learning has been often used. Text is inspected after it is composed in offline handwriting recognition. The binary output of a character against a backdrop is the sole information that can be examined. The handwriting of client is accessible as a picture. Handwriting recognition is difficult in view of many reasons. The reason being that various individuals have various styles of writing. The best reason is that, there are numerous characters like Capital letters , Small letters , Digits and Special images. As a result, a huge dataset is needed to prepare a close exact neural network model. To foster a decent framework an exactness of atleast 90% is required. However even the most modern and commercially available systems have not been able to achieve such a high accuracy.

II. LITERATURE REVIEW

In [1] a preprocessing strategy is introduced for improvingTesseract Optical Character Recognition (OCR) execution onimages with vivid foundation. The proposed strategy consists of two stages. Right away, a content division strategy is performedwhich endeavors to remove the content from the vivid background.This step depends on input picture grouping into k pictures. In thesecond step, a classifier is utilized to distinguish the picture containingtext among k pictures coming about because of theprevious step. OCR is then performed on the distinguished image.The proposed preprocessing strategy further develops Tesseract OCRperformance by around 20%.

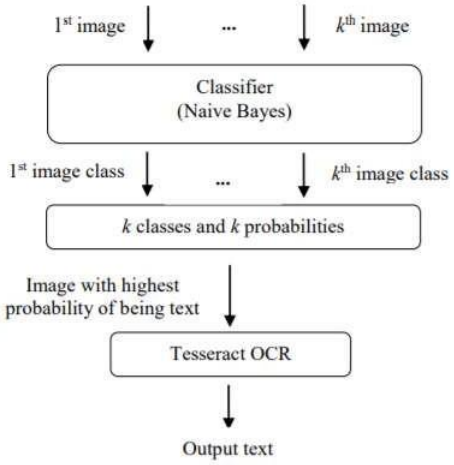

Fig 1

In [2] there are quite a few Optical Character Recognition (OCR) versatile applications available running on cell phones, both android and iOS (iPhone, iPad, iPod) stages. The impediments of cell phone processor ruin the conceivable execution of computationally serious applications that need less season of cycle. This paper proposes a structure of Optical Character Recognition (OCR) on cell phone utilizing worker based preparing. Correlation techniques proposed by this paper by directing a progression of tests utilizing independent and worker put together OCR with respect to cell phones, and look at the consequences of the exactness and time needed for the

Turkish Online Journal of Qualitative Inquiry (TOJQI)
Volume 12, Issue 6, June, 2021: 7590-7601

Flat and Nested Named Entity Recognition: A Review

Vanipriya C H[1], Subhashree M[1], Abhishek S G[1], Rakshitha J[1], Gaurav Gupta[2]

[1]SIR M Visvesvaraya Institute of Technology, Banglore
[2]Yogananda School of Artificial Intelligence Computers and Data Science,
Shoolini University of Biotechnology and Management Sciences, Solan-173229,
Himachal Pradesh, India

Abstract. The developments in Information Technology have significantly improved our lives. Information is at our fingertips; we can reach a wider audience and explore new things with ease. With all these made possible, there comes an issue that needs to be addressed: Information Overload. There is an extensive amount of information out there that has caused the extraction of relevant information arduous. Here is where the role of Named Entity Recognition (NER) comes into play. Identifying proper nouns from text and labeling them with their semantic type that belongs to a predefined list of classes is called NER. Moreover, NER is the initial step for various other applications in Natural Language Processing (NLP). With the continual endeavors in this promising research area breaking new grounds, we discuss some notable works in this field. Further, we present a comprehensive study on nested NER. This study shall help the readers with a quick rundown of some of the major works proposed for flat and nested NER.

Key words: Named Entity Recognition, Nested named entities, Information Extraction, Natural Language Processing, Internet of Things.

1. Introduction

Named entity recognition (NER) is a crucial task of natural language processing (NLP). NER is the course of extracting information from known semi-structured or unstructured data by identifying and tagging (categorizing) the named entities like Organization (ORG), Location (LOC), Person (PER), Timex (TIME and DATE), Monetary, Percent and Miscellaneous (MISC). In other words, it is the process where it captures sentences or paragraphs as input to the algorithm and discovers the named entities that are present in the given text and classifies them. Consider the example: From 1987-1989, Mr. Khan studied at the GITAM University located in Bangalore. In the above example, NER algorithm classifies Mr. Khan as person, GITAM University as organization and Bangalore as location. Named entities are of the two forms: flat named entities and nested named entities. Nested entities will be discussed in detail later on.

NER is one of the ongoing research area for the past 2-3 decades. There is an exponential advancement in detecting named entities but still there are huge disputes in deciding named entities because of deviation in spelling and usage of foreign words. Other challenges in NER include the usage of NEs that are too long or too short(abbreviations) especially in biomedical domain[15] and lack of available resources in specific domains and languages. Moreover, the presence of homonyms and heteronyms in some languages makes it difficult to tag these expressions due to the fact that the sense in which these expressions are used depends on the context. Consider the word ‘minute’. When it is used in the sentence, ‘It took her 50 minutes to reach the Airport.’, the entity ‘50 minutes’ is tagged with the label TIMEX. Whereas in the sentence, ‘This tea contains minute quantities of cardamom in it.’, ‘minute’ being an adjective here is a non-entity tagged with the label OTHER.

Suppose you have an e-book of a novel and would like to know the names of the characters in the novel before reading it, or the historical time period the novel is set in or the places that the plot revolves around. NER is apt for such tasks. NER has a vast range of applications in the real world. For example, NER can be used to find the names of persons, places and organizations in a particular news article or blog, to find the most related research or review paper from a particular journal, to find solutions for customer complaints and appreciably more.

Evaluation metrics are used to evaluate the excellence of any statistical machine learning model and is done by using precision, recall and F1-score.

International Journal of Research in Engineering and Science (IJRES)
ISSN (Online): 2320-9364, ISSN (Print): 2320-9356
www.ijres.org Volume 9 Issue 7 ǁ 2021 ǁ PP. 62-68

Smart Glasses for Visually Disabled Person

Pavan Hegde[1], Neha Devathraj[2], Sushma SK[3], Pasupuleti Aishwarya[4]
[1,2,3,4]*B.E Students,Dept. of Information Science Engineering,* Sir M. Visvesvaraya Institute of Technology, *Bangalore, Karnataka, India*
Guided by ***Dr.Vanipriya CH,****Asso. Professor,Dept. Of Information Science,* Sir M. Visvesvaraya Institute of Technology, *Bangalore, Karnataka, India*

Abstract
Blind mobility is one among the main challenges encountered by visually impaired persons in their daily lives. Their life and activities are greatly restricted by loss of eyesight. They normally travel using blind navigation system or by their accumulated memories in their future exploration. The main objective of this work is to develop a low cost, reliable, portable, user friendly, low power and robust solution for smooth navigation. This paper (Smart Glasses for visually disabled people), is meant for the visually impaired people. It has an in-built sensor in it which spreads ultrasonic waves in the direction the person is going by scanning at most 5-6 meters of range. As soon as the obstacle is detected, the sensor detects it and sends it to the device which generates an automatic voice within the earphone connected to the person's ear.

Keywords: *Raspberry Pi, Pi Cam, Face Recognition, Ultrasonic Sensor, Espeak, IoT, OpenCV, Haar Cascade Algorithm.*

Date of Submission: 25-06-2021 Date of acceptance: 08-07-2021

I. INTRODUCTION

The number of visually impaired people has been growing over the past decades. About 285 million people worldwide are estimated to be visually impaired. However, so far, many faculties and jobs cannot accommodate them mainly thanks to lack of assistive technologies and economic barriers. As a result, most of them still live on a low level of income. Even though technologies are available, they are too expensive and the affordable ones have limited functions. The main goal is to help blind people and people who have vision difficulties by a technology that involves IOT. Main aspect here is to give them support to walk independently.

1.1 Literature Survey

[1] Paper Name: photoOCR

Authors: Alessandro Bissacco, Mark Cummins,Yuval Netzer and Hartmut Neven. In **photoOCR**, which is a system designed to detect and extract any text from any image using machine learning techniques, it also uses different distributed language modeling. The goal of this system was to recognize any text from any challenging image such as poor quality or blurred images. Alessandro Bissacco, Mark Cummins, Yuval Netzer and Hartmut Neven from Google Inc.Were the people who built the algorithm and working module for this research of reading text at a difficult moment and at a complete blur view.

[2] Paper Name: A new computer vision-based system to help rollator users

Author: A group of researchers from Switzerland. In 2014, a group of researchers from Switzerland proposed a new computer vision-based system to help rollator users in their indoor and outdoor navigation. Using 3D and stereo data, they implemented two obstacle detectors to capture any possible danger in the user's pathway. They also introduced a new way to enhance the distorted 3D objects by using the pose estimation technique for the combined 3D points. Although this work could help visually impaired people in their navigation, the detection stage (the core module in work) does not work in sophisticated scenarios such as multiple moving objects. In addition to this, no motion compensation methods were presented to overcome the camera movement.

[3] Paper Name: Headlock

Author: Fiannaca et al. In 2014, Fiannaca et al. presented Headlock, a wearable device to assist blind people in traversing open spaces. The system used Google glasses and OpenCV blob detection algorithm to detect doors and guide the blind person towards it with minimum veering and the shortest path. Although the presented work provided quantitative and qualitative results after testing the system's usability with blind subjects, limiting the