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Effect of molybdenum disulfide and bronze on tribological behaviors of polytetrafluoroethylene composites

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Abstract

The present paper explains study of the tribological behavior for composite materials having the filler combinations of Molybdenum Disulfide and Bronze with base material of Polytetrafluoroethylene. Polytetrafluoroethylene (PTFE) is polymer based compound also named as Teflon discovered by Roy J. Plunkett in the year 1938 with melting point of 327°C. It is a crystalline solid with good stability from -2700C to +2600C and is chemically inert to known reagents and solvents. The fillers used are 10% Molybdenum Disulfide and Bronze is varied in the proportions as 15%, 25% and 40%. The experimental testing is done using the ASTM G99 standards with three different sampling experiments. The experiments are analyzed using Taguchi and Grey Regression Analysis.

The experimental samples are tested using Energy Dispersive Spectroscopy and Scanning Electron microscopy. The results of the analysis of variance for this type of materials combinations shows the optimum level of parametric setting as A3B1C3D3 corresponding to factors conditions load (3Kg), sliding distance (2Km), velocity (3.29m/s) and material (PTFE+40%Bronze+10%MoS2). The maximum values of grey relational grades for the corresponding the factors are load (0.7610), sliding distance (0.6570), velocity (0.6688) and material (0.7176) from the ANOVA table for the experimental results. The rank order for the analysis are load>sliding distance>velocity>material. Also it can be noted that the load (50%), material (20%) have dominant effect on the coefficient of friction and wear. Among the interaction the effect of load-sliding distance (8%) is considerable one.

Introduction

As polytetrafluoroethylene (PTFE) is weaker in wear resistance, most of the authors have suggested to use different filler combination like Magnesium and glass fiber [4], SiC in metal matrix [5], bronze, carbon fiber [6], molybdenum disulfide (MoS2) [9], [15], bronze and graphite [10] as filler materials. The results of tribological research have motivated us to develop new polymer composite materials having different filler combinations and study their effect on the output parameters like wear and coefficient of friction (See Table 1.)

Further the results obtained by hybrid grey Taguchi method are processed for the optimization and simulation by using the artificial neural network. Zhang Z [7], Liuji Xu [11], Zhenyu Jiang [12], Gyurova Lada [13] have reported a scientific method named as artificial neural network for optimization. The ANN requires the training, testing, and validation

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Breast Cancer Detection Using ML

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Abstract

Breast cancer is the second most commonly diagnosed cancer among women globally, and early detection is crucial to improving survival rates. Machine learning (ML) and artificial intelligence (AI) techniques have shown promising results in detecting breast cancer in medical imaging data. In this study, we explore the application of ML and AI algorithms for breast cancer detection using mammogram images.

Breast cancer detection is a critical healthcare challenge worldwide, and Machine Learning (ML) and Artificial Intelligence (AI) are increasingly being used to aid in the detection process. ML algorithms can analyse vast amounts of data, identify patterns, and classify tumours with high accuracy.

The main idea here is to utilize all the open source datasets and breast cancer detection methodologies such as K-nearest neighbour, Convolutional Neural Network, Support Vector Machines, Generative Adversarial Networks to identify pros and cons of all the methodologies. The result of this would be to find the most efficient model to work in a particular scenario.

Moreover, machine learning algorithms can be trained to predict breast cancer risk and personalise screening recommendations for individual patients. As such, AI and ML have enormous potential in the fight against breast cancer, improving the diagnosis and treatment of the disease.

There are several machine learning algorithms available that are used in this system including KNN, SVM, CNN, GANS, Decision Tree, Random Forest, K-means.

Keywords—Decision Tree, Random Forest, Convolution Neural Networks, Support Vector Machine, K-Nearest Neighbour, Machine Learning, Breast Cancer Detection.

I INTRODUCTION

Breast cancer is one of the top causes of death among women. But, early detection of cancer helps in preventing it. If breast cancer is diagnosed early, the chances of survival are very good. Breast cancer is a disease that arises, but when a woman or man notices this symptom, it quickly progresses beyond its first stage. Breast cancer is a common and severe disease in women. Cancer is the development of aberrant cells that are genetically and altered. Different techniques are used to capture breast cancer such as Ultrasound Sonography, Computerised Thermography, Biopsy (Histological images). Machine Learning techniques and algorithms are a straightforward way to understand the data and predict it.

The radiologist examines and analyses himself, and then decides on the outcome after consulting with other professionals. This process takes time, and the results are dependent on the staff's knowledge and experience. Furthermore, experts are not available in every field around the world. Therefore, the research community proposed an automatic system called CAD (Computer-Aided Diagnosis) for better classification of tumours, which helps in accurate results and faster implementation without the need for radiologists or specialists.



WhatsApp Chat Analyzer Using Artificial Intelligence

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ABSTRACT:The WhatsApp Chat Analyzer is a software tool designed to extract and analyze data from WhatsApp chats. The tool is capable of processing large volumes of chat content. The analysis can reveal patterns in the chat, such as the most frequently used words or topics discussed, the most active participants, and the time and date of messages. The analyzer can also detect sentiment and emotion in the messages, allowing users to understand the tone and context of the conversation. Overall, the WhatsApp Chat Analyzer provides a powerful way to gain insights into WhatsApp chats and understand the dynamics of group communication.

KEYWORDS:Text analytics, Natural Language Processing (NLP), Sentiment analysis, Rule Based Model; Word Cloud

I. INTRODUCTION

With over 2 billion active users globally, WhatsApp is one of the most widely used messaging services. The amount of conversation data collected by the app's users likewise grows as its usage continues to rise. Due to this, there is an increasing need for technologies that can extract information from WhatsApp discussions. An application created to address this need is the WhatsApp Chat Analyzer. With the help of the WhatsApp Chat Analyzer, you may analyse chat data in depth and learn more about the talks. Large amounts of chat data may be processed by the program, which can also extract pertinent data and produce visualisations that make it simple to comprehend conversation dynamics.

Users may comprehend the tone and context of the discussion by using the WhatsApp Chat Analyzer, which can also identify mood and emotion in the messages. Understanding the general tone of the discussion and seeing possible disagreements or trouble spots are two uses for this capability.

II. RELATED WORK

Previous research on WhatsApp chat analysis has been conducted in various domains, including customer service, social media monitoring, and marketing campaigns [1], [2], [3]. Researchers have explored different techniques for sentiment analysis, such as lexicon-based, machine learning, and hybrid approaches [1], [3], [4], [5].

To improve the quality of hotel services, Kim et al. (2020) studied WhatsApp client feedback using a lexicon-based technique to distinguish between positive and negative sentiment in customer feedback [4]. The findings of the sentiment analysis were connected with the customers' overall happiness with the hotel's services, the researchers discovered.

A hybrid methodology was utilised in different research by Alharbi et al. (2019) to examine tweets and WhatsApp messages pertaining to the Saudi Vision 2030 project [1]. The classification of sentiment into positive, negative, and neutral categories was done by the researchers using lexicon-based analysis and machine learning techniques. The study demonstrated that social media sentiment analysis may be a useful tool for tracking public opinion and shaping policy choices.

De et al. (2018) explored the use of WhatsApp for customer service in the hospitality industry and found that it was an effective and efficient way to communicate with customers [2]. The researchers used a mixed-method approach to analyse customer interactions and identified the most common issues faced by customers.

Jhanwar et al. (2020) studied the impact of WhatsApp marketing campaigns on consumer purchase intention using sentiment analysis [3]. The researchers used a machine learning approach to analyse sentiment and found that positive sentiment in WhatsApp messages had a significant impact on consumer purchase intention.

HEAD



Insights on coding gain and its properties for principal component filter banks

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Abstract. Principal Component Filter Bank (PCFB) is considered optimal in terms of coding gain for specific conditions. P P Vaidyanathan stated that coding gain does not necessarily always increase with the increase in the number of bands. However, very few attempts are made in the literature to go beyond the confines of work done by P P Vaidyanathan. We present the analytic proofs for the monotonicity of specific shapes of PSDs. This papers also derives properties of coding gain of PCFBs, which brings the new insights on the coding gain of Principal Component Filter Banks.

Keywords. Coding gain; principal component filter bank (PCFB); monotonicity.

1. Introduction

Filter banks are an integral part of signal processing techniques. Multi-rate filter banks are of special interest because of their ability to downsample the input signal into lower-rate components. These components are referred to as subbands. These subbands are further subjected to processing/analysis. A typical perfect reconstruction multi-rate filter bank is shown in figure 1(a). Here, input $x(n)$ is fed to the analysis bank, followed by downsampling by a factor of M . The filters $H_k(z)$ are called analysis filters. The subbands $w_k(n)$ are then processed by applying certain rules or criteria. These subbands are upsampled by M at the synthesis side, followed by filtering through synthesis filters $F_k(z)$ before recombination.

Implementing a basic filter bank, as shown in figure 1(a) is computationally inefficient. Instead, a polyphase representation, as shown in figure 1(b), is used in practical implementation. Here,

$$H_k(z) = \sum_{l=0}^{M-1} z^l H_{k,l}(z^M) \quad (1)$$

and,

$$F_k(z) = \sum_{l=0}^{M-1} z^{-l} F_{k,l}(z^M) \quad (2)$$

for $0 \leq k \leq L-1$ and L is the number of subbands ($L \leq M$). We can also define the *analysis polyphase matrix* $\mathbf{H}(z)$ and the *synthesis polyphase matrix* $\mathbf{F}(z)$ as

$$[\mathbf{H}(z)]_{k,l} = H_{k,l}(z) \text{ and } [\mathbf{F}(z)]_{k,l} = F_{k,l}(z) \quad (3)$$

where, $0 \leq k \leq L-1$ and $0 \leq l \leq M-1$.

Coding gain is a standard measure of the filter bank's performance for the compression of a signal. A filter bank with a higher coding gain is more efficient at reducing the redundancies present in the signal across multiple subbands, consequently leading to a better compression performance.

A Principal Component Filter Bank (PCFB) was shown to be simultaneously optimal for several objectives [1–3]. PCFBs particularly enhance the performance of data compression. Vaidyanathan [4] has given the primary conditions required for a filter bank to be a PCFB and the procedure to derive the ideal frequency support of the filters of a PCFB. Unfortunately, these ideal filters have a brick-wall support and hence cannot be realized in practice (although close approximations can be made).

PCFB for 1D signals was studied by Tsatsanis and Giannakis [1]. Xuan and Bamberger [5] extended the concept to higher dimensions. The existence of PCFB was further studied by Akkarakaran and Vaidyanathan [3]. PCFBs are known to exist only for some special classes of

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Scene Recognition Using Deep Learning

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ABSTRACT—

Scene Recognition is becoming an important application of deep learning, with undergoing several important evolution over the past years. Scene recognition is used in so many fields from automated cars to indoor localization this proves the importance of scene recognition and its growth in future. This project is an attempt to solve one of the most common and difficult problems of scene recognition. Scene Recognition is an application with an aim to classify a given scene image to a predefined category by analysing the whole image. The process of classifying scene images is very difficult because of similarity in attributes of various scenes. The goal of this project is to create a CNN (Convolution Neural Network) model which can accurately detect a scene with the help of extracting features from the image and analysing it. We have used a custom dataset of 10 different classes to predict the scene and the accuracy of the model is 75 percentage. We will use Flask Framework for frontend to show output in realtime.

Index Terms—Scene Recognition, Deep learning, Convolutional Neural Network, Flask.

I. INTRODUCTION

A. Overview

A human being can easily classify an object or a thing by looking at it because of the brain. The brain can analyse the object at a glance. To differentiate between two different things will be very easy and take mere seconds. In human brain there is a neural network and these objects act as an input for this neural network. But can a computer do this impossible task as sufficiently as a human person. Yes, with the help of Artificial Intelligence and Deep learning. Scene recognition is growing in the field of Deep learning and ML and the requirement of scene recognition in the market is high. Scene recognition is a very challenging issue that requires a systematic approach to get the needed results. Scene recognition is used in various fields like map construction, robots, AI automated cars and if there are some errors in making it can cause some serious damage. In this project we are going to use ANN architecture which stores information like a human neural network which can help in recognizing and classifying an image. The ANN architecture is CNN (Convolutional Neural Network) which has a layered architecture for feature extraction and classification.

B. Scene Recognition using Deep Learning

For the past few years Scene Recognition has become a very important and challenging issue in IT industries. Scene Recognition is used in many fields like security, indoor localization, Robots, autopilot. A scene consists of various concepts, including scene attributes, background, objects. These characteristics are used to determine the image. To extract these characteristics and train the model for detection we have created a CNN model. CNN (Convolution Neural Network) is one of the most useful methods for image classification. CNN is a type of Artificial Neural Network which is very effective in areas like image classification and recognition. In this project we have created a CNN model from scratch to train the large dataset and later to detect the images with respect to their class. [5]. When we have to recognize a coloured image or scene or a video, the CNN (Convolutional Neural Network) is the best and most suitable option because of its architecture. The CNN architecture has three layers for feature extraction and two layers for classification. The feature extraction consists of an Input layer then the Convolutional Layer after that the padding layer which is optional and then the Pooling layer. In the Classification layer the output from the convolutional layer goes into a fully connected layer and finally the output layer.

C. Motivation

Identifying or classifying a scene through our eyes as human vision is easy but through a computer is a very interesting thing to work on as we see different scenes on our day-to-day life. Classifying and recognizing a scene through a computer is itself a challenging task. CNN is the best technique to do this task with utmost accuracy. That's the motivation behind this project. Big Data companies are a big market for scene recognition for ads preferences based on the majority of scenes detected of a particular user.

D. Problem Statement

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Attack Detection and Prediction Using Machine Learning

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Abstract

Data plane and control plane are divided by Software Defined Networking (SDN). A centralized controller oversees and manages the entire network. With SDN, the network may be programmed and flow regulations can be created dynamically. Numerous benefits including adaptability, programmability, and centralized management are offered by this decoupling. However, SDN also creates new vulnerabilities as a result of desired data plane and control plane connectivity. Attacks on switch buffer overflows and control plane saturation are two examples of threats that exploit such flaws. The controller is vulnerable to Distributed Denial of Service (DDoS) attacks, which induce resource exhaustion and impair the controller's capacity to provide services. By flooding the control plane with TCP SYN packets from the data plane (i.e., switches), several attacks can be launched. SVM is the most popular and often used classifier, both for classification and regression, thanks to its high accuracy and low false positive rate. For DDoS detection, the SVM classifier is examined and contrasted with other classifiers. In order to identify anomalies, such as malicious traffic, and report them, Snort, an intrusion detection system, examines the traffic and packets. The entropy approach is used to assess the flow data's randomness. An IP address for the intended recipient and a few TCP flag attributes make up the entropy information. We implement it as an additional module in the Floodlight Controller and assess its viability and efficacy. We thoroughly evaluate how we have implemented things via Mininet, substantial emulation.

Keywords

Entropy Method, Distributed Denial of Services (DDoS), Machine Learning, Mininet, Software Defined Networks (SDN), Snort, Support Vector Machine (SVM)

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Heatmap Analysis of Webpages

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Abstract

These days, as everything has gone online and virtual, we use websites on a regular basis in our daily lives. However, in order to match user needs, the question of how website admins would learn what the user wants emerges. So, using techniques like mouse clicking, this project captures information about user activity on a web page, and then using the appropriate technology, it converts the data into meaningful and insightful heatmaps. Its main goal is to make websites more user-friendly by providing web administrators with valuable information about users' activities.


Keywords

Heatmap, Statistics, User Experience, User Interface, Web Tracking, Websocket.

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RESEARCH ARTICLE

An Enhanced Spatial Correlation Framework for Heterogenous Wireless Sensor Networks

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Abstract: Background: Event detection and monitoring applications involve highly populated sensor nodes in Wireless Sensor Networks (WSNs). Dense deployment of nodes leads to correlated sensor observations in the spatial and temporal domain. Most of the previous works focused on constant sensing radii for spatially correlated sensor observations. However, in real time scenario, the sensor nodes may have variable sensing coverage areas, which comprise a Heterogeneous WSN.

Objective: To address this issue, we present an Enhanced Weighted Spatial Correlation Model for Heterogeneous sensor nodes in WSNs.

Methods: The mathematical framework considers the spatial coordinates of sensor nodes, the distances between the sensor nodes, and their sensing coverage. Furthermore, the correlation coefficient is calculated in terms of overlapping areas for randomly deployed nodes. Performance of the correlation model is evaluated and analyzed in terms of event distortion function. In addition to this, a macro and micro-zone concept is introduced, wherein sensor information is weighted for better event estimation at the sink node. Moreover, dynamic weighing of nodes like Inverse, Shepard's and Gaussian distance weighing algorithms are simulated and analyzed for minimal event distortion. Over and above, the system performance is evaluated for different approaches considering reporting nodes with and without clustering of sensor nodes for macro and micro-zone concept.

Simulation results for the Enhanced Weighted Spatial Correlation Model developed are obtained using MATLAB software.

Results: The comparative study shows an improved system performance in terms of minimal distortion obtained for non-clustered nodes; thereby reducing the computational complexity of cluster formation. Furthermore, the dynamic weighing algorithms outperform the existing fixed weighing algorithms for the correlation model with the lowest distortion function.

Conclusion: Moreover, in the above algorithms, the event distortion gradually decreases and later becomes constant with the increase in the number of representative nodes. Hence, it illustrates that minimal distortion can be achieved by activating lesser number of representative nodes, thereby preserving the energy of other sensor nodes and increasing the lifetime of WSNs.

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Keywords: Wireless sensor networks, heterogeneous nodes, spatial correlation, weighted spatial correlation, event distortion function, MATLAB.

1. INTRODUCTION

Wireless sensor networks comprise of sensor nodes mainly deployed for the detection and monitoring of events like landslides, forest fires, earthquakes, tsunamis, etc.

A study [1] suggested loss of life if immediate action is not taken. For such emergencies, appropriate measures need to be implemented. WSNs are an upcoming technology for the detection and prediction of such events [2]. Sensor nodes sense the event and report the data to the sink node. Sink nodes may be directly connected to the user via wired networks or through satellite networks. Internet of Things (IOT) is an emerging technological development promising to offer

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A Chatbot as a First Responder for Panic Attack

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Abstract— Mental Health continues to be a neglected aspect in modern society. The stressful and hectic lifestyles we lead today barely account for the physical and mental repercussions. Issues such as Generalized Anxiety Disorder (GAD) and Panic Disorder are highly common in India today, and often go undiagnosed and untreated. This is an extremely dangerous and unhealthy result of the fast-paced lifestyle young Indians lead. Panic attacks are one such example of a mental health emergency which is not often talked about. People tend to experience symptoms like chest pain, shortness of breath and occasionally, back pains; all of which can be very frightening and easily associated in the mind with some serious health issue like a cardiac arrest. Further, it is difficult for people around the user to even understand what they are going through, let alone help them.

A Chatbot can be described as an interface which uses machine learning to simulate human-like conversations. Its purpose is to replicate human conversation as closely as possible. We aim to distinguish the symptoms of a panic attack from a more serious problem using our bot. Making use of Grounding and other basic CBT Techniques, we intend to demonstrate how a chatbot can guide a person experiencing a panic attack out of a state of spiraling. We designed a chatbot which acts as a first-responder for panic attacks among other mental health related emergencies. Our system can identify symptoms of a panic attack and provide first-aid like guidance and assistance to alleviate symptoms. Provided further assistance and responses necessary to ensure that the user has had a satisfactory experience.

Keywords— ChatBot, Panic attack, Mental Health, Deep Learning, Convolutional Neural Network

I. INTRODUCTION

The way we react to situations, the way we think of, the way we feel, directly or indirectly depends on our mental health. Our emotional and psychological behaviour represents our mental health. Good mental health help us to handle stress and bad situations with ease. It also helps us to make healthy choices. This way mental health is extremely important throughout our life. There have been researches and

developments happened on mental health issue such as panic attack. Studies shows that there is thin line between panic attack and coronary heart disease. Many times symptoms of panic attack overlap the symptoms of heart disease and this makes it difficult to recognize whether it is panic attack or heart attack [1].

In recent years, it is very important for the companies to keep a track of mental health of employees Invent of smartphones proposes a new version such as chatbot, through which employees are able to keep their mental wellness on their own. This kind of chatbot motivates user to use it on daily basis or repeated use.

Factors contribute to the problems related to mental health are:

- Biological elements, such as genes or brain chemicals
- Life experiences, such as distress, suffering or grief
- Family history of mental health issues

Mental health problems are common but need to handle with care. People with mental health problems can get better and many recover for the most part, and even completely.

The machine has been embedded knowledge to identify the sentences and making a decision itself as response to answer a question. The use of chatbots in the general field of mental health is abundant. Examples can be seen where they are experimentally used to treat depression and similar issues. However, this still remains a relatively new field where research is continuously done. Studies have systematically shown that while they cannot be used as replacements for medical intervention, chatbots can certainly act as a quick and efficient tool in providing mental healthcare assistance [2].

The arrangement of the remaining part of this paper as follows: Section II provides the proposed system where we discuss the dataset preparation, Training model, Bot functionality and Neural Network in detail. Section III showcases the results to support the approach, and finally, Section IV concludes the work and discusses its future scope.



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LIGHTWEIGHT CRYPTOGRAPHY FOR SECURITY IN IOT DEVICES

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Abstract - Over the last few years there has been vast development in IOT technology. this technology made people life style much easy and interesting through various innovations by finding solution to day to day problems. today's scenario of security development is widely more protectable and important in daily life style. In IOT applications, security plays important role because data that has transferred is always become secure if any of the unauthorized access getting in it, they can be affected personal injury as well as damage of security development.

Index Terms – IOT, lightweight, cryptography and Sensor

1. INTRODUCTION

Entire business world is connected to security. The supply and need of the market in the various country has drastically increased over the last few year and it is very important to provide customers with best security. In the future, large amount of lightweight devices going to be connected with each other. It is important to secure entire system in order to ensure to be relied on as truthful. Cryptography is well-developed, secure information and communication technique derived from stimulated concept and set-up of rule based calculation called algorithms. Transformation of messages will be in various ways, so that its is hard enough to decipher. these algorithms are used for verification to protect data privacy, web browsing on the internet without any risk, secret communications such as credit card transactions, email etc. Latest estimation in IOT, devices are connected in cloud platform. i.e many of industrial IOT applications. Thus, the insurance of privacy and data protection is struggling at the moment to be solved.

Generally, IOT devices targeted to simple data processing. i.e mobile apps, void control devices, smart TV sets etc. therefore, capacities are often small. Internal system allocated with less amounts of battery, Random access memory (RAM), low rates of data etc. Because of this reason IOT devices are unable to allocate considerable memory and processing energy just for security allocation. that is when introducing lightweight cryptography. This version expects to execute which has less amount of computational complexity giving high robustness against security attacks meanwhile.

The evolution of cloud computing over the years is very uncommon. There are certain things to cloud data for extending cryptography. Cryptography now becomes a huge part of IT department. Various day-to-day activities are carried on it for security purpose. The benefits of cloud computing are being realized by more companies and organizations every day as it is very much secure. Cloud computing gives the clients a virtual computing infrastructure on which they can store data and run many applications. But the main motive of cloud computing is that stored the secure messages of clients. There are many other approaches to extending cryptography to cloud data. Many companies choose this system to encrypt data prior to uploading it to the cloud altogether.

2. MOTIVATION

Necessity is the mother of invention. This led to vast development in the field of technology. Many innovative ideas and inventions had resulted in the advancement of human lifestyle. Things now work much easier than before and this

process is going on. When it comes to cryptography there is a development but still there are many complications. with cryptography data will be hacked by anywhere, it is difficult to find the hackers and searching exact location of it. The cryptography expose critical infrastructure to weak and easy and it is mainly weak and hidden cryptography. Public main attention to exposed cryptography leads to brand erosion to customers. This new modern environment requires organizations to pay attention to know how cryptography being implemented and managed throughout the whole enterprise. This motivated us to work on the innovative IOT based cryptography which helps client to find the data easily and don't need to think about data protection.

3. LITERATURE REVIEW

Purposes [1] the primary focus was to examine the importance and uses of lightweight cryptography in security of IOT devices. Now, a days, the majority of humans are increasingly to secure the data on the online platform because it consumed less time and less memory as it is itself. named as lightweight cryptography as the peoples data hacked easily so the encrypt the message and to overcome this problem, we introduced the lightweight cryptography in IOT devices for assuming it will help the people very much to keep their data secure. thus, this literature reaches were performed using webpages. A lightweight cryptography based on the internet of things (IOT) was presented, which includes ultrasonic sensors, ESP32 micro controller and a LCD screen & a keyboard and a webpage. wireless connection is required for an sensors following that the ESP32 will connect so, after the connection the messages will display on LCD screen automatically. To achieve confidentiality, the data and nodes are encrypted throughly, traditional cryptographic primitives are not directly applicable to IOT devices as it involves very poor resources. Lightweight cryptography should be applied efficient encryption in IOT. lightweight symmetric and asymmetric algorithm should be design for IOT systems. In the future, in IOT data security and authentication is big concerns so number of technique are proposed in which hybrid models of encryption and authentication algorithms are made but this cause increase in the memory requirement on the devices. As a result, the proposed model is more competitive than alternatives [2].

Author proposes that the survey with a goal of finding the best suitable solution for IOT security. It is very difficult to find one clear approach which will fit all kinds of application of IOT. So, we all know that the various kinds of devices are connected in IOT networks. Some devices can afford to have a heavyweight and a high security method, but most of the devices are resource constrained. They need a security solution which acts fast and mainly it need to less complex and versatile [3].

Author proposes that the cloud based IOT architecture is a structure which is used for specification of networks physical components its different performance principle and procedures. As the data will secure by the help of cloud server. the cloud server or we can say IOT it has different layers which face many attacks like active and passive

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Comparative Analysis Of Naive Bayes, Decision Tree And XG-Boost For Crop Recommendation System

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Abstract-

The need for increasing crop production is a significant challenge for farmers. This is due to a combination of factors, including climate change, soil degradation, and limited access to resources and technology. All of these factors can lead to decreased yields and, in turn, reduced income for farmers. To meet this challenge, farmers must develop new methods of production that are resilient, cost-effective, and sustainable. This will require a holistic approach, involving technological and agricultural advances, as well as improved access to resources, investments, and training. Crop cultivation anywhere in the world depends on the climate, seasons and various factors like soil properties. However, the process of increasing the production of crops depends on various factors, including mainly on temperature. Our proposed method utilises Machine Learning Procedures with the end goal that it proposes the appropriate crops dependent on the Temperature, humidity, potassium, nitrogen, rainfall ph, phosphorus. This kind of framework, subsequently helps to reduce the losses and misfortunes looked by the farmers brought about by establishing the probability of bad harvests and furthermore it gives the information on the Occasional characterization of yields what harvest is reasonable for which season. There are several machine learning algorithms available are used in this system., including KNN, Decision Tree, and To recommend the crop, Random Forest, Naive Bayes and XG-Boost are used.

Keywords—Naive Bayes, Decision Tree, XG-Boost, Machine Learning, Crop Recommendation System.

I INTRODUCTION

There is no doubt that the major source of income in rural India is agriculture and its allied industries. Moreover, agriculture contributes a lot to the country (GDP). The country is fortunate to have such a large agricultural sector. This may be one of the possible reasons for the higher suicide rate among marginal farmers in India. For farmers, this study offers a practical and easy-to-use yield forecasting system.

The proposed system provides connectivity to farmers through mobile or online applications. User location can be determined using GPS. The user enters a location and a soil type. Machine learning algorithms help select the most profitable crop lists or forecasts. Some machine learning techniques are used to predict crop yields, including Support Vector Machines (SVM), Decision Trees (DT), XG Boost, Gaussian Naive Bayes, Random Forest (RF), and K Nearest Neighbors (KNN).

Among them, Random Forest showed the best results with 90% accuracy, while Naive Bayes showed 99%.

Agriculture in India is vital to the socio-economic structure of the country. For a country where nearly 58% of the population works in agriculture, the inability of farmers to

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Heatmap Analysis of Webpages

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Abstract

These days, as everything has gone online and virtual, we use websites on a regular basis in our daily lives. However, in order to match user needs, the question of how website admins would learn what the user wants emerges. So, using techniques like mouse clicking, this project captures information about user activity on a web page, and then using the appropriate technology, it converts the data into meaningful and insightful heatmaps. Its main goal is to make websites more user-friendly by providing web administrators with valuable information about users' activities.


Keywords

Heatmap, Statistics, User Experience, User Interface, Web Tracking, Websocket.

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