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Contents

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Text and Image Plagiarism Detection using AI

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A B S T R A C T

Plagiarism is a hot topic in academic circles right now, more so than in years past. Web conditions and the feasibility of smart, sophisticated searches in a short amount of time are graded according to this, and this has caused substantial harm to the research. Plagiarism detection tools just process text and disregard any visual content. Images, on the other hand, are an integral aspect of information transmission since they convey the vast amounts of data presented in articles and scientific studies. One possible source of plagiarism is the abundance of flowchart pictures in computer writings; these drawings cover a broad variety of topics and convey a great deal of information. The goal of this research is to use an artificial network to determine how often plagiarized flowchart graphics are written works. The suggested technique achieved an average accuracy of 81.91% in recognizing structure, nodes, and edges in flowchart graphics.

INTRODUCTION

Using someone else's words, ideas, concepts, or structures and failing to provide proper credit is called academic plagiarism. Different types of academic plagiarism can be classified according to the level of obfuscation they employ. Some forms of plagiarism, like copy&paste, are very obvious, while others, like shake&paste, involve slight alterations. Then there are disguised forms of plagiarism, like paraphrases, translations, idea plagiarism, and even academic data plagiarism. Students are more likely to engage in the more obvious kind of copy&paste plagiarism, while researchers are more likely to engage in substantially changed copying. Researchers have significant incentives to conceal their work by expertly modifying it. Systems that use text retrieval to locate comparable materials have matured as a result of research on plagiarism detection (PD). Although these methods are good at retrieving papers with duplicated material, they aren't always good at spotting academic plagiarism that is veiled. To augment text-matching systems and enhance detection capabilities for veiled kinds of plagiarism, many approaches have been devised, as we briefly discuss in Section 2. Research on image analysis for academic plagiarism detection has been sparse in comparison to the several advanced text-based retrieval methods suggested for PD. This research takes a look at picture similarity detection algorithms as a potential alternative to textual similarity for detecting plagiarism. 'Images' in our context mean both the graphical depictions of data (in bar charts, scatter plots, graphs, etc.) and the conceptual depictions of entities and their relationships (in flow charts, organigrams, and component diagrams, among Images and photorealistic simulations also included in our concept. Images are great way to transmit a lot of information quickly, and they do so in a way that is distinct from what language can express. Because of these qualities, photographs are a great factor to look at when the degree of semantic similarity in scholarly articles. In order to detect both translation and concept plagiarism, it essential to identify semantic similarities. Reconstructing data values from graphs makes data plagiarism evident in certain

circumstances. This is the outline of the paper. We provide a high-level overview of generic PD methods and prior work on image-based PD in Section 2. In Section 3, we start by looking at the similarities in images identified in papers that have been accused of academic plagiarism; this will inspire our image-based PD strategy. What follows is an overview of the approaches we created and how they were included into an adaptable and scalable picturebased PD strategy that could target the specified kinds of image similarity (Section 3).

METHODOLOGY:

1. User Login
2. Upload Source Files
3. Upload Suspicious Files
4. Upload Source Image
5. Upload Suspicious Image

Modules Description:

User Login: user signup process completed and now clicks on 'Login' link user is login

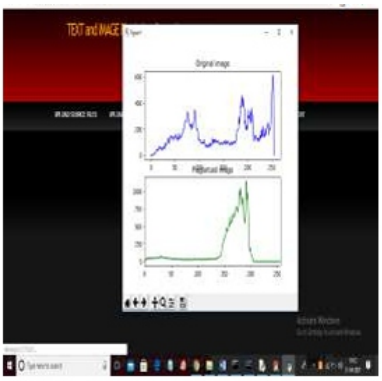
Upload Source Files: Upload Source Files link to load all files from corpus folder and all files are loaded.

Upload Suspicious Files: Upload Suspicious File module to load suspicious file

Upload Source Image: Upload Source Images module to upload all images from 'images' folder and all database images histogram will be calculated and store in array and whenever we upload new test image then both histogram will get matched.

Upload Suspicious Image: Upload Suspicious Image link to upload some image selecting and uploading '112.jpg' file and then click on 'Open' button we can see for database image and uploaded image we generated histogram and we can see there is no match in histogram so no plagiarism will be detected.

RESULTS:



In above screen we can see for database image and uploaded image we generated histogram and we can see there is no match in histogram so no plagiarism will be detected and now close above graph to get below result

In above screen we can both original and uploaded image histogram is matching 100% so plagiarism is detected and now close above graph to get below result

In above screen histogram matching score is 40000 which means all pixels matched so plagiarism is detected in above result. Similarly u can upload any text file and image and test the application

CONCLUSION

We introduced an image-based plagiarism detection approach that adapts itself to forms of image similarity found in academic work. The adaptivity of the approach is achieved by including methods that analyze heterogeneous image features, selectively employing analysis methods depending on their suitability for the input image, using a flexible procedure to determine suspicious image similarities, and enabling easy inclusion of additional analysis methods in the future. To derive requirements for our approach, we examined images contained in the VroniPlag collection. This real-world collection is the result of a crowd-sourced project documenting alleged and confirmed cases of academic plagiarism. From these cases, we introduced a classification of the image similarity types that we observed. We subsequently proposed our adaptive image-based PD approach. Our process integrates perceptual

hashing, for which we extended the detection capabilities by including an extraction procedure for sub-images. Since textual labels are common in academic images, we devised and integrated two approaches using OCR to extract text from images and use the textual features for similarity assessments. To address the problem of data reuse, we integrated an analysis method capable of identifying equivalent bar charts. To quantify the suspiciousness of identified similarities, we presented an outlier detection process. The evaluation of our PD process demonstrates reliable performance and extends the detection capabilities of existing image-based detection approaches. We provide our code as open source and encourage other developers to extend and adapt our approach.

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Personality Traits and their Impact on Superstitious Behaviour in Athletes

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A B S T R A C T

This study investigated the potential association between personality traits— specifically psychoticism, extraversion, and neuroticism—and superstitious behavior among intercollegiate athletes in Raipur district, Chhattisgarh. A sample of 100 athletes, both male and female, with an average age of 21.18 years, was randomly selected for the study. Superstitious behavior was evaluated using a scale validated by Dubey and Dixit (2011), while psychoticism, extraversion, and neuroticism were assessed using the Hindi version of Eysenck's PEN inventory, as developed by Menon et al. (1978). The correlation coefficients between superstitious behavior and psychoticism, extraversion, and neuroticism were found to be 0.628, 0.189, and 0.729, respectively—all statistically significant. In conclusion, the findings suggest that personality traits, specifically psychoticism, extraversion, and neuroticism, play a significant role in influencing superstitious behavior among intercollegiate athletes.

Keywords: Superstitious behaviour, personality traits, athletes

INTRODUCTION

A fascinating aspect deeply ingrained in human culture is the phenomenon of superstition, which persists across time and various societies. Superstitions, stemming from irrational beliefs and practices that influence behavior, often aim to exert control or influence outcomes, reflecting humans' innate tendency to seek patterns and significance in the world. Despite being sometimes dismissed as illogical or groundless by contemporary society, superstitions continue to impact many aspects of daily life, including rituals, decision-making, and cultural traditions.

Superstitions have their roots in a time when people sought explanations for natural phenomena due to a lack of scientific understanding. In the absence of empirical evidence, superstitions emerged as a way to rationalize the inexplicable and unpredictable. These beliefs, often founded on flawed reasoning from observed correlations, became deeply entrenched in cultural norms and passed down through generations, resulting in a diverse array of superstitions unique to different cultures and regions.

A recurring theme in superstition is the human desire for predictability and control in an uncertain world. Superstitious thoughts often arise from attempts to exert control over events or avoid imagined negative outcomes, reflecting humans' innate need for agency amidst chaos. Superstitions encompass a wide range of beliefs, from those related to luck and prosperity to those aimed at averting harm or Common examples include carrying lucky charms like horseshoes or four-leaf clovers, while avoiding actions like breaking mirrors, walking under ladders, or encountering black cats is believed to bring bad luck.

Superstitious behavior, as defined by Skinner (1948), encompasses specific actions and isolated incidents and has been prevalent in nearly every civilization throughout history. Despite advancements in modern society, superstitious beliefs and practices persist, as noted by Newport and Strausberg (2001). For instance, actions like crossing fingers or touching wood are considered superstitions, as suggested by Vyse (1997) and Goodal (2010), respectively.

Superstitious behavior, commonly observed as superstitious rituals, is frequently adopted by athletes across various cultural and demographic backgrounds, as noted by Bleak and Frederick (1998). Whether in sports, academic exams, or professional endeavors, athletes are under immense pressure to perform, with outcomes significantly impacting their careers. In today's sports landscape, athletes face heightened financial pressures and public scrutiny, adding to the stress of competition. Despite meticulous preparation, athletes often encounter factors beyond their control, such as weather conditions, umpire decisions, or errors by teammates. In sports, superstitious behavior manifests through distinct actions that deviate from athletes' usual routines, as described by Schippers & Van Lange (2006) as peculiar and repetitive behaviors. The relationship between superstitious conduct and personality is complex and nuanced. While personality traits may influence an individual's susceptibility to superstitions, superstitious beliefs and actions can also reflect and shape aspects of one's personality. Understanding how psychological demands, cognitive functions, and personality traits intersect to influence the emergence and perpetuation of superstitious tendencies is crucial for comprehension. Practically, understanding the interplay between personality and superstition holds significance across various domains, including psychiatric counseling, education, and designing interventions to help individuals overcome irrational beliefs.

While certain superstitious rituals, like stepping onto the field with the right foot forward or carrying a red handkerchief, may seem commonplace, an athlete's inability to perform these rituals or belief in pre-game events affecting outcomes can adversely affect their mental state. Hence, the researcher sought to explore the relationship between personality traits and superstitious behavior in athletes.

REVIEW OF LITERATURE

Mukherjee and Shaikh (2020) found that the majority of athletes, regardless of gender, engage in various superstitious rituals, aiming to influence luck, alleviate fear of failure, boost confidence, enhance focus, and reduce stress and anxiety, especially during high-level competitions. Allen et al. (2020) noted that boxers commonly adopt superstitious rituals to invoke good luck and maintain psychological control under pressure. Some boxers safeguard their belongings from being touched and adhere to specific rituals to bolster self-control. Gupta and Dutt (2019) observed that female athletes frequently rely on superstitious practices such as wearing lucky black threads or scarves or donning attire worn during previous victorious matches. Yadav and Agashe (2018) reported that sportspersons turn to superstitious behavior as a means to enhance their confidence levels. Katerina et al. (2017) concluded from their research that employing superstitious rituals does not necessarily alleviate sports competition anxiety or enhance self-confidence in athletes. Bal et al. (2014) discovered that athletes participating in team sports tend to exhibit fewer superstitious behaviors compared to those in individual sports. Todd and Brown (2003) highlighted the significant role of locus of control in influencing superstitious behavior among athletes.

OBJECTIVE

The objective of the present study is to assess the association between personality traits and superstitious behaviour of intercollegiate athletes.

HYPOTHESIS

The hypothesis posited that there exists a notable correlation between the personality traits of psychoticism, extraversion, and neuroticism, and the manifestation of superstitious behavior among intercollegiate athletes.

METHODOLOGY

Sample

The study involved the selection of a sample comprising 100 intercollegiate athletes hailing from diverse sporting backgrounds within the Raipur district of Chhattisgarh. Notably, the sample exclusively consisted of both male and female athletes. The average age of the participants was determined to be 21.18 years. These athletes were chosen through a random selection process, ensuring that each individual had an equal chance of being included in the study.

Tools:

Superstition Scale :

The study utilized the superstitious behavior scale developed by Dubey and Dixit in 2011 to collect data. This scale consists of 40 statements, each offering three alternatives for respondents to choose from. The scoring range for this scale spans from 40 to 120, allowing for a comprehensive assessment of superstitious tendencies among participants. The reliability and validity of this scale have been rigorously tested and established. The Spearman-Brown coefficient, a measure of internal consistency reliability, was determined to be 0.82, indicating a high degree of reliability in measuring superstitious behavior. Additionally, the scale's validity was assessed using a Radical conservative attitude scale, further confirming its effectiveness in accurately capturing superstitious tendencies among individuals.

PEN Inventory :

The personality traits namely psychoticism, extraversion and neuroticism were assessed through the Hindi version of Eysenck's PEN inventory prepared by Menon et al (1978). It consists of 78 statements. The reliability and validity of this inventory have been proved beyond doubt through sound statistical measures.

Procedure:

A cohort of 100 intercollegiate athletes representing diverse sports disciplines underwent the administration of both the superstition scale and the PEN inventory. Scoring procedures were conducted in accordance with the instructions provided in the respective manuals. Subsequently, data tabulation was performed, followed by the computation of the Pearson correlation coefficient and coefficient of determination. The findings of these analyses are summarized in Table 1.

RESULT AND DISCUSSION

Table 1

Value of Correlation (r) between Personality Traits and Superstitious Behaviour in Intercollegiate Athletes (N=100)

Personality Traits↓		Superstitious Behaviour
Psychoticism	N=100	.628, p<.01
Extraversion	N=100	.189, p<.05
Neuroticism	N=100	.729, p<.01

Table 1 displays the correlation values between personality traits (psychoticism, extraversion, and neuroticism) and superstitious behavior in a sample of 100 intercollegiate athletes. The correlation coefficient (r) for psychoticism and superstitious behavior is 0.523 ($p < 0.01$), indicating a moderately strong positive correlation. This suggests that as psychoticism increases, superstitious behavior tends to increase as well. For extraversion and superstitious behavior, the correlation coefficient is 0.189 ($p < 0.05$), indicating a weak positive correlation. This suggests that there is a slight tendency for individuals with higher levels of extraversion to exhibit more superstitious behavior, although the relationship is not as strong as with psychoticism. The correlation coefficient for neuroticism and superstitious behavior is 0.729 ($p < 0.01$), indicating a moderately strong positive correlation. This suggests that as neuroticism increases, superstitious behavior also tends to increase. These findings align with theoretical perspectives such as Eysenck's theory of personality. According to Eysenck, psychoticism is associated with traits such as aggressiveness, impulsivity, and sensation-seeking behavior (Eysenck, 1991). Individuals high in psychoticism may be more inclined to engage in superstitious behavior as a means of exerting control or coping with uncertainty, consistent with the observed positive correlation between psychoticism and superstitious behavior. Similarly, neuroticism is characterized by traits such as anxiety, insecurity, and emotional instability (Eysenck, 1991). Individuals high in neuroticism may turn superstition as a way of alleviating anxiety or reducing stress, which could explain the positive correlation between neuroticism and superstitious behavior.

Extraversion, on the other hand, is associated with traits such as sociability, assertiveness, and activity (Eysenck, 1991). While the correlation between extraversion and superstitious behavior was weaker compared to psychoticism and neuroticism, it still suggests that individuals with higher levels of extraversion may engage in some degree of superstitious behavior, possibly driven by a desire for excitement or stimulation. These results also have the support of research conducted on this topic by Wiseman and Watt (2004), Francis and Jackson, 2003, and McCrae (1996).

CONCLUSION

It can be concluded that psychoticism, extraversion, and neuroticism personality traits are associated with superstitious behaviour in intercollegiate athletes. These results contribute to understanding how personality traits may influence superstitious behaviour in this particular population of intercollegiate athletes.

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IOT BASED INDUSTRIAL SENSOR MONITORING AND AUTOMATIC CONTROLLING SYSTEM

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A B S T R A C T

In industrial environments, maintaining safety and operational efficiency is paramount, yet challenging due to the complexity and inherent risks involved. This project introduces an advanced IoT-based industrial sensor monitoring and automatic controlling system designed to enhance industrial safety measures while optimizing process efficiency. At the heart of the system is the ESP32 microcontroller, which provides robust processing capabilities to manage data from temperature, various PIR, sensors—gas, and flame, LDR—deployed throughout the industrial setting.The system functions by continuously monitoring the environment for any deviations from predefined safe conditions. Upon detecting elevated temperatures, the presence of poisonous gases, or fire, the system autonomously initiates specific control actions. These include activating an exhaust fan to dissipate heat and gases, and triggering a water spray mechanism to extinguish fires, breaches.All critical data and alerts generated by the system are displayed on a 2x16 LCD for onsite monitoring and are simultaneously transmitted to a mobile application via Wi-Fi. This dual-mode communication ensures that both on-site and remote personnel are well-informed, allowing for immediate action when necessary.

Keywords: ESP32 Microcontroller, PIR sensor, LDR sensor,Flame sensor, 2*16 LCD.

1. Introduction

In the realm of industrial safety and efficiency, the integration of IoT technologies has paved the way for innovative solutions, exemplified by the Industrial Sensor Monitoring and Automatic Controlling System proposed in this project. Central to its design is the ESP32 microcontroller orchestrating a network of sensors including gas, flame, temperature, PIR, and LDR. This system aims to revolutionize industrial processes by offering real-time monitoring and autonomous responses to environmental fluctuations and security threats. Through predefined thresholds, it triggers specific actions such as activating the exhaust fan to regulate temperature spikes or initiating safety measures like sounding alarms and spraying water upon fire or gas detection. The inclusion of a PIR sensor enhances security detecting unauthorized access, while the LDR sensor optimizes energy usage by controlling lighting based on ambient light levels. Moreover, the system ensures seamless remote monitoring via WiFi connectivity, enabling operators to receive alerts and monitor sensor data directly on their mobile devices. In summary, this project represents a holistic approach to industrial safety and efficiency, leveraging IoT and intelligent automation to mitigate risks and enhance operational resilience.

The following components are used to create hardware module
1. ESP32 microcontroller
2. Gas sensor
3. Flame sensor

4. Temperature sensor
5. PIR (Passive Infrared) sensor
6. LDR (Light Dependent
Resistor) sensor
7. Buzzer
8. Exhaust fan
9. Water spray mechanism
10. 2x16 LCD display

Scope of the method

- The project centers around an Industrial Sensor Monitoring Controlling System. and Automatic
- It utilizes an ESP32 microcontroller as its core component.
- Various sensors are integrated, including gas, flame, temperature, PIR, and LDR.
- The system enables real-time monitoring of industrial environments.
- It autonomously responds to environmental factors such as temperature fluctuations.
- Safety measures include gas and flame detection triggering appropriate responses.
- Security enhancements include detecting unauthorized access via PIR sensors.
- Energy efficiency is optimized through intelligent lighting control using LDR sensors.
- A buzzer provides audible alerts for detected hazards or security breaches.
- The system activates an exhaust fan to regulate temperature beyond threshold limits.
- Water spraying mechanisms are triggered in case of fire detection.
- Sensor data and alerts are displayed on a 2x16 LCD screen for operator visibility.
- The system enables remote monitoring and management via WiFi connectivity.
- Its applications encompass industrial safety, efficiency optimization, and risk mitigation.
- The project's scope spans diverse industrial settings, offering versatile solutions for monitoring, control, and security.

2.1 The Flow of the System

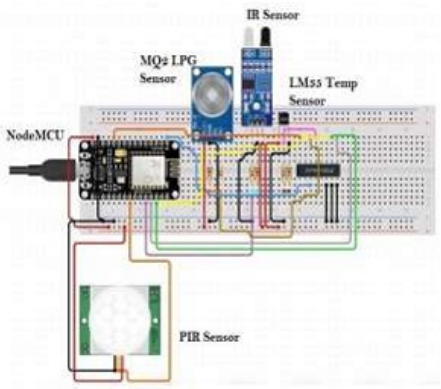

Figure1. Circuit Diagram for the System

2.2 The system's flow begins with the hardware setup, where the Arduino board is assembled with various components, including sensors like gas, flame, temperature, PIR, and LDR, as well as actuators such as the exhaust fan and water spray mechanism.These components are interconnected according to specified pin configurations, ensuring proper power and ground connections. Moving to programming

and configuration, code is written using the Arduino programming language to control the sensors and actuators based on predefined thresholds and conditions. This code is then compiled and uploaded to the Arduino board using the Arduino development environment. WiFi connectivity is configured to enable remote monitoring and data transmission to mobile devices. Real-time monitoring and control follow, with the Arduino board continuously monitoring sensor readings and implementing threshold-based control mechanisms to activate or deactivate actuators in response to detected anomalies. Data transmission and alerts are facilitated through communication between the Arduino board and mobile devices via WiFi, with real-time alerts and sensor readings displayed on the 2x16 LCD display for local monitoring and notifications sent to mobile devices in case of emergencies or abnormal conditions. Security enhancement is provided by the PIR sensor, which detects unauthorized entry into restricted areas, activating the buzzer to deter intruders and alert security personnel. Energy optimization is achieved through the LDR sensor, which automatically controls lighting based on ambient light levels. Remote management and monitoring are enabled through a mobile application or web interface, allowing operators to access real-time sensor data and control actuators from anywhere with an internet connection. The system integration and testing phase ensure proper functionality and reliability, performance with under validation various of operating conditions and simulation of emergency scenarios to assess response mechanisms.

Deployment in industrial environments follows, with configuration, proper installation and and establishment of a maintenance schedule for regular inspection, calibration, and software updates to ensure continued operation and effectiveness. Continuous improvement involves gathering feedback from users and stakeholders to identify areas for enhancement and refinement of the system based on evolving requirements and technological advancements in the industrial sector.

2.3 The Block Diagram of the System

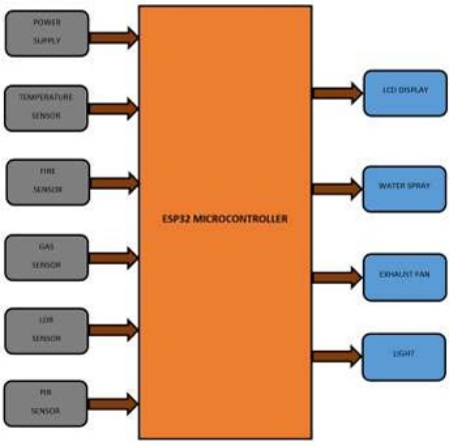

Figure 2.System Block Diagram

In the Industrial Sensor Monitoring and Automatic Controlling System, the various sensors (gas, flame, temperature, PIR, LDR) are connected to the Arduino's digital input pins. When any sensor detects an anomaly or predefined threshold is exceeded, it sends a signal to the Arduino for processing. The Arduino then initiates appropriate actions based on the detected condition. For instance, if the temperature exceeds the threshold, the Arduino activates the exhaust fan to regulate the temperature. Similarly, if fire or poisonous gas is detected, the Arduino triggers the buzzer for audible alert and activates the water spray mechanism for fire suppression. Additionally, unauthorized access detected by the PIR sensor results in the Arduino activating the buzzer to alert security personnel. The system may

also include features for energy optimization, such as controlling lighting based on ambient light levels using the LDR sensor. Alerts and sensor data are communicated to remote devices, such as smartphones or computers, via WiFi connectivity, enabling real-time monitoring and remote management. This block diagram provides a simplified overview of the system's functionalities, with specific components and features tailored to the industrial monitoring and control requirements.

3. CONCLUSION

The IoT-based Industrial Sensor Monitoring and Automatic Controlling System has successfully demonstrated its ability to enhance safety, efficiency, and control in industrial environments. Through the integration of ESP32 microcontroller and various sensors, the system effectively monitors environmental parameters and initiates appropriate control actions in response to detected anomalies. It provides reliable and accurate performance, offering a cost-effective solution with scalability and versatility. By leveraging IoT technologies and automation, the system improves safety standards, optimizes resource utilization, and streamlines operations. Its successful implementation highlights the potential of IoT in revolutionizing industrial processes, paving the way for future advancements in industrial management and automation.

4. SUGGESTIONS

In refining the IoT-based Industrial Sensor Monitoring and Automatic Controlling System, two key suggestions emerge:

1. Enhance system reliability and accuracy by integrating redundant sensor arrays, particularly for critical parameters like gas, flame, and temperature. Multiple sensors of the same type provide backup mechanisms and improve anomaly detection, ensuring continuous monitoring and effective response to environmental changes.
2. Consider upgrading to a microcontroller with increased memory and processing power to support more complex algorithms and advanced features. This upgrade enables the system to handle larger datasets, implement predictive analytics, and support enhanced remote monitoring and control capabilities, thereby elevating overall system performance and versatility.

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Role of Individualized Homoeopathic Medicine in case of Primary Hypertension:

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ABSTRACT

This article aims to report the effect of individualized homoeopathic medicine in the management of a patient with Primary Hypertension. A 28 years old female suffering from Primary hypertension reported for treatment in the OPD of RVHMC & camp; H, Udaipur. Homoeopathic medicine Natrum mur . 30C was prescribed on the basis of totality of symptoms of the patient. Her symptoms gradually reduced and after treatment for 6 months, she was completely relieved of her suffering. This case provides documentary evidence about the effectiveness of homoeopathic treatment in Primary hypertension.

KEYWORDS: Primary hypertension, HK-LS, Individualistic homoeopathic medicine, Natrummur. 30C.

INTRODUCTION

Hypertension is one of the most prevalent chronic diseases worldwide. In most cases, hypertension has no obvious cause; this is termed essential hypertension. Genetic factors play a significant role. It is known to be precipitated by emotions such as fear, anxiety, anger and excitement. If conscious, these states are appropriate and self-limiting but endure if unconsciously repressed(1). For decades, psychosomatic research in hypertension has focused largely on consciously experienced emotional distress, such as anger and anxiety while paying minimal attention to unconscious emotion(2).

Essential (Primary) hypertension (HTN) can be defined as an increase in blood pressure (>140/90 mmHg) of no apparent cause an increasing in developing countries. The risk of becoming hypertensive during a lifetime exceeds 90% and it comes under the classification of 110 in ICD-10(3). Essential Hypertension affects a quarter of adults worldwide. It is estimated increase 1/3 by 2025(4). The Homoeopathic management of essential hypertension, like all other diseases, is based on the core concept of "similia similibus curentur," wherein similarity is established not only at the level of signs and symptoms but also at the level of portrait of disease to understand the essence of the problem and create a drug picture(5-6). In most cases, there will be no apparent symptoms of essential hypertension, and it will only be discovered during a regular medical examination. A strong family history of increased blood pressure along with reported findings of intermittent increase in pressure in the past, favours a diagnosis of essential hypertension.

Other symptoms that may be related to elevated blood pressure are:

- Dizziness
- Palpitation
- Headache
- Easy fatigability

•Impotence

If essential hypertension is not diagnosed, the condition has the potential to worsen and create heart or kidney problems(7). A patient suffering from Primary Hypertension was treated with individualized homoeopathic medicine in the OPD of Rajasthan Vidyapeeth Homoeopathic Medical College and Hospital, Dabok, Udaipur, Rajasthan. Medicine was prescribed on the basis of totality of symptoms of the patient. The selection of potency, dose and repetition of the medicine were according to homoeopathic principles. Follow-up of the case was done every Fifteen days for six months for assessing the blood pressure.

CASE REPORT

Presenting complaints

A female patient aged 28 years reported at the OPD (Reg. no. – 592024) of RVHMC &Camp; H, Dabok, Udaipur, Rajasthan, with complaint of Hypertension for last one year. Her symptoms included sweating, sleeplessness, Heaviness of head, vertigo on rising in the morning, worse raising the arms; palpitations. Blood pressure was 140/100 mmHg and her weight was 67 kg. History of present illness:

The patient had Heaviness of head and vertigo since 1 year.

Headache, vertigo, anxiety and palpitation increase in last 2-3 months.

Past History: Nothing specific

Personal History: Married

Family History: Father had H/O Hypertension at the age of 40 years.

Gynaecological History: Her menstrual cycle was every 25-27 days, regular, profuse for 3 to 4 days, bright red mixed with dark clots, partly fluid and partly clotted. Menarche was at the age of twelve years.

Mental symptoms: Irritability, introverted, weeping tendency, anxiety, affectionate, aversion to company, consolation aggravates, ailments from grief

Physical Generals

- Obese
- Thermal reaction: Hot patient,
- Thirst: 8-10 glasses per day (1-2 litres /day)
- Perspiration: Profuse whole body
- Stool: Constipation
- Craving: Salt
- General modalities: Worse from sun heat

Physical examinations

General examinations: NAD , Weight: 67 kg, Height 152cm

Systemic examinations: NAD

We started Natrum mur for her and the doses were increased every 3-5 weeks according to the blood pressure levels; in addition we advised her to continue being on low salt diet and to decrease her weight. Her blood pressure was changing between 130\100 and 120\90 mmHg for a limited period of time. In her history, these points could be found: Irritability, angry at trifles, introverted, weeping tendency, weakness of memory, absent minded, anxiety, affectionate, aversion to company, consolation aggravates, ailments from grief , Aversion to milk; desires: Salt, tea, profuse perspiration on scalp,

forehead; constipation; thirst for large quantities; sleep full of dreams, headache, dyspnoea, difficulty in breathing. Her characteristics were compatible with "Natrum murticum" remedy. We started to treat her by Natrum muriticum 30 remedy. {diluted and potentized by specific method 3 in homeopathy pharmacy} Fifteen days later, she had a blood pressure of less than 140/90 mmHg and a little headache, vertigo. She also had less anxiety.

Her blood pressure stood between 130/90 and 120/80 mmHg. All symptoms and signs including vertigo, depressed mood , anxiety, dyspnea, sweating, palpitation and constipation disappeared. She experienced well being sensation. She was followed up for six months after the last dose of remedy and had no complaint and her blood pressure was not increased.

GENERAL MANAGEMENT :

Light exercise, rest when neede, continue being on low salt diet and to decrease her weight.

DISCUSSION

According to homoeopathic literature, medicines like Sulphur , Natrum muriaticum, Lycopodium, Nux vomica, Phosphorus, Arsenicum album, and Calcarea carbonica, Pulsatilla, Sepia, Lachesis, Argentum nitricum, Aconite, Silicea, Belladonna and Rhustoxicodendron and other medicines that can help for Primary hypertension. (8) Natrum mur . 30 was prescribed to the patient on the basis of totality of symptoms.

Natrum mur also covered mental symptoms, physical general and characteristics particulars. The improvement reflected by the diminished blood pressure, headache, vertigo and improvement in quality of life proved the efficacy of individualized homoeopathic medicine in the treatment of Primary Hypertension.

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BITCOIN PRICE PREDICTION USING RNN AND LSTM

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ABSTRACT

This project focuses on the development and implementation of a Bitcoin price prediction model utilizing Long Short-Term Memory (LSTM) networks and historical data obtained from the Yahoo Finance API. Cryptocurrency markets, particularly Bitcoin, exhibit high volatility and complexity, making them an interesting subject for predictive modelling. The project involves the extraction of relevant financial data, such as daily closing prices, trading volumes, and other key indicators, from the Yahoo Finance API. This data is then used to train an LSTM-based predictive model, known for its ability to capture intricate patterns and dependencies in sequential data. The LSTM model is chosen due to its suitability for time-series analysis, enabling it to learn and recognize long-term trends in Bitcoin prices. The project aims to explore the effectiveness of LSTM networks in predicting future price movements and to assess the model's accuracy in capturing the dynamic nature of the Cryptocurrency market. The outcomes of this project have implications for traders, investors, and researchers seeking to gain insights into the potential trends and fluctuations in Bitcoin prices. Additionally, the project may contribute to the broader field of financial technology by evaluating the applicability of advanced machine learning techniques in predicting Cryptocurrency market behaviour.

INTRODUCTION

Cryptocurrencies, with Bitcoin leading the way, have emerged as a revolutionary asset class in the global financial landscape. The dynamic and often volatile nature of the cryptocurrency market presents both challenges and opportunities for investors and traders. Predicting price movements in such a complex environment is a challenging task that has garnered significant attention from researchers and enthusiasts alike. This project addresses the intriguing problem of Bitcoin price prediction by leveraging advanced machine learning techniques, specifically Long Short-Term Memory (LSTM) networks. The project aims to harness the power of LSTM networks to analyse historical data sourced from the Yahoo Finance API, with the ultimate goal of developing a robust predictive model for Bitcoin prices.

Cryptocurrencies, decentralized digital assets powered by block chain technology, have gained widespread recognition and adoption. Bitcoin, as the pioneer cryptocurrency, exhibits unique market behaviours characterized by high volatility and speculative trading.

The motivation for this project stems from the increasing interest in predicting cryptocurrency prices to inform investment decisions and manage risks. LSTM networks, a type of recurrent neural network (RNN), are chosen for their ability to capture sequential dependencies, making them suitable for time-series prediction.

The primary objective is to design and implement an LSTM-based model for predicting Bitcoin prices using historical data from the Yahoo Finance API.

Evaluate the model's accuracy and effectiveness in forecasting future price movements, providing valuable insights for traders and investors. The project's scope encompasses the development of a data retrieval mechanism from the Yahoo Finance API, pre-processing of the obtained data, and the implementation and training of the LSTM model. The study will focus on daily closing prices and other relevant financial indicators to capture key market trends.

METHODOLOGY: Data will be collected from the Yahoo Finance API, encompassing historical Bitcoin price data, trading volumes, and relevant indicators. LSTM networks will be implemented and trained using the collected data, with model performance evaluated through various metrics. In summary, this project delves into the exciting intersection of cryptocurrency markets, machine learning, and financial technology, offering a comprehensive exploration of Bitcoin price prediction using LSTM networks and data from the Yahoo Finance API. The outcomes of this study aim to enhance our understanding of cryptocurrency market dynamics and contribute valuable insights for market participants and researchers alike.

LITERATURE REVIEW

Numerous studies have explored the unique characteristics of cryptocurrency markets, emphasizing factors such as high volatility, limited regulation, and speculative trading behavior (Cheah & Fry, 2015; Dyhrberg, 2016).

Traditional time-series analysis methods, including autoregressive integrated moving average (ARIMA) models, have been applied to Bitcoin price prediction (Kristoufek, 2015). Machine learning techniques, particularly neural networks, have gained popularity due to their ability to capture complex patterns in data (Garcia et al., 2017).

LSTMs, a type of recurrent neural network (RNN), have shown promise in capturing longterm dependencies in sequential data (Hochreiter & Schmidhuber, 1997). LSTM networks have been successfully applied in various time-series prediction tasks, including stock prices and financial market data (Bao et al., 2017).

Studies have demonstrated the effectiveness of LSTM networks in modeling financial timeseries data. For example, Guresen et al. (2018) applied LSTMs to predict stock prices with notable success. LSTM architectures have been adapted to handle the unique characteristics of financial data, such as irregular patterns and sudden market changes (Lim & Kim, 2019).

Successful prediction models often consider external factors beyond historical price data. These factors may include market sentiment, social media trends, and macroeconomic indicators (Catalini & Gans, 2016).

Existing literature acknowledges challenges in predicting cryptocurrency prices, including data noise, market manipulation, and sudden external events (Conrad et al., 2018). Model evaluation metrics and the need for continuous model adaptation to evolving market conditions are also recognized considerations (Moat & Preis, 2014).

The choice of data sources significantly impacts the quality of predictions. Studies have utilized diverse datasets, including historical market data, social media sentiments, and macroeconomic indicators, highlighting the importance of comprehensive data collection (Kim et al., 2019).

EXISTING SYSTEM

Existing systems for Bitcoin price prediction typically involve the following components: Data Collection: Retrieval of historical Bitcoin price data, trading volumes, and other relevant financial indicators from sources like the Yahoo Finance API. Data may also include external factors such as

social media sentiments, macroeconomic indicators, and market news. Data Pre-processing: Cleaning and preparing the collected data for analysis. This step may involve handling missing values, normalizing data, and addressing outliers to ensure the quality of the dataset.

LSTM Model Implementation: Integration of LSTM neural networks for time-series prediction. The architecture of the LSTM model is designed to capture long-term dependencies in sequential data, making it suitable for analysing historical price trends. Training the Model: The LSTM model is trained on historical data to learn patterns and relationships. Training involves adjusting the model's parameters based on the historical dataset to improve its predictive capabilities.

Validation and Testing: The model's performance is validated using a separate dataset not used during training. Testing involves assessing how well the model generalizes to unseen data and evaluating its predictive accuracy.

Model Evaluation Metrics: Employing metrics such as Mean Squared Error (MSE), Root Mean Squared Error (RMSE), or other relevant metrics to quantify the accuracy and effectiveness of the LSTM model in predicting Bitcoin prices.

Integration of External Factors: Some systems may incorporate additional features beyond price data, such as market sentiment analysis, social media trends, or macroeconomic indicators, to improve the model's predictive capabilities.

User Interface and Reporting: For user-friendly applications, existing systems might include a graphical user interface (GUI) for users to interact with the predictions. features could provide insights into model performance and predicted price trends. It's essential to note that the effectiveness of such systems can vary based on factors like the quality of data, the chosen model architecture, and the dynamic nature of cryptocurrency markets.

Additionally, the field evolves rapidly, and new methodologies and improvements to existing systems may have emerged since my last update. For the most current information, it's recommended to explore recent research papers, articles, or software repositories related to Bitcoin price prediction.

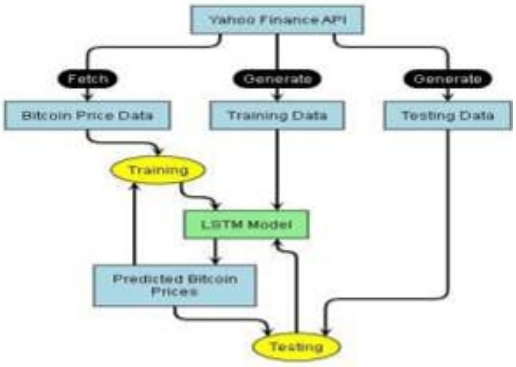
PROPOSED SYSTEM

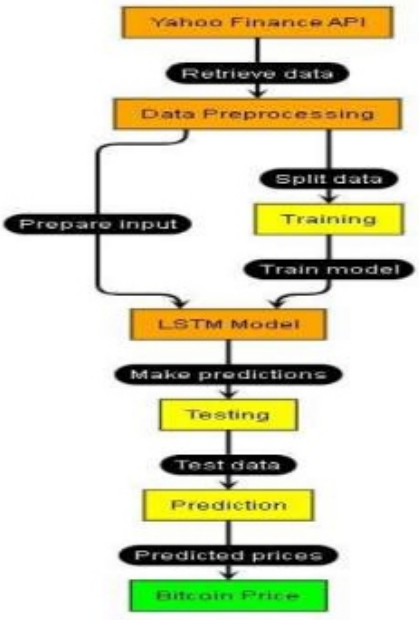
The proposed system for Bitcoin price prediction using LSTM and data from the Yahoo Finance API aims to enhance the accuracy and efficiency of forecasting future Bitcoin prices. The system integrates cutting-edge technologies and methodologies to address challenges present in the existing systems. Below is an outline of the proposed system:

Enhanced Data Collection: Expand data collection beyond historical price data to include a comprehensive set of financial indicators, social media sentiments, and macroeconomic factors. This broader dataset aims to capture a more holistic view of the market dynamics. Data Pre-processing and Cleaning: Implement advanced pre-processing techniques to handle outliers, missing values, and data inconsistencies effectively. The system will focus on improving the quality of the dataset for robust model training. Feature Engineering: Explore feature engineering to extract valuable information from raw data. This step involves transforming and creating new features that may enhance the LSTM model's ability to recognize relevant Adaptive LSTM Architecture: Develop an adaptive LSTM architecture that can dynamically adjust its parameters based on changing market conditions. This adaptability aims to improve the model's resilience to evolving trends in the cryptocurrency market. User-Friendly Interface: Develop an intuitive user interface that allows users to interact with the model, input custom parameters, and visualize predicted Bitcoin price trends. interface can provide valuable insights and facilitate user understanding of the model's predictions.

Continuous Model Monitoring and Updating: Implement mechanisms for continuous monitoring of the model's performance. The system should have the capability to retrain the model periodically using the latest available data, ensuring its relevance over time. Documentation and Explain ability: Provide comprehensive documentation to explain the system's architecture, data processing steps, and model parameters. This ensures transparency and facilitates collaboration with other researchers or practitioners. The proposed system seeks to build upon the strengths of existing models by incorporating adaptive techniques, comprehensive datasets, and advanced methodologies. Through this approach, the system aims to offer more accurate and reliable predictions of Bitcoin prices, catering to the evolving dynamics of the cryptocurrency market.

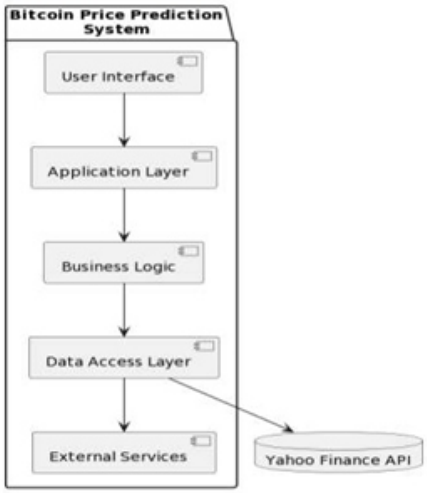
ARCHITECTURE FOR THE PROJECT





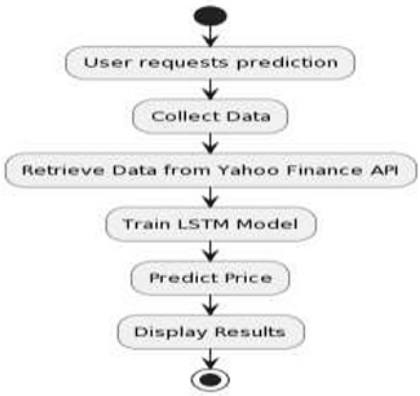
The architecture for a Bitcoin price prediction project using LSTM and data from the Yahoo Finance API involves various components and steps. Below is a high-level overview of the system architecture.

Architecture Diagram:



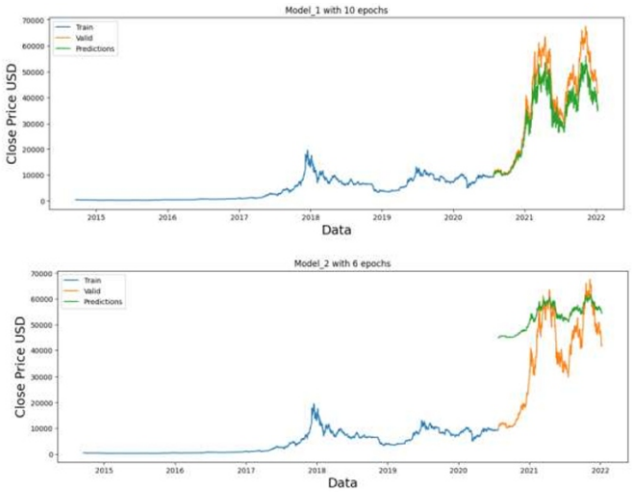
Layers represent User Interface, Application, Business Logic, Data Access, and External Services. Interaction flows from the User Interface through layers to external services including Yahoo Finance API.

Flow Chart:



Simple flowchart depicting user request, data collection, training, prediction, and result display.

RESULTS



From the fig, Orange line indicates the actual price of bit coin at that particular time period. Green line indicates the prediction that we are making. Both orange and green lines are so close to each other and this indicates prediction is accurate.

CONCLUSIONS AND FUTURE WORK

The LSTM model, implemented here, is a basic model that takes into consideration only a few features that affect the Bitcoin price. Our model is fairly accurate when predicting the future prices. However, to increase the efficiency of the model, more Bitcoin price features need to be taken into consideration. We recommend using Kaggle as the source of datasets, since information present in this website holds a high degree of authenticity. Our future work would include in-depth cutinisation on the topic of LSTM, and deep learning at large. Such fact-findings would be beneficial for forecasting the prices of cryptocurrencies with the help of LSTMs, in the future.

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