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A Survey on IT-Enabled Crime Reporting Frameworks

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Abstract: *In this paper, we have discussed about An IT platform which is designed to give a person tip-off about any suspisious activities, crime to law enforcement in a secure and completely anonymous manner. It allows people to give out the most helpful information and information that can actually be used in investigations to make a real difference. For determining the validity of the tip-off, past data-based statistics may be taken into account. For instance, similar tipoffs from others on the same subject may be taken into consideration which have been deemed valid, the trust score of the person giving tip-off (without revealing details), likelihood of reported issue to occur in the said area, etc.The main motive for us was to study the important information related to the crime that occurs and goes unnoticed. We have focused here mainly on the techniques used and developed by different researchers in maintaining the reporter's anonymity. Everybody has the right to feel safe, and it's responsibility of the citizens to be the eyes and ears of the local law enforcement. Our application aims at reducing the incidents that most of the time go unnoticed, this application maintains anonymity, and security to any information that is shared.*

Keywords: Cybercrime, Crime, Law Enforcement, Anonymous, Tip-Off

I. INTRODUCTION

The technology used to combat crime is growing quickly in the modern era, just as crime is growing rapidly. However, the majority of those who witness crimes still tend to stay silent about them rather than reporting them because they are afraid of being subjected to pointless formalities and interrogations.

People also choose not to report a crime owing to security concerns, leading to a difficult decision-making process. Some of the crimes are unknown due to unreliable data for investigation and others from specified crime regions.

There are a number of reasons why crimes go unreported so frequently these days, including a lack of trust, fear, security threats, a lack of time, and inconvenience.[1]

Individuals worry about their personal safety in the event that people they report reveal their identities. This paper involves thorough investigation on all options for allowing a crime witness to report a criminal tip while remaining anonymous. Both the technologies employed to combat crime and the number of crimes are rising rapidly in the modern day. However, most witnesses to crimes still choose not to report them because they are afraid of being subjected to pointless formalities and interrogations. This is true all across the world today.

The goal is to encourage people to speak up about crimes they have seen without worrying about the consequences for doing so. This software also seeks to encourage more engagement from these anonymous tippers by paying them. The operational system additionally facilitates criminal documentation and information.Numerous factors, including population, economics, outdoor and indoor use, transportation, and geography, are used to determine a crime's identification area.[2] Crimes cause fear in the community, disturb national peace, and interfere with people's normal quality of life; as a result, society must pay close attention to the issue and work with the government and the entire community to minimise or eliminate crime.

II. LITERATURE REVIEW

Artificial intelligence (AI) has emerged as a technology, driven by recent developments in machine learning, mobile edge computing (MEC), and the Internet of things (IoT). The training data must be gathered and processed in

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centralised servers according to traditional machine learning methodologies. The development of new decentralised machine learning techniques and mobile edge computing has made it possible to educate IoT devices using their own data. IoT devices can delegate training duties to MEC servers in order to implement AI at the network's edge. However, those distributed edge intelligence frameworks also bring forth some fresh difficulties, like data security and user privacy. Blockchain has been viewed as a potential solution to these issues. Blockchain is a distributed smart ledger known for its high scalability, privacy-preserving, and decentralization. This technology also includes trusted immutable data records and automated script execution. In recent years, while quantum computing has shown increasing promise, quantum algorithms have also raised concerns about potential risks to blockchain.This Paper summarises the literature on blockchain-based MEC, machine learning, safe data exchange, and a rudimentary introduction to post-quantum blockchain to give an overview of the present state-of-the-art in these cuttingedge technologies. The expansion and development of online technology has resulted in a substantial amount of data being generated as well as being made accessible to internet users.[1]

The internet has developed into a forum for online education, idea sharing, and opinion exchange. Twitter, Facebook, and other social networking Because it enables users to discuss many issues with other groups, share and express their opinions, and post messages globally, Google+ is quickly gaining popularity. The study of sentiment in Twitter data has received a lot of attention. This study primarily focuses on sentiment analysis of twitter data, which is useful for analysing information in tweets when opinions are very unstructured, varied, and occasionally neutral.

Give an overview and a comparison of the available methods for opinion mining, including lexicon-based methods and machine learning techniques, along with evaluation measures. We provide a study on twitter data streams using different machine learning techniques as Naive Bayes, Max Entropy, and Support Vector Machine.The general difficulties and uses of sentiment analysis on Twitter are also covered.[2]

Many documents in various Indian languages are available in digital form in current information age. These digitised documents must be grouped into classes according to their content in order to be easily retrieved. An subfield of text mining called text classification aids in overcoming this difficulty. Text classification is the process of categorising documents. Analyses text classification work done on content in Indian Language. Natural Language Processing problems are imposed by the presence of text written in Indian. The study demonstrates that for the Text Classification problem, supervised learning techniques such as Naive Bayes (NB), Support Vector Machine (SVM), Artificial Neural Network (ANN), and N-gram performed better.[3]

Police experts have long contended that public support for the police eventually results in a willingness on the part of the public to assist the police. However, there is not much empirical research on this premise. investigates the link between victims' opinions about the police and their reporting of crimes. The study also investigates how victims' attributes affect their choices on whether or not to contact the police after a crime. The study discovered that victims' levels of confidence in the police and satisfaction with police performance strongly predicted their choices to report sexual assault and robbery to the police using field data that was initially gathered in Ghana. Age, marital status, and employment position are significant indicators of victims' reporting behaviour, according to research findings. The results' various theoretical and practical ramifications are examined.[4]

In late 2017, a brand-new class of distinct and undividend blockchain-based coins called non-fungible tokens (NFTs) was introduced. While fungible tokens have made it possible for new use cases, such as initial coin offerings, it is yet unknown if NFTs have the potential to be a useful component. [5]

It fills in this theoretical and practical knowledge gap and shows how effective NFTs are for event ticketing. They design, construct, and carefully assess a prototype of an NFT-based event ticketing system using a strict design science research methodology. By doing this, writers show how NFTs might tokenize digital products, stop fraud, and enhance control over secondary market transactions. Additionally, they provide useful information about the advantages and difficulties of NFTs and draw conclusions for both researchers and practitioners. [6]

Finally, this paper makes managerial suggestions for creating applications that make use of NFTs and provides access for other researchers to use its discoveries and design concepts.

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III. METHODS AND MATERIAL

This paper has been completed by the information acquired from numerous sources was used to produce this work. In order to obtain and comprehend information, a variety of study papers and publications have been consulted, including the Internet. We employ a cutting-edge ranking system that allows users to submit their tip-offs with crucial information like the crime's time, place, and category as well as upload any pertinent photographs. To analyse the user-provided description and automatically categorise the crime, we will use NLP. Law
enforcement officials could filter out offences using this tool.

IV. BACKGROUND

The primary goal in doing this research was to learn crucial details about crimes that do place but go unreported. Here, we have mostly concentrated on the methods that various researchers have utilised and created in order to protect the reporter's confidentiality. The programme ensures the security and anonymity of any supplied information with the goal of reducing incidences, which frequently go unreported. A smartphone application makes it simpler to immediately report any type of event.

A built-in application camera image that is being uploaded confirms the veracity of the reported incident. There are certain additional capabilities that should be implemented, such as reporting through audio images of the event, even though our application was created to ensure that the reporter's identity is hidden.A safe and entirely anonymous IT platform has been created so that anyone can inform law enforcement of any suspicious activity or criminal activities. There are four different kinds of modules in use.

4.1 Guest Module

User can easily upload criminal details in the Guest Module without disclosing their identify. This module can be used to grant restricted access to users who are not signed up for the system. Giving information on the system, the services it offers, or general details about agencies dealing with crime could fall under this category.

4.2 Super Admin Module

This module allows the system to obtain reports from all throughout India. The system's greatest level of access and control is probably provided by this module. A super admin may have access to all system capabilities and data, be able to manage user accounts, set up system settings, and more.

4.3 State Admin Module

This module enables the system to obtain all the state-specific reports from a certain city. This lesson may be intended for people who hold positions of power and responsibility in a specific country, state, or territory. The state administrator may have access to information about crime rates, law enforcement organisations, and other pertinent details within their area of responsibility.

4.4 Agent (Khabari) Module

With the help of this module, they can log in and alert the relevant admin from their account. On the guest page, they may directly message everyone as they don't need to log in. This course may be intended for those who serve as law enforcement officers or informants. Access to information about active investigations, suspects, and other pertinent data may be made available via the agent module

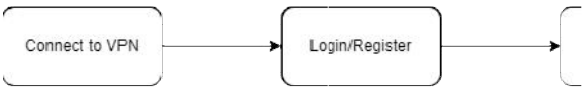

Figure 1: User design

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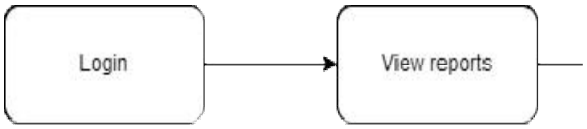

Figure 2: Department design

V. CONCLUSION

In this paper we have seen is how crucial it is to provide a solution for crime tips to remain anonymous for witnesses. Although victims are supposed to report crimes, until we know who is coming forward, we frequently do not give the witnesses in the case priority. Given that not every individual's remark can be taken as true or authentic, using an algorithm to identify true tip-offs would be very helpful to police investigations because insider knowledge is highly valuable. We contend that everyone has a right to be heard and that true justice requires that each witness be given the opportunity to share their account without being concerned by danger from the outside world. It is quite likely to happen if all the existing technology is combined

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