A Survey on Securing Crime Case Summary & E-Fir in Police Station

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Abstract: In India, we can see that technology has touched in every aspect of our life. There exist technology in all the fields e.g. education, agricultural, business, government etc. and we can also understand how beneficial it is, as it saves the time, money and human power. In spite of being technologically advanced, the system lacks in security perspective. When we talk about today, India has moved to the era of digitalization after the launch of the campaign "Digital India", the Indian Police Department has replaced the manual system with the centralized online process to register the complaint. This paper depicts a method to securing crime case summary and E-FIR in police station using Blockchain Technology. The Literature papers which are discussed in this paper introduces to the essential principal of blockchain technology and its future in the police department of India. Blockchain technology will also explain to protect the E-FIR from the malfeasance.

Index Terms–FIR, Police, Blockchain, Security, Cryptography, Security Attack.

I. INTRODUCTION

First Information Report (FIR) is a written document prepared by the police when they receive information about the commission of a cognizable offence. Electronic First Information Report (e-FIR) is a basic document filed to the police stations by a victim. In the e-FIR database, the offense's record can be Data tempering or False registrations due to its centralized nature, and further the intentional registration of false e-FIR can occur.

The data owner may adapt attribute-based encryption to encrypt the stored information for attaining access control and keeping data secure, in the cloud. Users are faced the delegation emerges. As a solution to this, an encryption based algorithm with delegation can be used. Therefore AES Rijndael algorithm is adapted to encrypt and decrypt the data using the same key. With the digitization of traditional records, police stations encounter difficult problems, such as crime case summary storage and access. Managing department spend considerable time querying the required data when accessing crime case summary. On this basis, this study proposes a case summary sharing scheme based which use cipher text-based encryption to ensure data confidentiality and access control of crime case summary. The officer may encrypt the stored information for attaining access control and keeping data secure. Therefore AES Rijndael algorithm is used for encryption. This ensures security for the information and enables Privacy.

The main characteristics of the blockchain technology are the level of security it provides to the network. This technology uses the cryptographically engineered block to make the information secured, the use of SHA-256 and hash tree are the few algorithms used in this. When we are performing these algorithms, we are basically hiding the identity of an individual – this will help to create a no trust network. When a case is filed, the user that is the complainer, suspect, witness and the officer will not know the individual's identity then there will not be any manual intervention in the case – the proceeding of the case will carry out smoothly. The decentralization of blockchain is an add-on benefit as there would not be a central govern person to interfere. When there is a single administration there is a single point of failure, the deletion of the data is easy in the network. The system that we are going to address will avoid all these security threats, we will be developing this system from the open source marketplace, which will rely on the Blockchain technology.

The Figure 1 shows the System Architecture mainly system is divided into three main parts. These three main parts are-
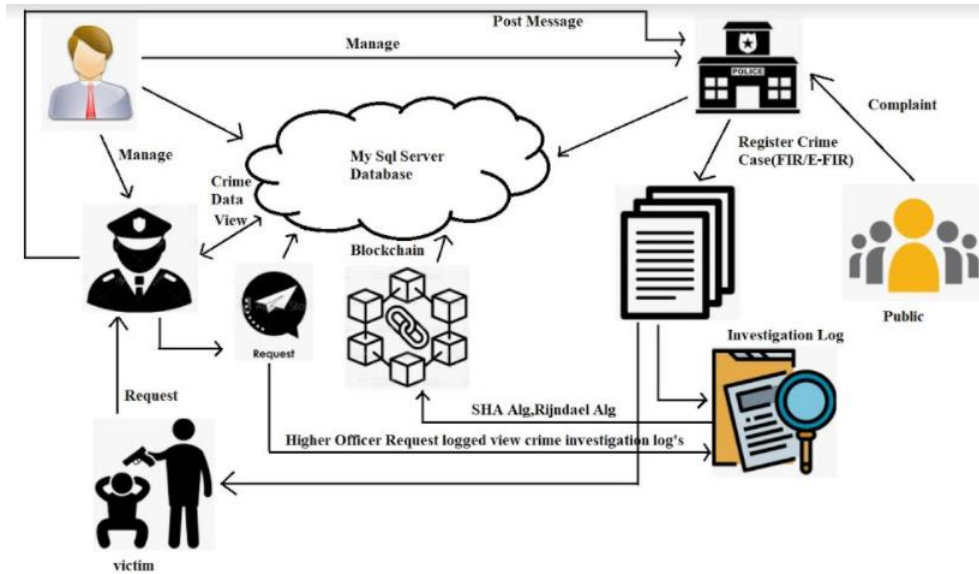1) User
2) Police
3) Administrator

Figure 1 : System Architecture

Every new user has to do registration to enter into the system. After registration email verification is done by the system automatically and after email is verified the system provide a Unique user ID and password to the user. By using or entering this user ID and password users can log in into the system. As user log in the system he can Add complaint, missing person, Complaint status etc sections and according to their needs users can select their area. After this user have to submit complainant details like full name, address, gender, age, contact number, PIN, ID proof attachment, place of occurrence, and scanned copy of written document with complainant signature or thumb impression can be attached.

In the police section police first have to log into the system. In this section there are different sub sections like view complaints, FIR management, status generation and add data. Police can select any section in which they want to work. In view complaints all the new and old complaints are there, in FIR management they manage the FIR, in status generation investigation report of that FIR is generated, in add data new FIRs are added.

In administrator part first admin have to log into the system. Then check all the registered cases and check if any fake complaint is there by verifying the documents of complaintator. And also check the progress of the cases on which the police is working and generate a report about what is the progress of the case and the delay etc.

II.LITRTURE REVIEW

Electronic First Information Report (e-FIR) is a basic document filed to the police stations by a victim or someone on his/her behalf when a cognizable offense is committed some of the existing methods are discussed below.

[1] Smart FIR: Securing e-FIR Data through Blockchain within Smart Cities, In this paper, the major contributions are Firstly, a blockchain-enabled framework providing efficient integrity to e-FIR data is proposed, which is applicable in and been an integrated part of a smart city environment. Secondly, false registration of e-FIR is minimized by resolving it through the concept of blockchain. To the best of our knowledge this is a first attempt restraining false registration and providing integrity to e-FIR data using blockchain.

[2] A Method to Secure FIR System using Blockchain, This paper describes method to secure the FIR system using block chain technology. This introduces to the essential principal of block chain technology and its future in the police department of India. Whenever there is a new complaint which is recorded there will be an FIR connected with that complaint which is time stamped by the system. This paper uses the cryptographically engineered block to make the information secured, the use of SHA-256 and hash tree.

[3] E- FIR using E-Governance, This paper presents a feature that is made available for the public for better interaction with the police The aim of this study is to develop an online system which is easily accessible to police department, public and administrative department and to achieve e-transparency at various levels like publication, reporting, openness, accountability

etc.E-Transparency: E-transparency means the use of information and communication technologies (ICTs) to handle some or all of the transparency related information flows. It will achieve the various levels of e-transparency.

[4] Empirical Vulnerability Analysis of Automated Smart Contracts Security Testing on Block chains, This paper describes the emerging block chain technology supports decentralized computing paradigm shift and is a rapidly approaching phenomenon.In addition, due to the special nature of smart contracts on the blockchain, static security analysis prior to deployment seems to be the perfect t. Inspired by this, the paper primarily focuses on the automated static smart contracts security tools in the Ethereum block chain by focusing on Solidity.

[5] Exploring Architectural and Organizational Features in Smart Cities, This paper investigates and compares the alternative architectures that are followed by existing smart city cases, as a means to understand how different architectures offer e-services in urban areas.The aim of this paper is to investigate and compare the alternative architectures that arefollowed by various smart city cases.The multi-tier architecture and SOA and Urban Intelligence Measurement System for smart cities.

[6]Proposed E-Police System for Enhancement of E-Government Services of Bangladesh, In this paper we focus on the infrastructure of an e-police system as well as its steps, challenges of implementation and its necessity. For implementing the software we can use JAVA, PHP and MySQL.E-police system is the process where police personnel need to access information and report incidents, accidents and crimes while out on the road and their reporting involves not only data but also live images and pictures.

[7] Untangling Blockchain: A Data Processing View of Blockchain Systems, The results demonstrate several trade-offs in the design space, as well as big performance gaps between block chain and database systems. Drawing from design principles of database systems, we discuss several research directions for bringing block chain performance closer to the realm of databases. Then it explains four key technical concepts by which current systems can be categorized: distributed ledger, cryptography, consensus protocol and smart contract.Distributed Ledger, Consensus, Cryptography, Smart Contracts are key concepts of this paper.

[8] Realizing an Implementation Platform for Closed Loop Cyber-Physical Systems using Blockchain, In this paper, critical issues of centralized database security in CPS are addressed via a distributed blockchain based solution. The proposed system encompasses a smart contract based framework in Ethereum blockchain. JavaScript Object Notation-Remote Procedure Call, web3py protocols and the request library are used for communication between the python script and Node one.

[9] A Secure Data Sharing Platform Using Blockchain and Interplanetary File System, Data sharing is the fundamental step to gain maximum benefit from research innovations. However, it is very crucial to know the three for sharing purpose such as what, when, and where. These questions need to be very much clear before initiating the data sharing process. There is still some scope to work on, how the data set owner should be given incentives or reward. This research provides secure sharing and selling of data by leveraging the benefits of blockchain.

[10] Police FIR Registration and Tracking Using Consortium Blockchain, In this paper, system keeping in mind the difficulties that people face during the registration of an FIR or a complaint at the police station. In the conventional system, the people have to physically visit the police station multiple times, which is very time-consuming. The same also consumes a whole lot of money and energy. The other disadvantages include the fear of getting abused or harmed by people against whom FIR is lodged. Filing FIR against a highly reputed person is sometimes a hard task. It is a common issue that people are often refused an FIR registration.

III.   ISSUES
The most common issue in e-FIR is maintenance of the service or product and its reliability on internet. If the paper is directing to solve the problem and wanting to reach every single common man then reliability on internet would become a great issue. Accordingly some of the issues are given below:

- Lack of reliable maintenance and sustainability.
- Lack of mother language standardization.
- Insufficient of electricity across the nation.
- High-cost and low-reliability of Internet access.
- Lack of awareness of future development.
- Inadequate ICT Infrastructure across the nation.

IV.   SCOPES

The scope of this study is that:

- Users can file an FIR from anywhere at any time in India.
- This will reduce the crime percentage in India.
- Advanced technology- It is an advanced technology used now a day. It increases the e knowledge of the users which is very necessary for current generation.
- Internet- It is an online facility and hence very useful for the user.
- E-Transparency: E-transparency means the use of information and communication technologies (ICTs) to handle some or all of the transparency related information flows. It will achieve the various levels of e-transparency-
  - Publication- By providing basic information about a particular area of government.
  - Transaction- Automating public sector process and reporting on that process.
  - Reporting- Provide specific details of public sector decisions and actions.
  - Openness- Allow users to compare public servant performance against pre-set benchmarks.
  - Accountability- Allow users some mechanism of control over public servants.

V.   CONCLUSION

The paper gives an insight to the approachs will help users to file an FIR online from anywhere and anytime without going to any police station, people can directly interact with government and they can access every piece of information of government , people can also check the status report of their case and they can also directly contact to higher authority so it will improve the relation between the police and the common man and will also improve government and citizen connection. Literature reviews states the method to carry the e-FIR system feasibly and also challenges that comes under the same Any aspirants who are interested in the technology of blockchain and e-FIR and securing the Investigation and go through this paper, which will give an overview of the system.

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