

EVIDENCE COLLECTION AND VERIFICATION USING ADVANCED TECHNOLOGIES

ABSTRACT

The “Evidence Collection and verification using advanced technologies” is an innovative and advanced system designed to revolutionize the security and integrity of forensic evidence in the criminal justice system. This blockchain-based solution aims to enhance trust, transparency, and efficiency in handling forensic evidence by leveraging the distributed and immutable nature of blockchain technology.

The system is designed to cater to five main user roles: Admin, Court, Staff, Police Station and Citizen, each equipped with specific functionalities tailored to their roles. This system leverages the decentralized and tamper-resistant features of blockchain to enhance the security and reliability of forensic evidence. By providing a secure and transparent platform for data management and interaction among stakeholders, the system aims to strengthen the criminal justice system's integrity and facilitate fair and just legal proceedings. It represents a significant advancement in forensic evidence management, offering a promising solution for addressing challenges related to evidence integrity and security

SYSTEM STUDY

System study involves a comprehensive examination of the various functions performed by a system, along with their interconnections within and beyond the system. Its primary aim is to elucidate the system's structure and operations. The purpose of conducting a system study is to gain a profound understanding of the problem at hand and to highlight the essential requisites for the system. During this phase, the central objective is to discern the system's requirements, including those of its users. Typically, system study is applicable to existing systems and employs various methodologies such as observation, interviews, and discussions.

System study is a systematic process that entails the collection and analysis of data to diagnose existing issues and recommend enhancements for the system. It is only after a thorough system analysis that we can determine how and where a computer system can provide benefits to all users of the system under investigation. The user interface design is an essential aspect of system study, with a focus on developing a graphical user interface (GUI) that caters to diverse user needs.

The GUI is categorized into two main levels:

1. Administrative User Interface:

The administrative user interface places emphasis on ensuring consistent information management, particularly in the context of organizational activities. It requires proper authentication for data collection. This interface facilitates administrative tasks, including data insertion, deletion, and updating, while also providing extensive data search capabilities.

2. Operational or Generic User Interface:

The operational user interface of the "Evidence Collection and Verification Using Advanced Technologies" system is designed to be user-friendly and role-specific, ensuring efficiency and security for all stakeholders. The Admin interface offers full control over the system, including user management and system monitoring. The Court interface allows legal personnel to track and verify evidence in real-time, ensuring transparency. The Staff and Police Station interfaces facilitate smooth evidence collection, submission, and tracking, while the Citizen interface allows public submissions of evidence, with status updates and privacy options. Overall, the system is designed to be intuitive, secure, and easily accessible across devices, promoting efficient evidence handling and enhancing the integrity of the judicial process.

SYSTEM ANALYSIS

Existing Systems

Managing student expenses typically involve manual tracking methods and basic budgeting apps with limited predictive capabilities. Students manually input their daily expenditures, categorize them, and track their spending against predefined budgets. Basic features include expense tracking, budget setting, generating summary reports, and spending alerts. However, these systems often lack advanced features like predictive analytics, personalized financial advice, and detailed visualizations of spending trends. They do not provide proactive insights or integrate various financial data sources, making it difficult for students to gain a comprehensive view of their financial situation and plan effectively.

Proposed System

The proposed system for evidence collection and verification uses blockchain technology to address the inefficiencies and vulnerabilities in the current system. By leveraging the decentralized and tamper-resistant nature of blockchain, the system ensures that all evidence transactions are securely recorded and easily verifiable. It provides a transparent and immutable chain of custody, allowing stakeholders such as courts, police, and staff to track evidence in real-time, ensuring its integrity throughout the legal process. The system automates evidence handling, reducing human error and delays, while offering role-based access for authorized users. Citizens can also submit evidence securely, with updates on its status and verification. Ultimately, the proposed system enhances the security, transparency, and efficiency of evidence management, strengthening public trust and improving the overall effectiveness of the criminal justice system.

FEASIBILITY STUDY

A feasibility study is a preliminary study undertaken to determine and document a project's viability.

The results of this study are used to decide whether to proceed with the project.

It is an analysis of possible alternative solutions to a problem and recommendation on the best alternative. The feasibility study proposes one or more conceptual solutions to the problem set for the project. The conceptual solution gives an idea of what the new system will look like. The feasibility study environment enables all alternatives to be discussed and evaluated. This phase starts with an identification of the main characteristics of the required system. During this stage it is important to collect as much information as possible about the software package that might meet the specification from as many sources as possible. Normally, feasibility study is a cost benefit analysis of various alternatives. It can be defined as a systematic comparison between the cost of carrying out a service or activity and the value of that service or activity. The main benefits are qualitative rather than quantitative. A feasibility study could be used to test a new working system, which could be used because:

- The current stem may no longer suit its purpose
- Technological advancement may have rendered the current system obsolete
- The business is expanding allowing it to cope with extra workload

- Customers are complaining about the speed and quality of work the business provides

Feasibility study is carried out to determine whether the proposed system is possible to develop with available resources and what should be the cost consideration. Facts considered in the feasibility analysis are:

- Technical Feasibility
- Economic Feasibility
- Operational Feasibility
- Behavioral Feasibility

Technical Feasibility

The system is built on blockchain technology, which is well-established and capable of handling large-scale, secure, and decentralized data management. It integrates seamlessly with existing infrastructure and hardware, leveraging the benefits of blockchain's distributed and immutable nature to ensure data security, transparency, and scalability. The technical architecture ensures compatibility with the systems in use by law enforcement, courts, and other stakeholders, with minimal technical barriers to implementation.

Economic Feasibility

While there are initial costs associated with the development and implementation of the blockchain-based system, the long-term economic benefits outweigh these costs. The system reduces manual labor, minimizes legal disputes over evidence authenticity, and prevents costly errors related to evidence mishandling. By automating many aspects of evidence handling and enhancing the overall efficiency of the criminal justice system, the system offers a cost-effective solution in the long run.

Operational Feasibility

The system is designed with user-friendly interfaces and role-specific functionalities for Admins, Courts, Police, Staff, and Citizens. This ensures that all users, regardless of technical expertise, can easily interact with the system. Automated processes, such as real-time evidence tracking and chain of custody

management, streamline the evidence handling process, enhancing efficiency and reducing the risk of human error. The system fits into current operational workflows, improving rather than disrupting daily operations in evidence management..

Behavioral Feasibility

The system's intuitive interface and clear role-based functionalities ensure easy adoption by users with varying levels of technical knowledge. Furthermore, the blockchain's inherent security and transparency help build trust among users, ensuring their willingness to embrace the system. By enhancing the integrity of evidence handling and offering greater transparency, the system encourages cooperation and acceptance across different stakeholders in the justice system, making it socially and culturally feasible.

Module Description

1. ADMIN

- Login
- Manage court
- Verify staff
- View feedback
- View case history
- View allocation history

2. FORENSIC STAFF

- Registration
- Login
- View allocated case
- Evidence upload
- Chat with police

3. COURT

- Login
- Verify Police station
- Staff assign to case
- Verify evidence request

4. POLICE STATION

- Registration
- Login
- View case registration & verify
- Manage evidence
- Chat with staff

5. User

- Registration
- Login
- Case registration
- Chat with staff
- Request for evidence
- feedback

SYSTEM SPECIFICATION

Hardware Specification

- The selection of hardware is very important in the existence and proper working of any software. Then selection hardware, the size and capacity requirements are also
- Processor : i3 or above.
- RAM : 4GB or Above
- Storage : 40 GB free space or Above

Software specification

A software requirement specification (SRS), a requirements specification for a software system, is a complete description of the behavior of a system to be

developed and may include a set of use cases that describe interactions the users will have with the software.

- Operating System : Windows 8 or above.
- Technologies used : Android
- Front end : Html,css,bootstrap,JS
- Back End : Python-Django or Flutter/Java
- Database : Mysql