
EVIDENCE PROTECTION SYSTEM USING BLOCKCHAIN TECHNOLOGY

Harshid Patil*¹, Ashwini Meshram*², Mayur Ranshinge*³, Gavit Vishwajeet*⁴,
Prof. Madhu Nashipudimath*⁵

*^{1,2,3,4}Student, Department Of Computer Science & Engineering (IOT,CS & BT), SMT. Indira Gandhi College Of Engineering, Ghansoli, Navi Mumbai, Maharashtra, India.

*⁵Professor, Department Of Computer Science & Engineering (IOT,CS & BT), SMT. Indira Gandhi College Of Engineering, Ghansoli, Navi Mumbai, Maharashtra, India.

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ABSTRACT

The authenticity of evidence in legal, financial and educational sectors is very important during the digital age. The traditional methods of storing and managing evidence often result in documents that can be easily tampered with. In response to these challenges, this article suggests a blockchain-based system called Evidence Protection System (EPS). Incorporating the inherent features of blockchain including immutability, distributed nature and transparency, EPS is designed to provide a safe platform for keeping evidence. Utilizing smart contracts, the system streamlines the authentication process while reducing or totally eliminating intermediaries who may expose it to manipulation or corruption. Additionally, encryption techniques are applied to protect sensitive data from unauthorized access. This research paper examines various aspects of EPS including its architecture, data structure as well as mechanisms for consensus and integration with existing systems. Moreover, it highlights some advantages of implementing blockchain technology in relation to creation of accurate forms of proof like reduced costs; better privacy; improved efficiency.

I. INTRODUCTION

In the pursuit of a criminal case, evidence is the foundation upon which both sides build their respective arguments. During the investigation into a crime, great care must be taken to collect, preserve, and record evidence that could be critical in establishing the facts surrounding a criminal case. However, the importance of the evidence doesn't end after the trial. As any good criminal defense lawyer knows, the evidence collected during a criminal case must be preserved for posterity to ensure that the due process rights of the accused are observed fully.

We have designed an Evidence Protection System Using Blockchain Technology to tackle the problem of evidence protection. This system has been proposed to achieve optimization by creating a chain of limited users responsible for the investigation. They are given their respective access to achieve transparency and immutability. Blockchain is an assortment of connected squares that contain and track generally what occurs on a conveyed framework. Blockchain innovation is used in various evidence of idea executions, models and application frameworks.

II. METHODOLOGY

This a DotNet Project where the Frontend involves Html, CSS, and JavaScript and the Backend involves ASP.net The database used is MSSQL and IDE is Visual Studio.

FRONT END TECHNOLOGY:

The .NET Framework is a new computing platform that simplifies application development in the highly distributed environment of the Internet. To provide a consistent object-oriented programming environment whether object code is stored and executed locally, executed locally but Internet- distributed, or executed remotely. To provide a code-execution environment that minimizes software deployment and versioning conflicts.

CLIENT APPLICATION DEVELOPMENT:

Client applications are the closest to a traditional style of application in Windows-based programming. These are the types of applications that display windows or forms on the desktop, enabling a user to perform a task. Client applications include applications such as word processors and spreadsheets, as well as custom business applications such as data-entry tools, reporting tools, and so on. Client applications usually employ windows,

menus, buttons, and other GUI elements, and they likely access local resources such as the file system and peripherals such as printers.

SERVER APPLICATION DEVELOPMENT:

Server-side applications in the managed world are implemented through runtime hosts. Unmanaged applications host the common language runtime, which allows your custom managed code to control the behavior of the server. This model provides you with all the features of the common language runtime and class library while gaining the performance and scalability of the host server.

ACTIVE SERVER PAGES.NET:

ASP.NET is a programming framework built on the common language runtime that can be used on a server to build powerful Web applications. ASP.NET offers several important advantages over previous Web development models:

Enhanced Performance. ASP.NET is compiled common language runtime code running on the server. Unlike its interpreted predecessors, ASP.NET can take advantage of early binding, just-in-time compilation, native optimization, and caching services right out of the box. This amounts to dramatically better performance before you ever write a line of code. **World-Class Tool Support.** The ASP.NET framework is complemented by a rich toolbox and designer in the Visual Studio integrated development environment. WYSIWYG editing, drag-and-drop server controls, and automatic deployment are just a few of the features this powerful tool provides.

Power and Flexibility. Because ASP.NET is based on the common language runtime, the power and flexibility of that entire platform is available to Web application developers. The .NET Framework class library, Messaging, and Data Access solutions are all seamlessly accessible from the Web.

BACK END TECHNOLOGY:

Microsoft SQL Server is a Structured Query Language (SQL) based, client/server relational database. Each of these terms describes a fundamental part of the architecture of SQL Server. Database A database is similar to a data file in that it is a storage place for data. Like a data file, a database does not present information directly to a user; the user runs an application that accesses data from the database and presents it to the user in an understandable format. A database typically has two components: the files holding the physical database and the database management system (DBMS) software that applications use to access data. The DBMS is responsible for enforcing the database structure.

III. MODELING AND ANALYSIS

EXISTING SYSTEM:

In most cases, evidence is stored in centralized databases or servers that are vulnerable to hacks, data breaches, and unauthorized access. The current system often lacks transparency, making it challenging to track the chain of custody of evidence and verify its authenticity. Many existing systems are designed for specific use cases or industries. The existing systems have limited storage capacity, making it difficult to store large amounts of data.

PROPOSED SYSTEM:

This is a Blockchain-based project with 4 modules – Admin, Forensic, Room and Police. The admin can manage users and assign them roles like Forensic, Evidence Room and Police. They can view the details of different evidence by searching the evidence IDs. They can view the log. If at any place the evidence details don't match, for e.g. At the Evidence Room Level or Movement Level, the admin will get to know the status of exactly where the link is broken using blockchain technology. The Forensic staff can access the system by logging in. They can add, update, delete or view evidence along with the details, date, time and type. They can also add the name and ID of Investigating Officer and Forensic Officer. The staff at the Evidence Room can access the system by logging in. They can search for any evidence through evidence ID. They can add an entry and exit log along with item count, size, details, etc. They have to add the name or ID of the Officer who is taking or storing the evidence and of the Evidence Room Officer. They can also view the log by searching Evidence ID or date. The Police can access the system by logging in using their credentials. They can search for any evidence through evidence ID. They can add logs of movement along with item count, size, details, etc. They also have to add the source, destination, date and time. They will also need to add the assigned Police Officer's name and ID.

SYSTEM ARCHITECTURE:

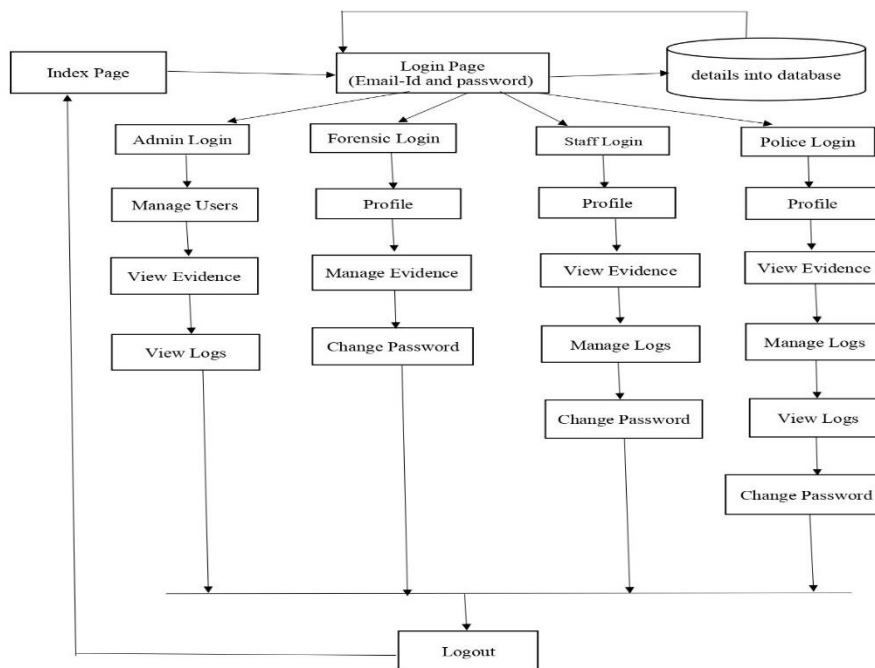


Figure 1: System Architecture.

IV. CONCLUSION

We were able to successfully complete the project's objectives, and the plan served its intended purpose. This project has a simple and easy-to-understand GUI for both Admin, Police, Evidence room and Forensic. The functionality is simple for users, but it performs complex work for administrators. This application is advantageous to both parties. The user can search for any Evidence, as well as get add new EVIDENCE, and the administrator can easily keep track of the user's location and LOG.

This was our project of System Design about Evidence Protection System Using Blockchain Technology developed in Asp .Net programming language. The Development of this system takes a lot of efforts from us. We think this system gave a lot of satisfaction to all of us. Though every task is never said to be perfect in this development field even more improvement may be possible in this application. We learned so many things and gained a lot of knowledge about development field. We hope this will prove fruitful to us.

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