

SYNOPSIS
ON
“DocLock – Documentation Locker Using
Blockchain”

Submitted in
Partial Fulfillment of requirements for the Award of Degree
of
Bachelor of Technology
In
Computer Science and Engineering
(Internet of Things)
By

(Project Id: 23_CS_IOT_3A_06)

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1. Introduction

In the past, raw data are transferred to a cloud server to be stored and analyzed. However, this centralized solution has caused serious concerns regarding several aspects, such as the necessity to trust the cloud infrastructure security, control loss once data are externalized, and lack of data handling transparency. Consequently, blockchain-based data management emerged as a platform to facilitate transparent data transactions between untrustworthy involved parties on the network. Indeed, peer-to-peer-network-based data management is a more fair system as compared to a system where all transactions are handled by a central server [1]. This decentralization of data management allows us for better storage and access of documents one can store. A blockchain based storage facility can be incorporated in day to day file management. One way of doing this includes the usage of smart contracts.

2. Project Objective

- Deploy a blockchain based storage system
- Using smart contracts to secure the data
- Helps students and teenagers to manage both their official and unofficial records
- Using a decentralized format for securing data

3. Feasibility Study:

1. Technical Feasibility :

The interpretation and application of feasibility differs based on the context and field of study. When evaluating information systems, feasibility is assessed according to business problems to determine the suitability of a new project based on a given set of criteria. Based on this view, a feasibility study for an information system involves the evaluation of factors to determine the likelihood of success of the proposed system upon implementation. To create value for an organization, an information system must be technically, economically, and operationally feasible with technical and operational feasibility being evaluated most frequently. The systems analysis and design initiatives for developing a new information system must seek to establish technical feasibility to satisfy the functional ecology that the system will operate in. With the unique nature of an innovative information system developed on blockchain, the technical feasibility of the system is critical in determining the fit of the IS solution in the organization and its potential for success .

2. Economic Feasibility :

It refers to the ability of a project or business venture to generate enough revenue to cover its costs and provide a reasonable return on investment. It involves analyzing the costs and benefits of a project, including the costs of materials, labor, and equipment, as well as the projected revenue from sales or other sources of income. Economic feasibility is an important consideration when determining whether a project or venture should be undertaken.

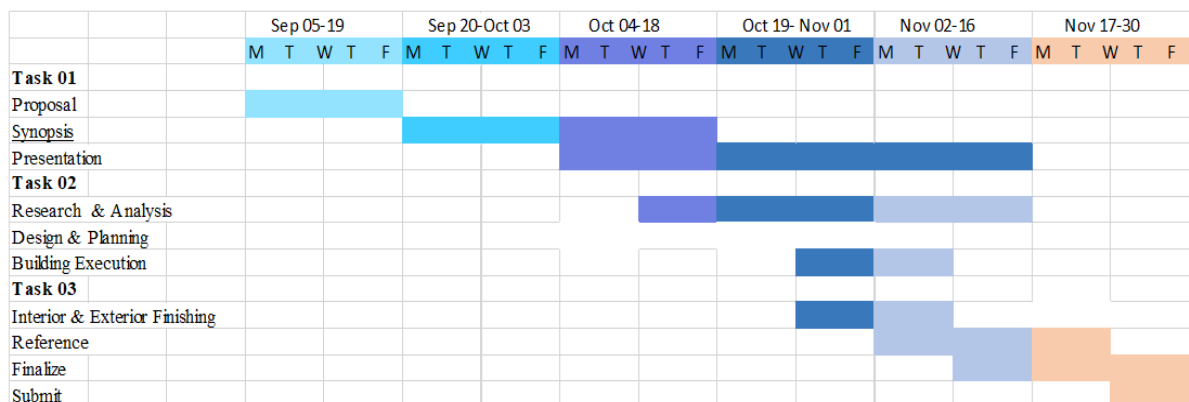
3. Legal Feasibility :

A legal feasibility assessment is an evaluation of whether a proposed project is legally permissible, and whether it complies with relevant laws, regulations, and policies. Our team working on the project “Doclock – Documentation Locker using Blockchain” is seriously committed towards ensuring that this project stays within the legal bounds of the administration.

4. Operational Feasibility :

Operational feasibility in the context of using blockchain technology for documentation refers to the practicality and viability of implementing blockchain for managing and securing documents within an organization or system.

5. Scheduling Feasibility :



Start Date: 05-sep-2023

End Date: 30-Nov-2023.

2. Methodology/ Planning of work

The methodology comprised of three stages; identification, selection, evaluation[3].

1. **Identification:** The objective of the project is to develop a decentralized storage system using blockchain. Initially the data owner first registers themselves. After registering successfully, the owner logs in and uploads a file using the file picker. The system checks the file size and ensures storage availability in the network. The file is uploaded when enough storage is available. Then the system performs steps. The uploaded file is encrypted using AES 256 bit algorithm. The encryption key is generated using the owner's wallet address and randomly generated salt value. This encryption key along with an IV is used to encrypt the owner's data. This maintains the confidentiality of the data. The encrypted file is then divided into blocks of 64KB and sent to different peers across the network with the help of the IPFS protocol[4].
2. **Selection:** In order to implement these decentralized storage systems we need to implement Smart Contracts using Remix IDE and the source code is written into a contract using Solidity. These contracts will then be deployed on the web using Ganache which runs our Ethereum based blockchain storage system on the web.
3. **Evaluation:** This part includes the evaluation of our suggested design model. We will be looking out for some major points such as handling contracts, maintaining a smooth user experience by the way of providing easy access to their data and simultaneously securing them. Another point of evaluation will be to check upon the student friendly environment of the application which is the whole purpose of the design. We will also be looking at the interfacing of API's between the web application and the smart contracts.

3. Tools/Technology Used:

3.1 Minimum Hardware Requirements

Hardware required for the development of the project.

1. **CPU:** As per system requirements for development tools
2. **RAM:** 4 GB RAM required minimum
3. **GPU:** As per system requirements for development tools
4. **HDD:** 256 GB
5. **Others(if any):** N/A

3.2 Minimum Software Requirements

Software required for the development of the project.

1. **OS :** 11th generation intel(R) Core (TM) i5
2. **Development Tools :** VS Code, Ethereum Blockchain, Hosting Platform(Node.js), MongoDB

4. References: [IEEE format]:

- [1] “Blockchain smart contracts: Applications, challenges, and future ..” Apr. 18, 2021.
- [2] A. M. French, H. Treiblmaier , and M. Risius, “Blockchain: Technical Feasibility for Assessing Organizational Fit,” Aug. 10, 2020.
- [3]Samudaya Nanayakkara, M.N.N. Rodrigo, Srinath Perera, G.T. Weerasuriya, Amer A. Hijazi “A methodology for selection of a Blockchain platform to develop an enterprise system” Jan. 13, 2021
- [4] “Blockchain-based decentralized storage networks: A survey”, Nazanin Zahed Benisi , Mehdi Aminian , Bahman Javadi, Apr. 1, 2020

Guidelines:

- 1) Heading Font Size: 14
- 2) Content Font Size: 12
- 3) Font Name: Times New Roman
- 4) Line Spacing: 1.5”
- 5) Alignment: Left & Right both Justified
- 6) Margin: Normal (Top=2.54 cm, Bottom=2.54 cm, Left=2.54 cm, Right=2.54 cm)
- 7) Page No: At Bottom Right Side

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