2. LITERATURE SURVEY

2.1 INTRODUCTION

The literature on blockchain-based management in blood donation projects reveals a growing interest in leveraging blockchain technology enhance about the transparency, traceability and efficiency in blood supply chains. Researchers have explored various applications including decentralized donor registers, transparent tracking of blood products and secure data management. Case studies and pilot implementations demonstrate the potential of blockchain to address challenges such as donor engagement, inventory management and fraud prevention. However, the literature also highlights challenges such as scalability, interoperability and regulatory compliance. There is considerable promise in blockchain-based solutions for blood donation management, further research is needed to address technical, regulatory and implementation barriers to widespread adoption.

2.2 EXISTED SYSTEM

A large number of traceability solutions use a central server to handle the visibility and traceability problems. One of popular solution for tracking and monitoring blood bags is using the radio frequency identification (RFID) technology. RFID-based dynamic blood information management system to track blood products in blood centres.

RFID technology suffers from security and privacy problems. Blood transfer between several blood facilities, transferring vehicles, blood centres and hospitals. The location, allocation and delivery of blood provides a lot of problems. It leads to damage of the blood plasma.

2.3 DISADVANTAGE OF EXISTED SYSTEM

- Existed system is not implemented blockchain based Blood donation and one popular solution for tracking and monitoring blood bags is using the radio frequency identification (RFID) technology which is low accuracy.
- In Existed system, blood donation system is fully polluted and corrupted in modern days.
- Existed system can’t provide the security to the donor details and also blood bags are selling in the illegal black markets by many peoples.

- ❖ The system is not generic and can't be customized to meet the needs of other industrial applications with minimal modifications and efforts.

2.4 PROPOSED SYSTEM

The proposed system has proposed a blockchain-based blood donation chain management system to address the aforementioned issues. The system integrates the private block chain with the decentralized storage of the Interplanetary File System(IPFS) to overcome the storage limitations. The system develops two smart contracts along with algorithms to implement functionalities and define rules regarding blood donation management and also it compare the proposed approach with the existing solutions. The proposed block chain-based blood donation management solution is generic and can be customized to meet the needs of other industrial applications with minimal modifications and efforts.

In this proposed system, a private blockchain-based solution to automate blood donation management processes. This proposed system consists of the following features:

- ❖ Decentralized
- ❖ Traceable
- ❖ Transparent
- ❖ Auditable
- ❖ Private data , Secure and trustworthy

This proposed system evaluates the block chain-based blood donation management solution and the developed smart contracts using the security analysis.

2.4.1 GOALS OF NEW SYSTEM

1. Secure Data

Blockchain uses advanced security measures to protect donor information, making it very difficult for anyone to tamper with or access sensitive data.

2. Easy Auditing

Auditors can easily check the blockchain to ensure that blood donations are being handled properly, improving accountability.

3. Less Paperwork, More Efficiency

By automating many processes, blockchain reduces paperwork and streamlines operations,

making the system more efficient overall.

4. Building Trust

With a secure and transparent system in place, peoples can trust that their donations are being used safely and responsibility.

5. Transparent Tracking

It involved can see the same information, making it easy to track where blood comes from and where it goes.

2.5 Summary

Blockchain-based blood donation management system that traces the origin of the blood in a transparent, private, secure, trustworthy, auditable and decentralized manner. The proposed solution employed the smart contract feature of the private blockchain to record and log events automatically. This integrated the private blockchain with the IPFS to deal with the limited storage issue. It is tested and validated the functionality of our solution using the Remix IDE. This proposed system is developed smart contracts code has been made available on the GitHub repository. It is conducted the security analysis to show that the proposed blood donation management solution is robust and secure enough against major security vulnerabilities and attacks. In addition, it compared our proposed approach with the existing solutions. In the future, this system goal is to deploy and test the solution on the real Ethereum network and build an end-to-end Apps. Furthermore, violation monitoring will be added to further enhance the security of the blood cold supply chain.