

# **MEDICAL RECORDS MINI PROJECT USING BLOCKCHAIN**

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# HEALTH INFORMATION EXCHANGES

## PATIENT DATA PRIVACY

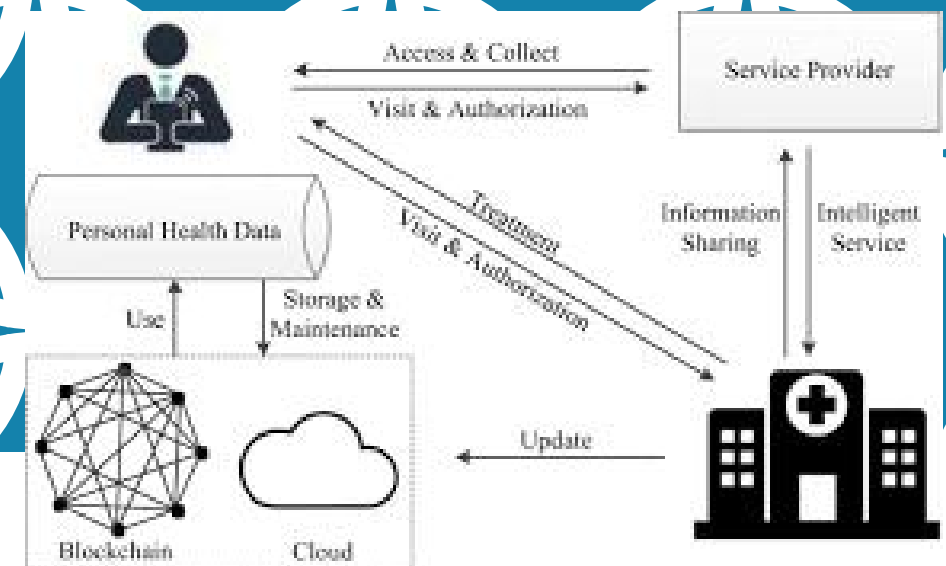


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# ABSTRACT

- ❖ Electronic Health Record (EHR) systems are increasingly used as an effective method to share patients' records among different hospitals.
- ❖ We apply consortium blockchain to compose a distributed system using Hyperledger Fabric incorporating existent EHRs.
- ❖ To protect a patient's privacy, we use a proxy re-encryption scheme when the data are transferred.



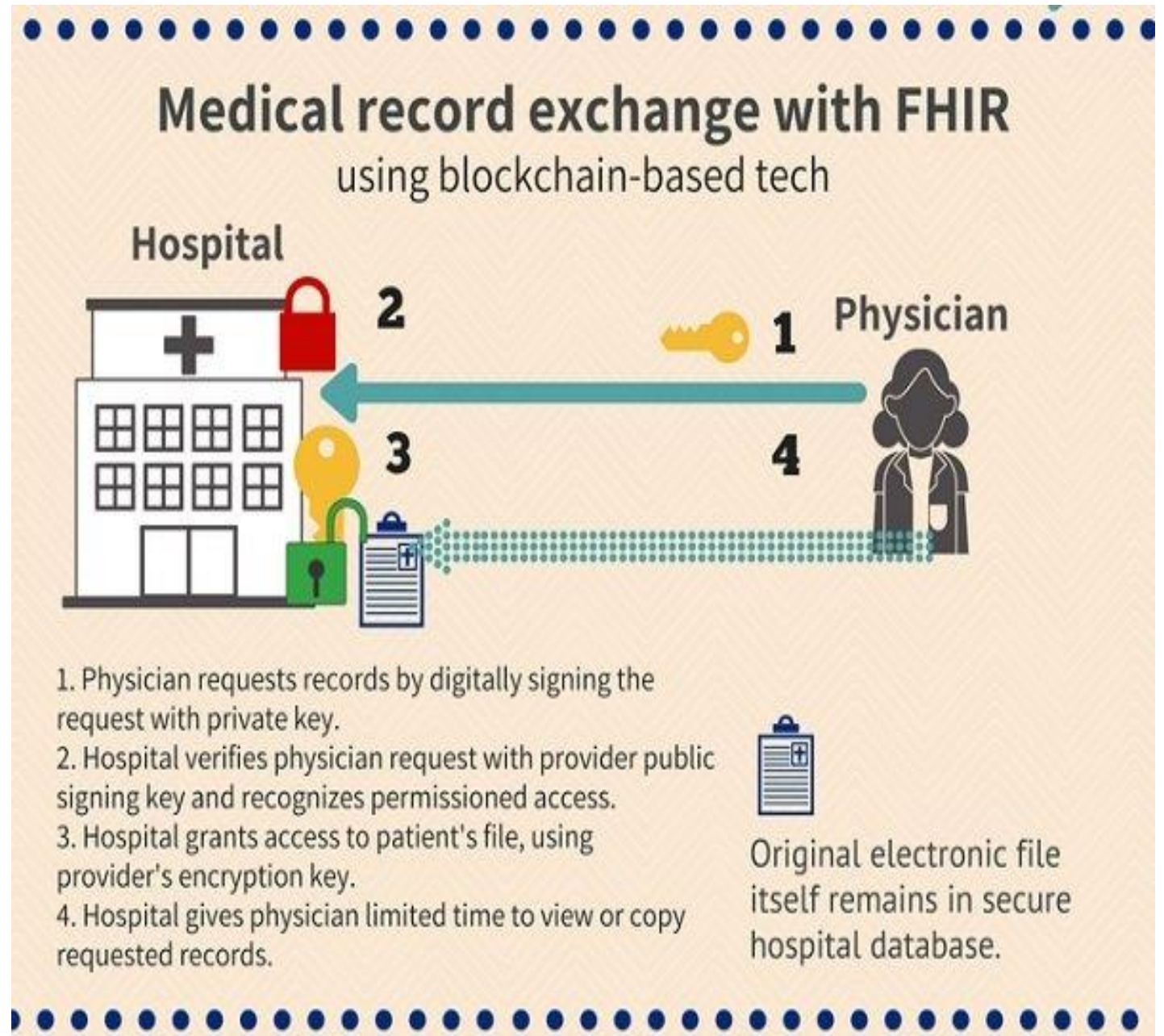
# INTRODUCTION

1. Electronic Health Record (EHR) systems [1] have been increasingly used as an effective method to share patients' records among different hospitals. However, it is still a challenge to access scattered patient data through multiple EHRs because existing EHRs are regionally limited or belong to affiliated hospitals.
2. the main barrier to access patient records lies in the difficulty to find provider's addresses. So far, there have been several projects to overcome these problems; however, the solutions they have produced are difficult and involve redesigning or upgrading of existing EHR systems, which would require substantial expenses.

3. one of the most actively ongoing programs is run by CommonWell Health Alliance in the United States, a nonprofit association.



4. a centralized architecture has some drawbacks that it may face the risk of single-point-of-failure and bottleneck of data flow when the system becomes larger.





# METHODS OF IMPLEMENTATION

## Existing System

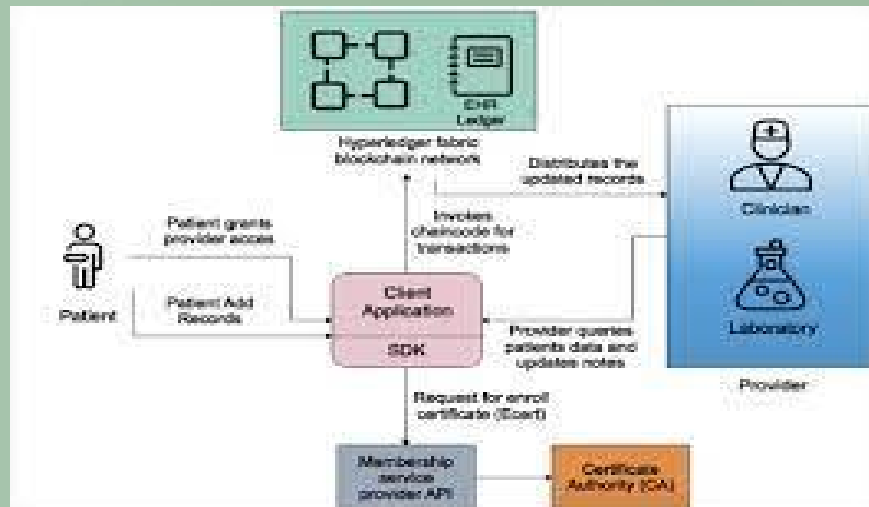
In the existing system the records are stored and maintained under the organization. So that, the patient can't able to access these records for further references. When the particular server(database) gets crashed then all the records will be spoiled. To overcome these drawbacks the proposed system is developed.

The patient should have right to access his EHRs for managing and sharing them independently Institutions, etc.

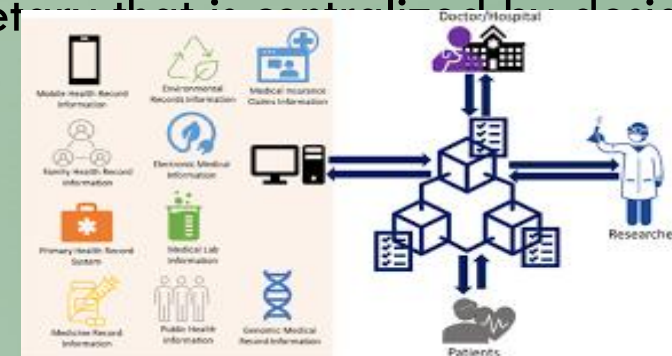


# PROPOSED SYSTEM:

The patient should have right to access his EHRs for managing and sharing them independently. The patient can be access his medical report directly and can use the digitalized report with anyone.



By storing the data in the blockchain the user's data is encrypted and stored as blocks in the etherscan. The user stores data by two way authentication process such as getting secret key generated by the Metamask. Electronic Health Record Systems are proprietary that is centralized and not open.



# MODULE DESCRIPTION

Modules present in the proposed system are

Ethereum

Smart Contract

Frontend Contract

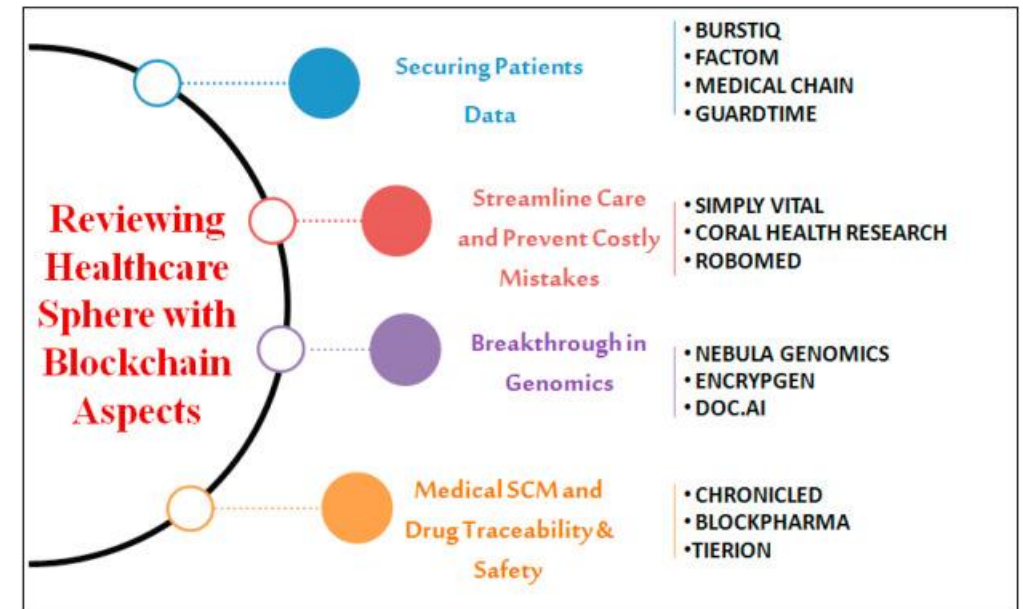


# ETHEREUM

Ethereum is smart contract platform that is inspired by block chain technology. Its elemental unit is called ether. Ether, similarly to bitcoin is divisible up to  $10^{-18}$ , its smallest subunit is called wei. Due to the fee-by-computation policy, Ether is sometimes referred as the fuel of Ethereum. The intention of Ethereum is to merge together enhanced scripting possibilities, meta protocol and time stamped database to allow development of an arbitrary application. The key difference from other block chain protocols is built-in programming language, various types of accounts and unlimited variation of application that can be built on top of it.

# APPLICATION OF BLOCKCHAIN IN HEALTHCARE

The transaction histories are more transparent because of the use of blockchain technology. Information is stored across a network of computers instead of on a single server, makes it very difficult for hackers to compromise the transaction data. Process with blockchain, transaction can be completed faster and more efficiently.



# ***CONCLUSION***

- In the EHR system the patient can access their report and can use the report for their lifetime with security. The private key is used for the patient which can be used for the further use of the reports. The one who don't have the private key cannot involve in the process of retrieving data. Hence the Health Records of the patients are more secured with the BlockChain and can used with their own private key as well as they can make use of that for further reference. Currently, there is a huge obstacle for using ethereum platform, which lays in difficulty of obtaining ETH units. The units can be obtained either by mining or purchased for fiat or cryptocurrency like Bitcoin.

Thank You!

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