

# BLOCKCHAIN TECHNOLOGY FOR ELECTRONIC HEALTH RECORDS

---

By,

Devadharshini S

Indhumathi M

Kavishni S

Sowmiya G

# Abstract

Data privacy refers to ensuring that users keep control over access to information, whereas data accessibility refers to ensuring that information access is unconstrained. Conflicts between privacy and accessibility of data are natural to occur, and healthcare is a domain in which they are particularly relevant. In the present article, we discuss how blockchain technology, and smart contracts, could help in some typical scenarios related to data access, data management and data interoperability for the specific healthcare domain. We then propose the implementation of a large-scale information architecture to access Electronic Health Records (EHRs) based on Smart Contracts as information mediators. Our main contribution is the framing of data privacy and accessibility issues in healthcare and the proposal of an integrated blockchain based architecture.

# PROBLEM STATEMENT

Blockchain is a technology designed to manage patient data that has the potential to support transparency and accountability. A blockchain is a ledger of transactions where an identical copy is visible to all the members of a computer network. Network members validate the data entered into the ledger, and once entered, the data is immutable.

Create a solution where you can store the electronic health record of the patients in a distributed and decentralized network. You should be able to query and change the ownership of the record as necessary.

# OUR SOLUTION

To achieve this, a consortium of healthcare providers, insurance companies, and regulatory bodies should be established to collaborate on the network's development and governance. A permissioned blockchain network should be employed to ensure only verified entities can participate. Health data can be tokenized, with each token representing a specific piece of data, ensuring data integrity and ease of management. A patient-centric access control system will give patients full control over their health data, allowing them to grant or revoke permissions as they see fit. Smart contracts can automate data sharing agreements between healthcare providers, enforcing terms and ensuring secure data sharing in compliance with regulations. Interoperability and data standardization should be a focus, with standardized data formats and protocols adopted for data exchange on the blockchain.

# Scope of the Project

The scope of the project for implementing blockchain technology for electronic health records (EHRs) encompasses several key components. It begins with a feasibility study to assess the viability and benefits of the technology within the healthcare system, followed by engagement with stakeholders including healthcare providers, insurance companies, patients, and regulatory bodies. The project involves the design and architecture of a blockchain-based EHR system, including the type of blockchain network, data structures, and interoperability protocols. A system for tokenizing health data will be developed to represent specific pieces of health data and track transactions. A patient-centric access control system will allow patients to manage permissions for their health data. Smart contracts will automate data sharing agreements between healthcare providers.



# Steps to Complete the Project

Step 1:-

Open the Zip file and download the zip file. Extract all zip files

Step 2 :

1. Open vs code in the left top select open folder. Select extracted file and open .
2. Select the projectname.sol file and copy the code.
3. Open the remix ide platform and create a new file by giving the name of projectname.sol and paste the code which you copied from vs code.
4. Click on solidity compiler and click compile the projectname.sol
5. Deploy the smart contract by clicking on the deploy and run transaction.
6. select injected provider - MetaMask. In environment
7. Click on deploy. Automatically MetaMask will open and give confirmation. You will get a pop up click on ok.
8. In the Deployed contract you can see one address copy the address.
9. Open vs code and search for the connector.js. In contract.js you can paste the address at the bottom of the code. In export const address.
10. Save the code.

### Step 3:

open file explorer

1. Open the extracted file and click on the folder.
2. Open src, and search for utiles.
3. You can see the frontend files. Select all the things at the top in the search bar by clicking alt+ A. Search for cmd
4. Open cmd enter commands `npm install npm bootstrap npm start`
5. It will install all the packages and after completing it will open {LOCALHOST IP ADDRESS} copy the address and open it to chrome so you can see the frontend of your project.

# Output

← → ↻ localhost:3000

## Health Records Using Blockchain

Connect Wallet

Enter Record Id	Enter new record Id
Enter name	Enter new owner metama
Enter patient Address	Transfer Record
Enter disease	
Enter contact Info	

Create Record

Enter Id

Get Record Data



# Conclusion

In conclusion, implementing blockchain technology for electronic health records (EHRs) has the potential to transform the healthcare sector by enhancing the security, interoperability, and patient-centric nature of EHR systems. Through a decentralized and secure architecture, blockchain technology can provide patients with greater control and ownership over their health data, while also ensuring data integrity and privacy. By fostering interoperability across different healthcare systems, it can facilitate seamless data sharing among healthcare providers, leading to improved patient outcomes.

**THANK YOU**

