

**Project Reference Number :** 46S\_BE\_5174

**Title of The Project:** MEDICAL REPORT MANAGAMENT USING BLOCKCHAIN TECHNOLOGY.

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**Key Words:** Blockchain, EHR, EMR etc.

**Introduction:**

In the world of healthcare today, there are two major focuses that must be addressed: data security and data ownership. Sensitive medical records currently lack a secure structure, leading to data breaches with severe consequences. In 2018, the Department of Health and Human Services' Office for Civil Rights (OCR) received notifications of many data breaches that resulted in the exposure of 13 million total healthcare records. Furthermore, according to a recent study conducted by the Ponemon Institute on behalf of IBM Security, the average total cost of data breach in the United States was \$7.91 million, with the health sector having the highest per capita cost (Ponemon Institute, 2018). Another concern is that patients are currently unable to have full ownership of their own medical data, a notion that is increasing in relevance with the rise of personalized medicine and wearables. Both these issues also lead to significant moral repercussions that must be resolved. Blockchain technology may provide the answer.

**Objectives of the project:**

- ❑ Making the health information available and reducing medical error by improving the accuracy and clarity of medical record.
- ❑ provides secure storage of electronic records by defining granular access rules for the users of the proposed framework.
- ❑ Providing accesses to the patient’s to download their reports themselves from the organizations portal by giving them a identification number.

**Methodology:**

To understand the blockchain architecture let us use the following figure that explains the wholeprocess of a transaction being send from a user on the blockchain network.

A new transaction being sent by a user on the blockchain network suggests that a new block is created. A block in the blockchain is used for keeping transactions in them and these blocks are distributedto all of the connected nodes in the network. That transaction placed inside a block is broadcasted to all ofthe nodes in the network. All the nodes in the network have a copy of the complete blockchain that helps them in verification process. When a block containing the user transaction is broadcasted to all of the connected nodes, they verify that the block is not tampered by any means. If this verification results in success then the nodes add that block in their own copy of blockchain.

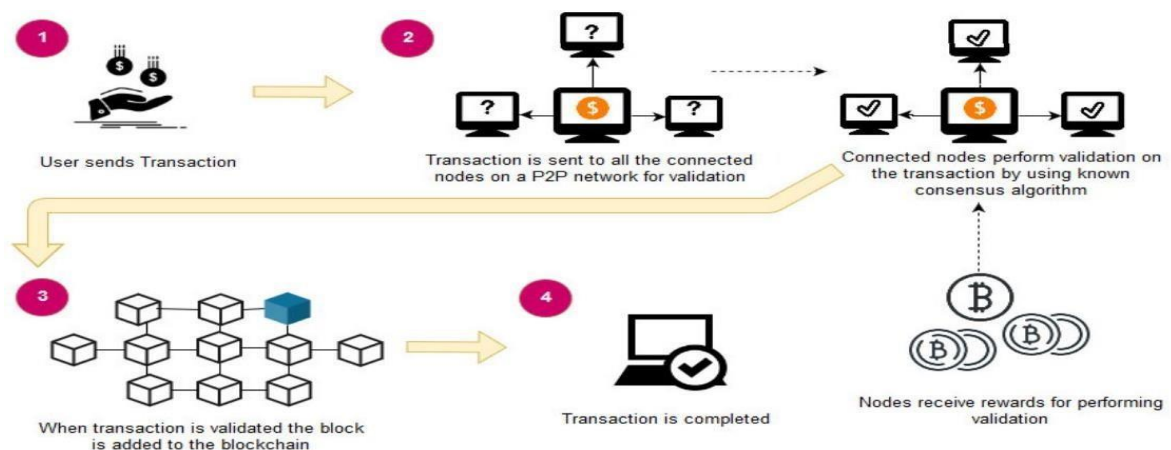


Fig 5.1 Block chain Architecture

After validation is done that block is added to the blockchain. After the whole process of validation is performed the transaction is completed.

## Result:

This project has the implementation of the hospital management system which mainly contains of the 3 parts.

- Admin
- Doctor
- Patient

Where each one them plays specific part in this project, Fig Homepage refers to the home page of the project.

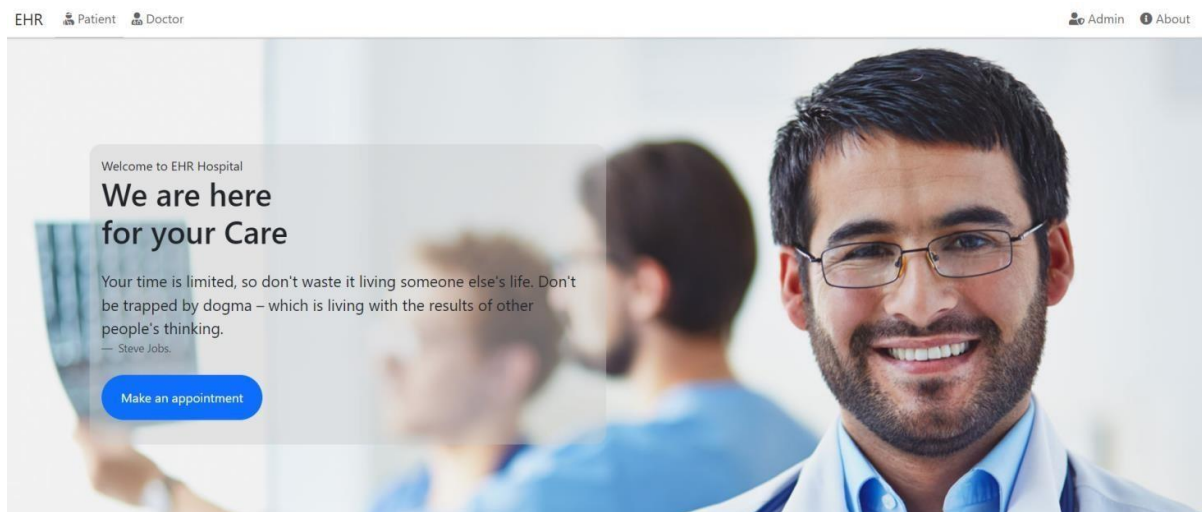


Fig : Homepage

## ADMIN

Admin as a control over the doctor where the admin can the new doctor and the specifications has tobe provided from the admin panel itself where admin as access to see the total number of patients, Fig Admin Dashboard refers to the admin dashboard, In Patients, Active Doctors.

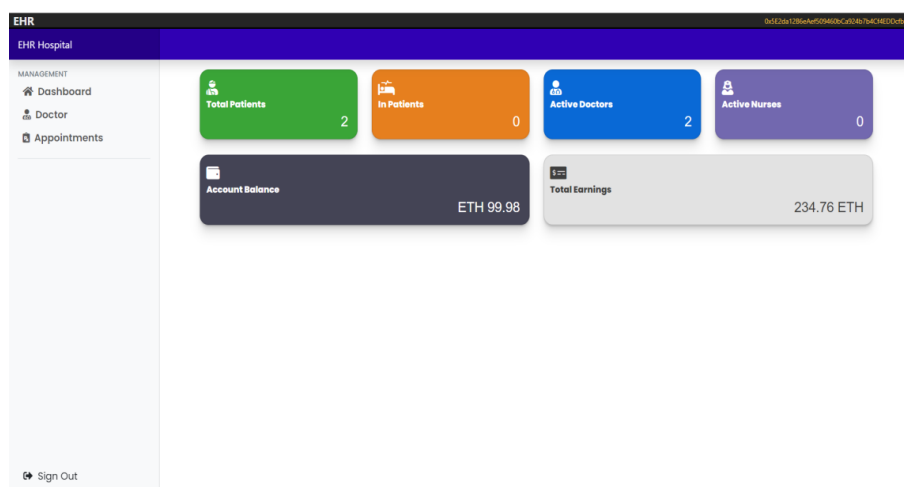


Fig : Admin Dashboard

## DOCTOR

When we come to the doctor part once the admin adds the doctor to the chain the patient can book an appointment with the respective doctor by specifying the time when the patient comes in touch doctor.doctor can see the appointments in the doctor dashboard as shown below.

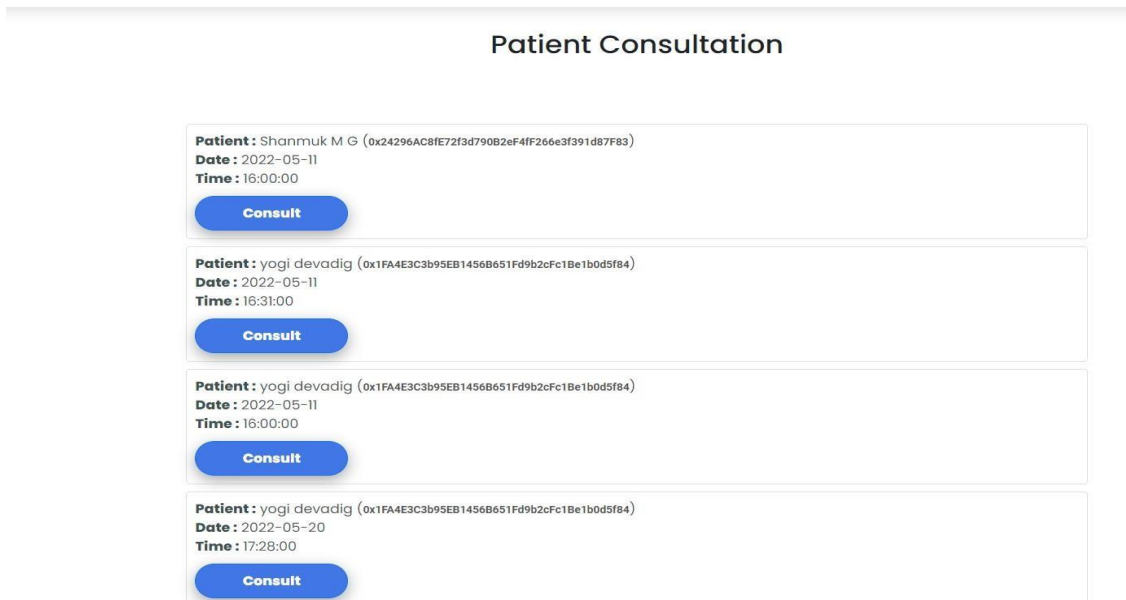


Fig : Appointment List

## PATIENT

When we come to the patient part which one of the main content of the project where the patient can himself register on the self registering portal using some basic credentials then the patient gets added to the chain and then the patient gets his own dashboard where he can view his details. Fig 6.6 Patient Registration Form is the registration form for the patient. Once the user gets registered on the portal then Admin will get an option to add that particular patient to the portal.

The screenshot shows a 'Register Patient' form with the following fields and a submit button:

- First Name\* (input: first name)
- Last Name\* (input: last name)
- Mobile\* (input: mobile)
- Patient Id\* (input: patient account id)
- City\* (input: city)
- State (input: state)
- Add Patient (button)

Fig : Patient Registration Form

## Conclusion:

In this project we discussed how blockchain technology can be useful for healthcare sector and how can it be used for electronic health records. Despite the advancement in healthcare sector and technological innovation in EHR systems they still faced some issues that were addressed by this novel technology, i.e., blockchain. Our proposed framework is a combination of secure record storage along with the granular access rules for those records.

## Scope for Future Work:

The future scope for medical report management using blockchain technology is promising. Blockchain has the potential to revolutionize the way medical records are managed, making them more secure, efficient, and accessible.

Here are some of the benefits of using blockchain for medical report management:

1. **Security:** Blockchain is a secure and tamper-proof technology, which makes it ideal for storing sensitive medical data.
2. **Efficiency:** Blockchain can streamline the process of sharing medical records between different healthcare providers, making it easier for patients to get the care they need.
3. **Accessibility:** Blockchain can make medical records more accessible to patients, giving them more control over their own health data.