Aniot Based Secureheart Beat Monitoring And Heart Attack Detection System Using Blockchain

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Abstract- *Everybody know Heart Attack can kill human's life in 3 attempts. But now a days it can be dangerous in first attempt also. We are implementing a heartbeat monitoring and heart attack detection system using internet of things. Many people among us lose their life to heart attack. Heart attack is not easy to detect, to overcome and help our society from heart attack, we are developing such a system which help to decrease the death rate and early detection of heart attack. After setting high and low level of heart beat limits, the system starts monitoring and also alerts for lower heart beats. In this project we can use Advanced Encryption Standard algorithm for data privacy, Data Mining algorithm (DNN). Using block chain technology to store the data.*

Keywords- Block Chain, AES , IoT

I. INTRODUCTION

The Internet of Things (IoT) is the network of devices such as home appliances that contain electronics, software, actuators, and connectivity which allows these things to connect, interact and exchange data. The IoT involves extending internet connectivity beyond standard devices, such as desktops, laptops, smartphones and tablets to any range of traditionally dumb or non-internet-enabled physical devices and everyday objects. Using Internet of Things (IoT), we can control any electronic equipment in homes and industries. Moreover, you can read a data from many sensor and analyse it graphically from anywhere in the world.Internet of Things (IoT) is the concept where a large number of small devices communicate with each other and with the rest of the Internet. It is a giant network of connected devices that is encompassing not only local wireless communication, but communication with the edge, the core and the cloud to create sophisticated, intelligent and large scale systems.The term Internet of Things generally refers to scenarios where network connectivity and computing capability extends to objects, sensors and everyday items not normally considered computers, allowing these devices to generate, exchange and consume data with minimal human intervention. There is, however, no single, universal definition.Advanced Encryption Standard (AES) is a process used to change raw information (usually human readable) into cipher text (unreadable format). This part of the process is known as encryption. The method uses key, to uniquely change the data.A block chain originally block chain, is a growing list of records, called blocks, that are linked using cryptography. Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data (generally represented as a Markel tree).By design, a block chain is resistant to modification of the data. It is "an open,distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way".For use as a distributed ledger, a blockchain is typically managed by a peer-to-peer network collectively adhering to a protocol for inter-node communication and validating new blocks.

II. EXISTING SYSTEM

Large-scale smart health devices require high computing and storage capabilities of cloud servers. Since cloud storage and computing can also be seen as centralized to a certain extent, once cloud servers break down or are attacked, all users might beaffected.Health data is highly sensitive and should be well protected. Cloud server may leak user privacy for commercial benefits. For example, users only allow their health data to be accessed by authorized professional healthcare staffs, but cloud providers may leak users' personalized EHRs, for medical research, drug advertising and so on, without the user's permission for increasing their own benefit. Medical dispute occurs, the user may suspect that the original EHRs stored in the cloud has been modified as the distrust of the third party. Besides, it is difficult to share data stored in cloud among different platforms with specific access control policies.

III. PROPOSED SYTEM

In addition we propose a paradigm that if an attacker attacks single node our proposed methodology restricts the attacker. To modify the data from the single node we have to modify every node that has been present in the system. It increases the security and efficiency of the network that has been processed.In this work, we propose an innovative method for visualizing the patient's health status according with measurements coming from different datasources, sensors.

Patientmonitoring is done in an efficient way as of that every records are maintained with privacy which enhances the security of the entire system. At the same time the entire records are secured to protect the data from the unwanted or third party sources.

IV. SYSTEM ARCHITECTURE

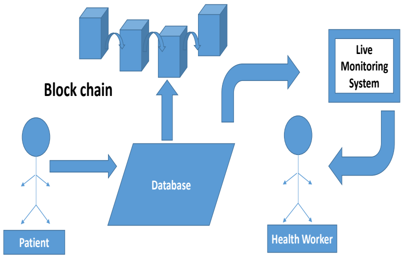


Fig 4.1 Architecture

Description

Initially all the patient details are stored in the database. For the security purpose the patient's password stored in the encrypted format. No one has the rights to view their password without authentication. The database consist of risky data like temperature, pressure, Heart beat, pulse. The data also stored in the encrypted format. For the message production Advanced Encryption Standard algorithm is used.The database having encrypted data that can be securely stored using blockchain technology. After the completion of data storage to the cloud server there is a chance for the traitor i.e.: the attacker to access or retrieve the data of patients from the server. Those traitors can be traced using the traitor tracing techniques and those traitors can be revoked using the revocation algorithm and their MAC ID can be obtained, from which those traitors can be blocked from which further access of data will be denied. In case of occurrence of abnormal condition in the Patients health conditions which was monitored by the sensors will be automatically updated to the cloud server and the respective doctor and as well the guardian of the concerned patient will receive the status intimation for further processing which enhances the efficiency of the system in a better way.

V. MODULES

5.1Utility module

The patient open the web page. If the patient is new user means he has to register by using his details for example name, email id, phone number. If the patient is already existing user means he has to login by using his login id and password. After logged in the patient can receive the one time password for their registered mobile number. The patient is supposed to view their details if any modification is required means they have a chance to update their details. List of doctor's name along with their specification is displayed. In that the patient has to choose their required one. Similar to patient doctor also wants to login by using their login credential details. After the doctor has logged in the doctor has to view the Patient details.

5.2 Data Encryption

Initially all the patient details are stored in the database. For the security purpose the patient's password stored in the encrypted format. No one has the rights to view their password without authentication. The database consist of risky data like temperature, pressure, Heart beat, pulse. The data also stored in the encrypted format. For the message production Advanced Encryption Standard algorithm is used.

5.3 Data Storage using Block chain

To increase the security level of the data that has been stored in the cloud and blockchain technique has been used which merges the patients' medical reports into an image and hide for security issues, which prevents the data from third party access.

5.4 Traitor Tracing

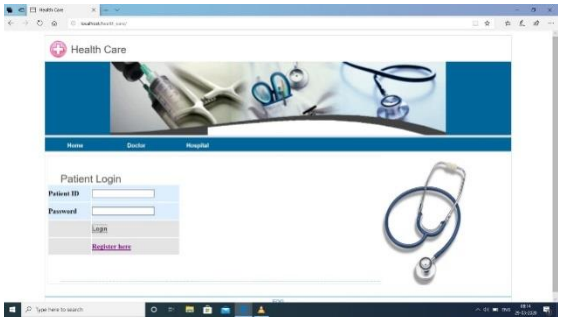
After the completion of data storage to the cloud server there is a chance for the traitor i.e.: the attacker to access or retrieve the data of patients from the server. Those traitors can be traced using the traitor tracing techniques and those traitors can be revoked using the revocation algorithm and their MAC ID can be obtained, from which those traitors can be blocked from which further access of data will be denied.

5.5 Abnormal Alert

In case of occurrence of abnormal condition in the patients health conditions which was monitored by the sensors will be automatically updated to the cloud server and the respective doctor and as well the guardian of the concerned patient will receive the status intimation for further processing which enhances the efficiency of the system in a better way.

VI. IMPLEMENTATION

In our social network site the user first have to register themselves to log in to the website. To complete the registration process securely OTP is generated to the registered mobile number.



Patient Login

Patient ID

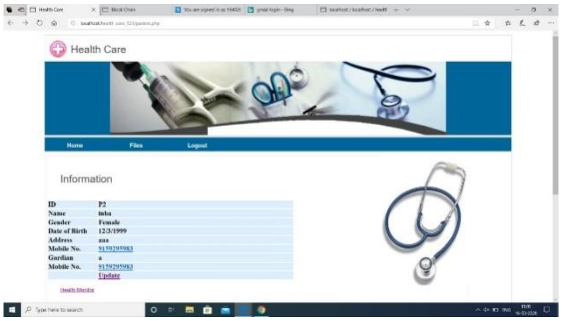
Password

Login

Register here

Fig 6.1

The patient is supposed to view their details if any modification is required means they have a chance to update their details. List of doctor’s name along with their specification is displayed.



Information

ID	P2
Name	inba
Gender	Female
Date of Birth	12/3/1999
Address	aaa
Mobile No.	9159295983
Gardian	a
Mobile No.	9159295983
	Update

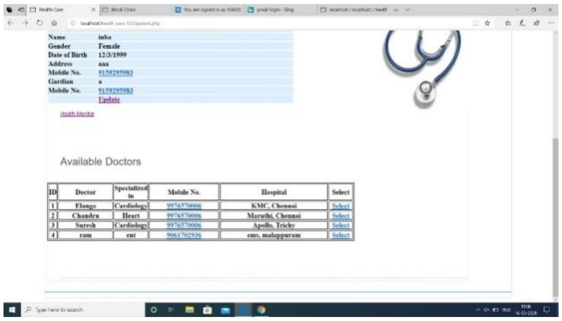
Health Monitor

Fig 6.2

It is decentralized platform that runs smart contracts: applications that run exactly as programmed without any possibility of downtime, censorship, fraud or third party interference.

Simply using excess hard drive space, users could store the traditional cloud 300 times over.

In that the patient has to choose their required one. Similar to patient doctor also wants to login by using their login credential details. After the doctor has logged in the doctor has to view the Patient details.



Name	inba
Gender	Female
Date of Birth	12/3/1999
Address	aaa
Mobile No.	9159295983
Gardian	a
Mobile No.	9159295983
	Update

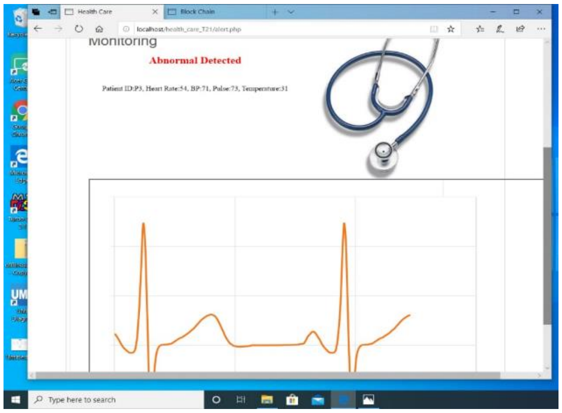
Health Monitor

Available Doctors

ID	Doctor	Specialized in	Mobile No.	Hospital	Select
1	Elango	Cardiology	9976570006	KMC, Chennai	Select
2	Chandru	Heart	9976570006	Maruthi, Chennai	Select
3	Suresh	Cardiology	9976570006	Apollo, Trichy	Select
4	ram	ent	9061702936	ems, malappuram	Select

Fig 6.3

The database consist of risky data like temperature, pressure, Heart beat, pulse. The data also stored in the encrypted format. For the message production Advanced Encryption Standard algorithm is used.

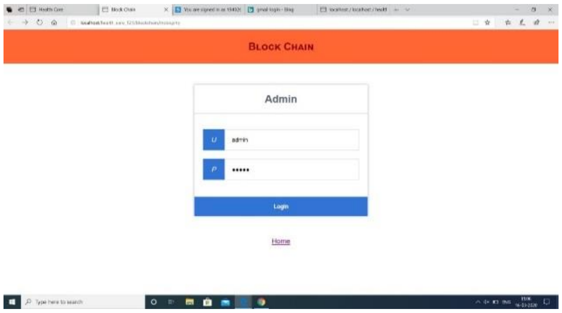


Monitoring

Abnormal Detected

Patient ID:P3, Heart Rate:54, BP:71, Pulse:73, Temperature:31

Fig 6.4



Admin

admin

•••••

Login

Home

Fig 6.5

To increase the security level of the data that has been stored in the block chain.

VII. CONCLUSION

The heart beat based heart attack detection has been successfully developed and it helps the patient to predict the heart attack. The advantages of this project is to intimate the doctor and guardian through the messages to their phone or system. This project was an introduction to provide authenticity for the patient as well asdoctor. To make the system more efficient, we have provided authentication in the form of OTP to registered number. The main improvements that can be done are using AES algorithm for data protection during data transmission and Blockchain technology used to store the data securely.

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