IOT BASED HEALTH CARE CARD

A Project Report

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Under the Guidance of

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CERTIFICATE

This is to Certify that Project - 2 -Subject code 203105400 of 8^{th} Semester entitled "IOT BASED HEALTH CARE CARD" of Group No. PUCSE_79 has been successfully completed by

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"The single greatest cause of happiness is gratitude."

-Auliq-Ice

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Abstract

Health system is one of the important sectors in any country for its national interest. India is one of the over populated countries in the world. Health sector in this country is undeveloped and communication technology has not been introduced significantly toimprove its quality of service. Growing use of information and communication technology (ICT) facilitates many countries to develop their ICT based health identity card system.The aim of this proposed health identity card system is to improve efficiency, access and accountability of health-care services. Growing use of information and communication technology (ICT) facilitates many countries to develop their ICT based health identity card system. At present there is noexisting electronic health identity card in India. Our proposed idea carries the advantages of secure health care in India by using ICT technologies. This thesis studies to find a solution for coordination and integration of the problems ofcurrent health care system in India through case studies and literature review, then to give a solution to improve cost efficiency and control prohibited selling of medicine toun-prescribed patients. The thesis presents research, design and implementation of Health Identity Card basedsolution that can be used to integrate and to coordinate with heterogeneous IT environment. Using the Health identity Card all patient's data, doctor's prescription, patients present and previous health history could be accessible through webpage by the relevant parties.

Keywords : NFC, Health Card ,Visual Doctor ,Paperless Process

Contents

Chapter 1

Introduction

1.1 IOT :-

The internet of things, or IoT, is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human- to-computerinteraction

1.2 NFC:-

NFC stands for Near Field Communication and is a wireless communication standard that allows smaller amounts of data to be exchanged between NFC devices. Similar to Bluetooth, or WLAN connections, this exchange takes place wireless via radio transmission. 'Near Field'at this point meansthat this data exchange can only take place over a short distance of 1-10 cm.This is the main differenceto a Bluetooth or WLAN connection.

1.3 ARTIFICIAL INTELLIGENCE:-

AI is a study of how human brain think, learn, decide and work, when it tries to solve problems.And finally this study outputs intelligent software systems. The aim of AI is to improve computer functions which are related to human knowledge, for example, reasoning, learning, and problem-solving.

1.4 MACHINE LEARNING:-

Machine learning is a subfield of artificial intelligence (AI). The goal of machine learning generally is to understand the structure of data and fit that data into models that can be understood and utilized by people

1.5 Definition:-

(HCC) Health Care Card is IOT based software developed for Everyone to keep their health track or to keep all the record of there health reports . It also have the facility of the chat bot that help to make a communication with the patient to know there problems and provide the report card and send it to your preferred doctor . The information is sorted in our database , which will be provided to the doctor for a particular patient. This system will help in keeping patient's data secure and onrecord .doctors can add prescription to the patient and then they can go to medical and medicalstore can only see the prescribed medicine and give the patient .

1.6 Purpose :-

The purpose of making this system is to solve the problem of storing every report provided from the hospitalso oursystem will manage all the hospital related documents and prescriptions provided from the doctors.
As it kept all the data of the person so if the person is in unconscious because of the some accident or anything then by this card the Doctor will know the medical history of the person.
we are all witness the covid period so using this system we can prevent the effect of the diseasewhich spread through the human contacts.

1.7 Scope :-

This can also help insurance companies by reducing the scope of false claims.
As the charges can be paid through this ID, there is a scope of keeping a check on arbitrary charges by hospitals.
So for example, I have a particular health ID. I will go on linking my health records which have been accumulated till now and will also get them linked in future from various hospitals,laboratories and clinics so that the data of medical records get built up; what we call where the longitudinal medical history of a person is available at one place, which is so important for providing quality hea we are all witnessing the watershed moment in the history of humankind in the form of theCovid pandemic. So this data and this digital ecosystem will also be useful in managing that.

1.8 Overview :-

(HCC) system is having Three module first one is for the user in which they can add all there details and there health track records and second one is for the doctors in which they can add new prescription and can view the previous medical reports of the patients or the user and the third module isforthe pharmacy in that they only can see the require prescription of the doctor

Chapter 2

LITERATURE REVIEW

2.1 Paper 1

Design and implementation of a smart card based healthcare information system

Smart cards are used in information technologies as portable integrated devices with data storage and data processing capabilities. As in other fields, smart card use in health systems became populardue to their increased capacity and performance. Their efficient use with easyand fast data accessfacilities leads to implementation particularly widespread in security systems.

A smart card based healthcare information system is developed. The system uses smart cardfor personal identification and transfer of health data and provides data communication via a distributed protocol which is particularly developed for this study. Two smart card software modules are implemented that run on patient and healthcare professional smart cards, respectively. In addition to personal information, general health information about the patientis also loaded to patient smart card. Health care providers use their own smart cards to be authenticated on the system and to access data on patient cards. Encryption keys and digital signature keys stored on smart cards of the system are used for secure and authenticated data communication between clients and database servers over distributed object protocol.

2.2 Paper 2:

The Impact Of Health Card On Citizens' Quality Of Life

The results from the field research are presented in this section. We treat participants'statements as "proof of concept". We believe the reliability of our interpretations is reinforced through the provision of statements from many participants, whether these are unique or common within and between different groups of respondents.

Health service is a basic human need as well as it is considered as a public right. The government of Bangladesh is providing this basic need through ticket counter. But health care is a special type of good and demand of health is inelastic. So, when individual needs to have health service, then it is mandatory for him to takeit. As most of the people of Bangladesh are poor, they cannot take this service privately.
Although the government of Bangladesh is providing this service through ticket system, it is more time consuming and costly. Therefore, special health service can contribute to overcomethis problem.

2.3 Paper 3

Architecture for Portable and Secure Patient Smart Card

Previoussections discussed the ability of the proposed architecture to provide the patient smartcard with the PKI security services and to allow the patients' mobility at the same time. The architecture uses the patient's key pair to provide patient's confidentiality and the PIN to get patient's authenticity. The doctor's digital signature is used to provide doctor's authentication and non-repudiation. Doctor Authentication provides the integrity to the patient's data. Storing the digitally signed data out of the card and also storing the doctor's public keysin the internet allowsthe patient to present and update his medicalrecord anywhereand at any time

2.4 Paper 4 :

Patient Healthcare Smart Card System:- A Unified Medical Recordfor Access and Analytics

Smart cards are not new to the healthcare industry. Current health smart card is in use in manyparts of Europe as well as here in the US. This paper proposes an ambitious plan to assist in the modern day US healthcare landscape thatis currently undergoing a swift transformation from the traditional volume based to a value basedmodel of care. Some of the benefits and challenges discussed in this paper are extremelypertinent to the evolving US healthcare cosmos. We need to have a targeted vision in terms of what tools and techniques that can be helpful tous to be able to provide the best in class value based care to our patients

2.5 Paper 5 :

Medbot: Conversational Artificial Intelligence Powered ChatbotforDelivering Tele-Health after COVID-19

Keeping in mind the after-effects of a pandemic and the imbalance between the demandand healthcare services currently provided, especially in rural India have tried to bridge thegap by creating a Multilingual Conversational Application with Natural Language.

2.6 Paper 6

I Chatbot Design during an Epidemic like the Novel Coronavirus
After the rise of the web and mobile apps, virtual chatbot applications are the latestinventions of digital design. These applications are well known for automatic conversationalagents that run on computer programming or a kind of artificial intelligence (AI) interactionbetween the users and machines with the intervention of natural language processing (NLP).

Our idea behind this study is to present sophisticated AI medical chatbots for users, especially duringunknown pandemics like nCOV-19. The presented AI chatbot will have alarge impact on patient life during serious epidemics. It would provide the advantage of putting access to virtual doctors into their hands. We bring health specialists and professionals into our platform to feed medical information into a bot engine, also to the availability of every user whenever the possibility of infection is detected

2.7 Paper 7

The Implementation of the Electronic Health Card
The introduction of the electronic health card (eHC) in Germany, replacing an older versionwith less functional aspects, marks the largest telematic project in the history of the Germanhealth care system. It provides comprehensive information to all participating organizationslinking 127,000 physicians, 65,000 dentists, 21,000 pharmacies, 2,200 hospitals, and around200 compulsory and private health insurance companies. The implementation of the eHC isexpected to cost more than one billion Euros. The eHC contains a memory chip and microprocessor that store administrative, personal as well as treatment related data from theinsured

2.8 Paper 9

Virtual General Physician System using Artificial Intelligence

From the review of various journals, it is concluded that, the usage of Chatbot is user friendly and can be used by any person who knows how to type in their own languagein mobile app or desktop version. A medical chatbot provides personalized diagnoses basedon symptoms. A medical chatbot provides personalized diagnoses based on symptoms. Inthe future, the bot's symptom recognition and diagnosis performance could be greatly improved by adding support for more medical features, such as location, duration, and intensity of symptoms, and more detailed symptom description

2.9 Paper 10 :

A governance model for the application of AI in health care

While there is some way to go before AI models become a regular feature of healthcare delivery, the path for their use has been already set. AI medical products are already on the market and there is increasing evidence of the efficacy of AI medical software in clinical decision making.1,37 Despite some discussion of the morality of AI in health care, very few investigations have moved beyond the ethics to consider the legal and governance aspects. Toaddress this gap, we proposed a governance model that covers the introduction and implementation of AI models in health care.

2.10 Paper 11

Machine learning implementation for smart health records: a digitalcarry card.

The random forest methodology will give the highest accuracy with the decision boundary design and implementation using the multiple decision trees. The decision tree is used to identify the features and predict a specific value and the random forest is the combination ofmore decision trees and we may get variable decision boundaries in the random forest. So based on our requirement we identified that pure random forest can get the accurate result ofidentifying the patient health information and decision trees will stand next to RF in the accuracy.

2.11 Paper 12 :

Managing Medical and Insurance Information Through a SmartCard-Based Information System

The latest technological developments both in the area of integrated circuits and in the area of communications and networks, have significantly contributed towards the realization of "Distributed Health and Insurance Information Systems," similar to that presented in this paper. The advantages exhibited by the Health-Insurance smart card are its processing capability and security features in conjunction with the easiness and flexibility supported for carrying and exchanging information. The proposed system can be easily extended to include more health-related activities, like pharmacies, examination laboratories etc. The principle will remain the same: Information will be exchanged between the various health care and insurance actors through the patient'ssmart card, which at the same time will ensure an extremely high security level

2.12 Paper 13

A Self-Diagnosis Medical Chatbot Using Artificial Intelligence

From the review of various journals, it is concluded that, the usage of Chatbot is user friendly and can be used by any person who knows how to type in their own language in mobile app or desktop version. A medical chatbot provides personalized diagnoses based onsymptoms. A medical chatbot provides personalized diagnoses based on symptoms. In the future, the bot's symptom recognition and diagnosis performance could be greatly improvedby adding support for more medical features, such as location, duration, and intensity of symptoms, and more detailed symptom description.

2.13 Paper 14

The Impact Of Health Card On Citizens' Quality Of Life

We are in this report and a brief description of the security and privacy threats to the devices NFC. The same technology and security threats the same wireless technology. Compared with other wireless technologies some of the threats have an impact on the low NFC, such as eavesdropping, which is difficult to achieve through the transaction due to the distance in lesscommunication between devices and the denial of the attack, which will only affect the normal operation for some time.

The data modification, data corruption, and the attack of the sequential devices NFC. Becausewhen we look at the use cases with regard to smart posters, where addresses are used malicious websites to direct users to malicious websites or services. Can be used to downloadmalicious software on the mobile phone. Can then be used malicious software to eavesdrop on the data entered on the keyboard or attempt to access sensitive data, which threatens the security of other applications. Encryption gives us better way to secure communications. But the question is which encryption method to use here, either symmetric or asymmetric Symmetric encryption has its own issues, like key distribution and trust, etc.

2.14 Paper 15:

Modern Chatbot Systems: A Technical Review

This paper presents an architectural design and implementation review of ve modern chatbot systems. The aim for this review is to provide an overview sense in regards to design practiceas well as implementation strategy in modern chatbot systems. Based on our review, modern chatbot technical speci cation can be seen as 90 percent similar due to utilization of mostly similar techniques with adjusted parameters to occupy each system's requirement. With this actuality, modern chatbot roadmap can be seen as within controlled trajectory where all future improvement is targeted towards same baseline objectives
We think those objectives are: 1) To design a universal word embedding model that is not bias towards vocabulary size and language used.
2) To design a generative model that can be exible as well as accurate towards conversational context.
3) To design a universal automated evaluation model that require no or highly less human assistant to avoid human bias (individually oriented evaluation)

2.15 Paper 16 :

Chatbot for Healthcare System Using Artificial Intelligence

AI (Artifificial intelligence) is consisting of a complex mathematical algorithm that processes input information to produce any specific pre-defined outputs, which lead to relevant outcomes.1 AI systems, which utilise large datasets, can be designed to enhance

the application is developed to provide quality of answers in a short period of time. It removes the burden from the answer provider by directly delivering the answer to the userusing an expert system
Here they have developed the application using the n-gram, tf-idf for extracting the keywordfrom the user query. each keyword is weighed down to obtain the

proper answer for the query. The application is improved with the security and effectiveness upgrades by ensuring user protection and characters and retrieving answers consequently for the questions.

2.16 Paper 17

Advantages of E-Health System Management

Cryptosystems and specific ID also can be used to guarantee the safety while any records wishes to be transmitted. The demanding situations of destiny can be to innovate and invent the restrictions and the compact gadgets for quicker, smarter, dependable and really user pleasant the usage of E-fitness systems. Thus e-cards can come as a existence saviour in stateof affairs in which affected person might not recollect information of previous illnesses and diagnostics and superior tablets can be prescribed to him in case of state of affairs in which formerly prescription drugs do now no longer inhibit the control of the ailment of which he's struggling and also put off the possibilities and hazard of incorrect diagnosis and tablets. Interchange among statistics among clinicians, experts, diagnostic and pharmacies center is trackable and quicker with the aid of using which the discount in opportunity of dropping the statistics and following calls. These capabilities of e-fitness care results in the extra productiveness and performance withinside the global of scientific science

2.17 Paper 18

Big Health Application System based on Health Internet of Things and Big Data

The medical resources of many countries are limited. For example, in China, the developmentof medical resources is not balanced that 80while 80effectively integrating medical health resources using intelligent terminals, health Internet of Things (IoT), big data and cloud computing is the important way to solve the above problems [1]–[3]. Big health is a promising industry, which is characterized by people-center, managing a person's health from birth to death, from prevention to rehabilitation and involving industry from government to market. The domain of big health covers health products field (including the drugs, medical devices, elder products), health service field (including medical services, pension services, mobile healthcare), health realestate field (including pension, healthcare) and health finance field (including health insurance and other financial products)

2.18 Paper 19

Co-Production and Health System Reform - From Re-Imagining To ReMaking

There is growing interest in the application of citizen participation within all areas of publicsector service development, where it is increasingly promoted as a significant strand of postneoliberal policy concerned with re-imagining citizenship and more participatory formsof citizen/consumer engagement. The application of such a perspective within health services, via co-production, has both beneficial, but also problematic implications for the organisation of such services, for3 professional practice and education. Given the disappointing results in increasing consumer involvement in health services via 'choice' and'voice' participation strategies, the question of how the more challenging approach of co- production will fare needs to be addressed.

The re-emergence of interest in co-production and the re-imagining of the scope and possibilities of co-production, from local to system-wide co-production, has generated the possibility of health systems and citizens working and learning together to forge radically new forms of health maintenance and health improvement practices. Co-production is not only identified as addressing issues of health improvement and health system sustainability, but also as progressing broader citizenship and democratic policy agendas. There is no doubtthat the promise of local and system-wide co-production is substantial.

2.19 Paper 20

Chatbot for Healthcare System Using Artificial Intelligence

The aim of this paper is to create a medical chatbot using Artificial Intelligence that can diagnose the disease and provide basic details about the disease before consulting a doctor.This will help to reduce healthcare costs and improve accessibility to medical knowledge through medical chatbot

Chatbot is a great tool for conversation. Here the application is developed to provide quality of answers in a short period of time. It removes the burden from the answer provider by directly delivering the answer to the user using an expert system. The project is developed forthe user to save the user their time in consulting the doctors or experts for the healthcare solution. Here we developed the application using the N-gram, TF-IDF for extracting the keyword from the user query. Each keyword is weighed down to obtain the proper answer forthe query. The Web-interface is developed for the users, to the input query. The application isimproved with the security and effectiveness upgrades by ensuring user protection and characters and retrieving answers consequently for the questions

2.20 Paper 21:

Experiencing NFC-based Touch for Home Healthcare

The aim is to provide a health monitoring system where users can identify themselves by simple touch with an NFC-enabled device and different health information can be wirelessly collected and associated with the identified user. Furthermore, this system enables caregiversor physicians to monitor these health readings and patient actions at home. This system was tested with 17 users that led us to a better understanding of usability and effectiveness of thishealth system and user needs, and showed their preferences for a certain NFC-enabled deviceto be used in user identification.

This paper considers the creation of an affordable healthcare system that support people healthy lives and prolong the elderly's lives in their homes. By using NFC technology userscan identify themselves and for example weight, blood pressure or other health-related measurements are automatically associated with an identified user and stored accordingly

2.21 Paper 22:

NFC based Smart Healthcare Services System.

NFC applications can possibly alter the organization of medicinal services conveyed around the world, by making better approaches for completing tasks and associating with individualsand information. By disentangling the exchange of digital information between patients, suppliers, and health organizations, NFC can help change the current healthcare system, while diminishing medical expenses and enhancing care.

Recent medicinal gadgets using Bluetooth Low Energy and NFC are evolving present-day medical services, enhancing the lives of the elderly, those living with chronic diseases, and those in risk of coronary illness. Moreover, utilizing NFC in doctor's facilities diminished therequired printed material and decreased training costs. In this paper, I introduced an answer for EMR framework utilizing NFC tags to enhance security and quality affirmation in medicinal services information support. Utilizing this solution patient's health record can be accessed and updated from PCs or mobile or tablet. This arrangement decreases clinical errors caused by manual association.

2.22 Paper 23:

Evaluation of Chatbot Prototypes for Taking the Virtual Patient's History.
Andreas REISWICHa, Martin HAAGa a GECKO Institute, Heilbronn University of Applied Sciences, Heilbronn, Germany In medical education Virtual Patients (VP) are often applied to train students in different scenarios such as recording the patient's medical history or deciding a treatment option. Usually, such interactions are predefined by software logic and databases following strict rules. Here they uses, Natural Language Processing/Machine Learning (NLP/ML) algorithmshelp to increase the overall flexibility, since most of the rules they have derive directly from training data. This would allow a more sophisticated and individual conversation between student and VP(Virtual Patients).and by this it can help the society by having application in mobile or laptop they can get prescription and they can know what to do related to there diseases.

The current version of the Slack UI could allow an unstructured anamnesis survey between chatbot and user by replacing the intent with a VP answer. Thereby, it can be used on the computer as well as within a mobile application. For future development, the dialog system could be extended by storylines, e.g. by Rasa stories, making the overall conversation more sophisticated. At this point, additional concepts like voice commands or a VR avatar can be also considered. If there are no further improvements in data quality the interaction between user and chatbot might be facilitated by additional UI elements like in Fadhil and Villafiorita

2.23 Summary of Research Paper

Sr No.	Title	Publication	Year	Limitation
1	Design and implementation of a smart card based healthcare information system	International Computer Institute, Ege University, Bornova, 35100 Izmir, Turkey	2005	All health records in a smart card is currently impossible due to space
2	NFC based Smart Healthcare Services System	International Journal for Innovative Research in Science & Technology	2018	Tapping fail
3	Evaluation of Chatbot Prototypes for Taking the Virtual Patient's History	a GECKO Institute, Heilbronn University of Applied Sciences, Heilbronn, Germany	2019	Don't understand human context
4	The Impact Of Health Card On Citizens' Quality Of Life: Evidence In Bangladesh	University of Dhaka, Bangladesh	2016	The researchers faced several challenges in case of getting contact numbers from service providers
5	Managing Medical and Insurance Information Through a Smart-Card-Based Information System	Journal of Medical Systems	2000	An individual below 60 years can claim a tax deduction
6	Patient Healthcare Smart Card System: A Unified Medical Record for Access and Analytics	Management Information Systems Xavier University Cincinnati, Ohio 45207	2016	Don't understand human context
7	Experiencing NFC-based Touch for Home Healthcare	Cristina Cruces, Nuria Gomez de Segura Ikerlan-IK4	2009	Tapping fail
8	Chatbot for Healthcare System Using Artificial Intelligence	ICRITO	2020	Don't understand human context
9	Smart Card Technology in U.S. Healthcare	A Smart Card Alliance Healthcare Council Publication	2012	All health records in a smart card is currently impossible due to space
10	Personal Health Card: Use of QR Code to Access Medical Data	Kamran Imam University of Rhode Island	2018	Scanning problem
11	The Emergency Data Set for the German Electronic Health Card	Health Informatics Meets eHealth D. Hayn et al	2015	The researchers faced several challenges in case of getting contact numbers from service providers
12	Near Field Communication	IJCSNS International Journal of Computer Science and Network Security	2012	Tapping fail
13	Modern Chatbot Systems	IBM Centre of Excellence, Faculty of Computer Systems and Software Engineering, Universiti Malaysia Pahang	2017	No limitation
14	Advantages of E-Health System Management	International Journal of Advanced Engineering and Management	2017	No limitation

Figure 2.1: Caption

15	Acceptability of artificial intelligence (AI)-led chatbot services in healthcare	Digital Health Volume 5	2019	Language barrier
16	Governance of Large Innovation Projects: The Implementation of the Electronic Health Card in Germany	J.M. Bauer et al. (eds.), Innovation Policy and Governance in High-Tech Industries	2012	No limitation
17	Medbot: Conversational Artificial Intelligence Powered Chatbot for Delivering Tele-Health after COVID-19	ICCES	2020	Improper Prescription
18	Architecture for Portable and Secure Patient Smart Card	IJCSET	2011	No limitation
19	AI Chatbot Design during an Epidemic like the Novel Coronavirus	University of Camerino	2020	Language barrier
20	Co-Production and Health System Reform - From Re-Imagining To ReMaking	Australian Journal	2009	All health records in a smart card is currently impossible due to space
21	Big Health Application System based on Health Internet of Things and Big Data	Center of Information Development and Management, Nanyang Institute of Technology, Nanyang	2016	No limitation
22	Primary Care Physician's Attitude Towards the GERMAN e-Health Card Project	Springer Science	2008	Improper Prescription
23	MACHINE LEARNING IMPLEMENTATION FOR SMART HEALTH RECORDS: A DIGITAL CARRY CARD	Global Journal on Innovation, Opportunities and Challenges in AAI and Machine Learning	2019	All health records in a smart card is currently impossible due to space
24	A Self-Diagnosis Medical Chatbot Using Artificial Intelligence	Department of Computer Science and Engineering, Easwari Engineering College, Chennai	2010	No limitation
25	Virtual General Physician System using Artificial Intelligence	Dept.of Computer Systems Engineering, Dawood University of Engg and Technology	2009	Language barrier

Figure 2.2: Caption

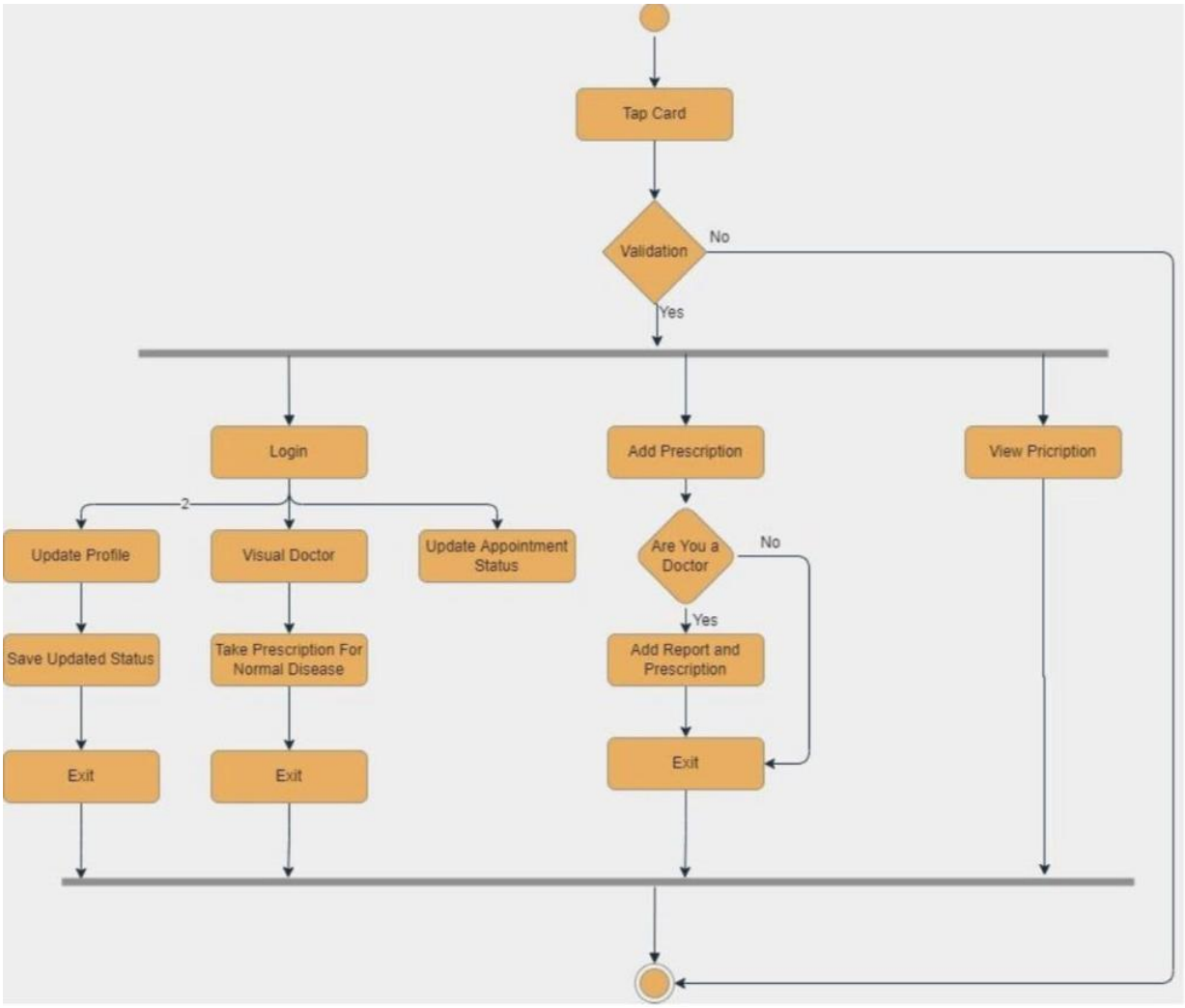
Chapter 3

Research Methodology

3.1 Introduction of Research Methodology

The product Health Care Card is an independent product and does not depend on any other product or system. The product will automate various tasks associated with handling Patients Record and better organizing the stored information and optimum performance, thus helping the Hospital to ensure smooth working of these processes.

3.2 Work flow:



3.3 Working

We are working on a project of a Health Care Card. So main purpose of our project is to makea card that helps patients, hospitals, and doctors. If Someone got injured and he is unconsciousthen he is not able to provide any detail on a hospital, at that time HCC will work. At the hospital, they just tap the HCC card and they got all details of the Patient and they also will be able to inform about patient to their family. Also after the treatment Doctor uploads prescription on that card and just patient have to go to a medical store and then tap at the medical store and the chemist will be able to view the prescription provided by the doctor andprovide medicine to the patient. This is an advantage for the patient.

At the hospital there are thousands of files and records of patient exits physically, if some accident happened then they lost all their record. But by using HCC card all the record are safeand secure and only the hospital has to tap the card and all other word is done by card only. Ifin any area there is only one hospital located then in that hospital there is the huge amount of crowd present for treatment and it takes time to fill out forms and taking details for the patientat that time HCC card will save the time of hospital and enter the details of patients on only one tap and allow patient to make an appointment with the doctor. And by this, it solves the Crowd problem also.

Every doctor wants quick details of every patient and what they suffering and what they suffered earlier so that he can provide medicine accordingly. Earlier it is not possible but nowif the patient tap that card on hospital reception then at that time only Doctor got to know everything about that patient Now when the doctor finishes his treatment then he provides a prescription to that patient so that he can take medicine according to the doctor want. But what if the patient lost that prescription but in HIC card doctor upload prescription of patient and patient only have to do is just tap card in medical store and Chemist got to know what the patient wants with only on one click.

3.3.1 Advantages

The digital health card will create interoperability within the digital health ecosystem. It will also create a seamless online platform that will also be secure and will protect the confidentiality and privacy of health-related personal information

The digital health id card will make all the health-related information portable and easily accessible even if the patient shifts to a new place or visits a new doctor. All person health records can be viewed with the help of a mobile app. The digital health ID card will work as a repository of all health-related information of theperson such as the person's past medical conditions, treatment and diagnosis.

The digital Health ID will have details of every disease, every test and all doctor visits along with results of all diagnostic tests and prescribed medicines. Each time, a person will visit thedoctor or a pharmacy, the details including prescriptions will be logged in the health ID card

he unique digital health IDs will enable Indian citizens to get hassle-free access to healthcareacross the country

3.3.2 Disadvantages

Safeguarding the data Protecting the privacy of enrolled citizens is a big challenge. Without a strong healthcare infrastructure and enough human resourcesin the healthcare sector,this attempt can be failed. So, building a strong healthcare infrastructure is much needed

3.3.3 Hardware Requirements :-

Device : NFC, ART Card, NFC Scanner .

3.3.4 Software Requirements :-

Front Design: Android app WebSite Firebase.
Front-End Language: Kotlin,PHP.
Back-End Language: JavaScript and Python.
newline Data-Base : MySQL

Chapter 4

IMPLEMENTATION

4.1 Front-End Technology

Android Studio

Android Studio is the official integrated development environment (IDE) for Android app development, developed by Google. It provides a comprehensive suite of tools for building Android apps, including a code editor, a visual layout editor, a debugger, an emulator, and a variety of tools for managing and optimizing app performance

Android Studio is built on top of the IntelliJ IDEA community edition, a popular Java IDE, and includes additional features and plugins specific to Android development. It supports multiple programming languages, including Java, Kotlin, and C++, and includes a rich set of libraries and frameworks for developing a wide range of Android apps, from simple mobile games to complex enterprise applications

Web development

Front-end web development, also known as client-side development is the practice of producing HTML, CSS and JavaScript for a website or Web Application so that a user can see and interact with them directly.

HTML, CSS, and JavaScript are at the heart of Front End development. The three languages are relatively easy to learn and offer plenty of flexibility and creativity.

4.2 Back-End Technology

MySQL

MySQL is an open-source relational database management system (RDBMS) that uses Structured Query Language (SQL) to manage data. It is one of the most popular database systems in the world, used by both small and large businesses, as well as developers building web applications.

MySQL provides a fast, reliable, and scalable platform for storing and accessing data. It is designed to handle large amounts of data and can support multiple users and applications simultaneously. MySQL is compatible with a variety of operating systems, programming languages, and frameworks, making it a popular choice for web developers.

PHP

PHP is one of the back-end languages which is known as the scripting language. When a PHP page is requested, the server parses the PHP code, which in most cases results in dynamically created HTML.

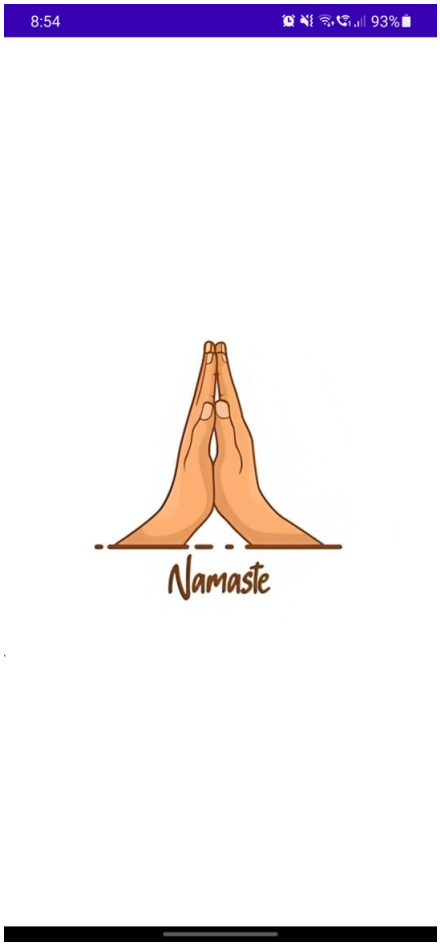
Every website requires to store the database of its users. This database comprises the complete website structure. Thus, one can simply retrieve, organize, modify, and save data whenever needed. It runs on a server.

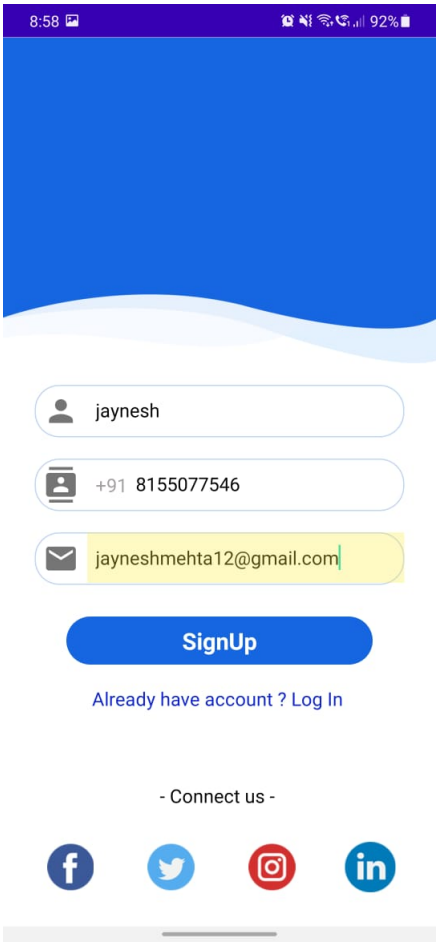
PHP plays a crucial role in the backend development of a website. It is integrated with multiple databases such as MySQL, SQL Server, PostgresSQL, and Oracle. Programming languages such as PHP run on frameworks that ease the web development process.

4.3 snapshot

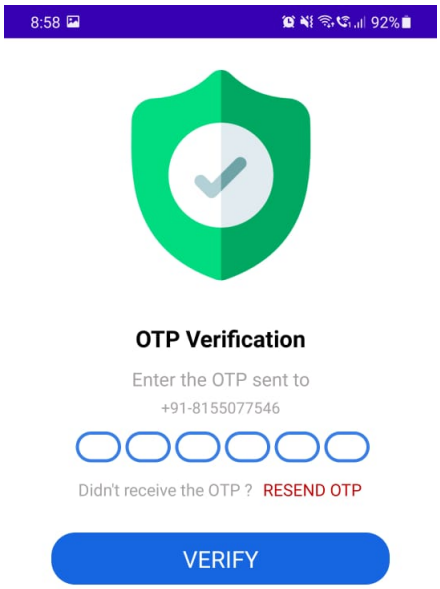
Homepage of the application where, the user can login using their existing account

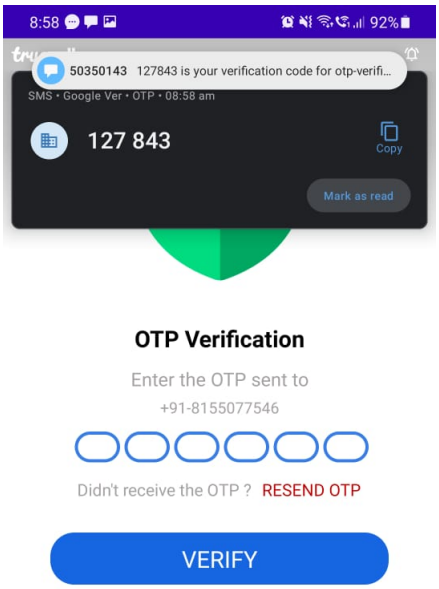
Starting-Page:

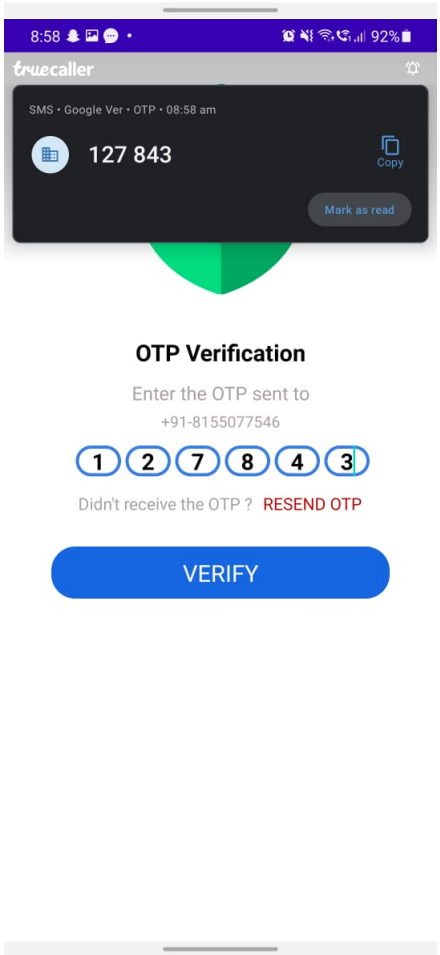




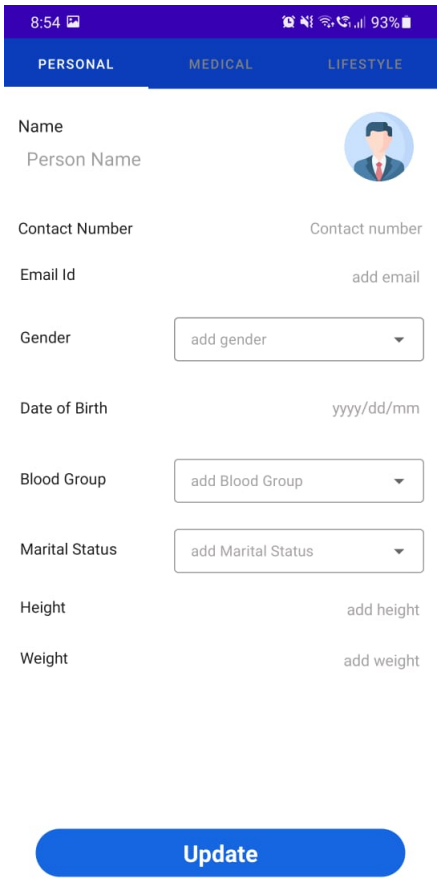
Registration-Page:

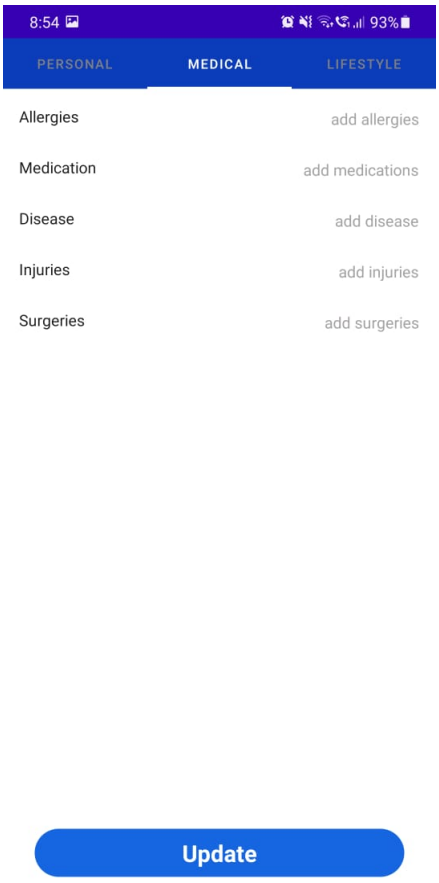


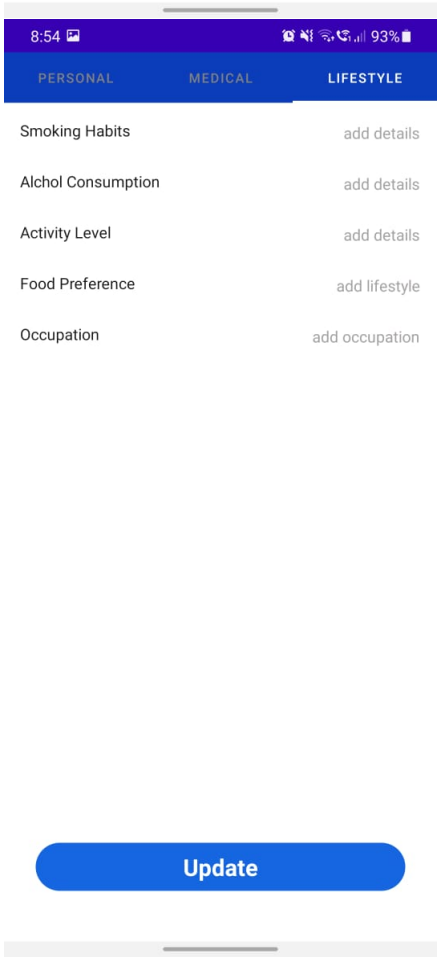




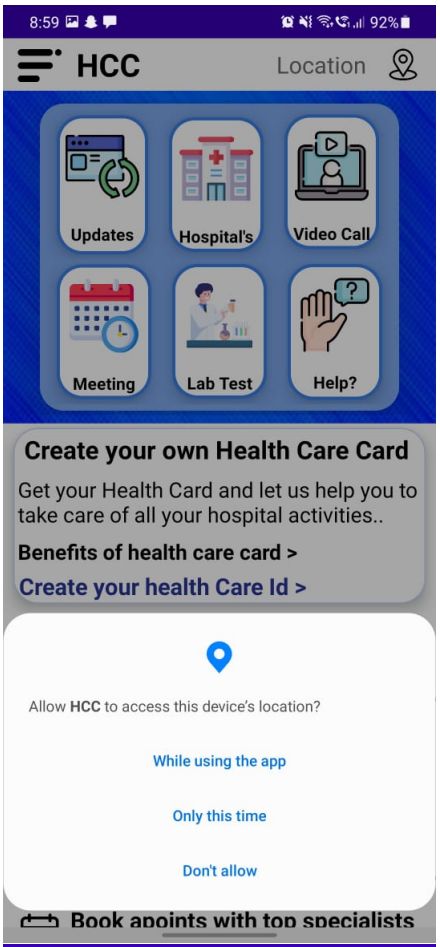
Information-Page:

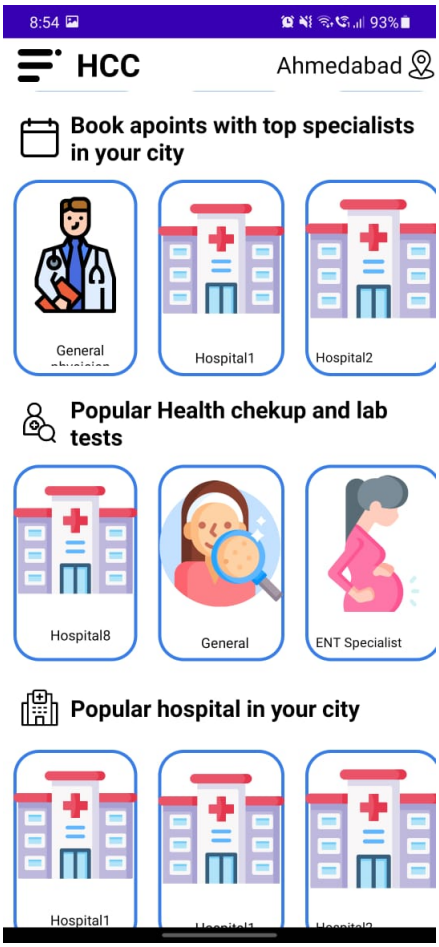


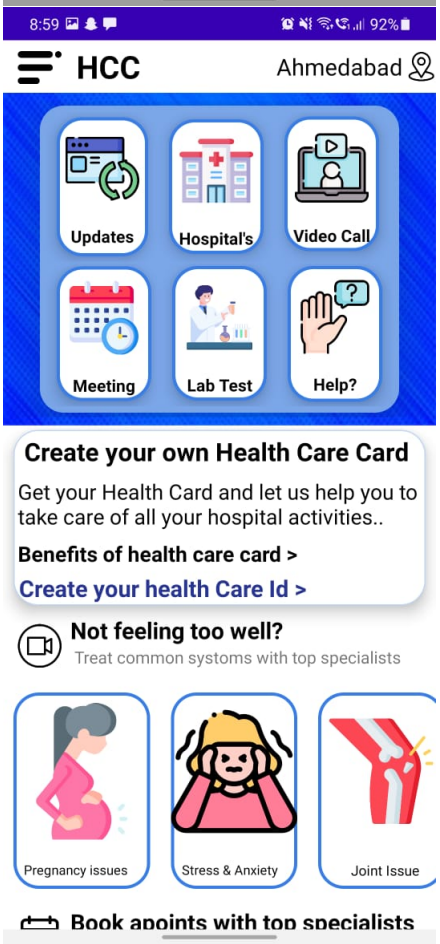




Main-Page:

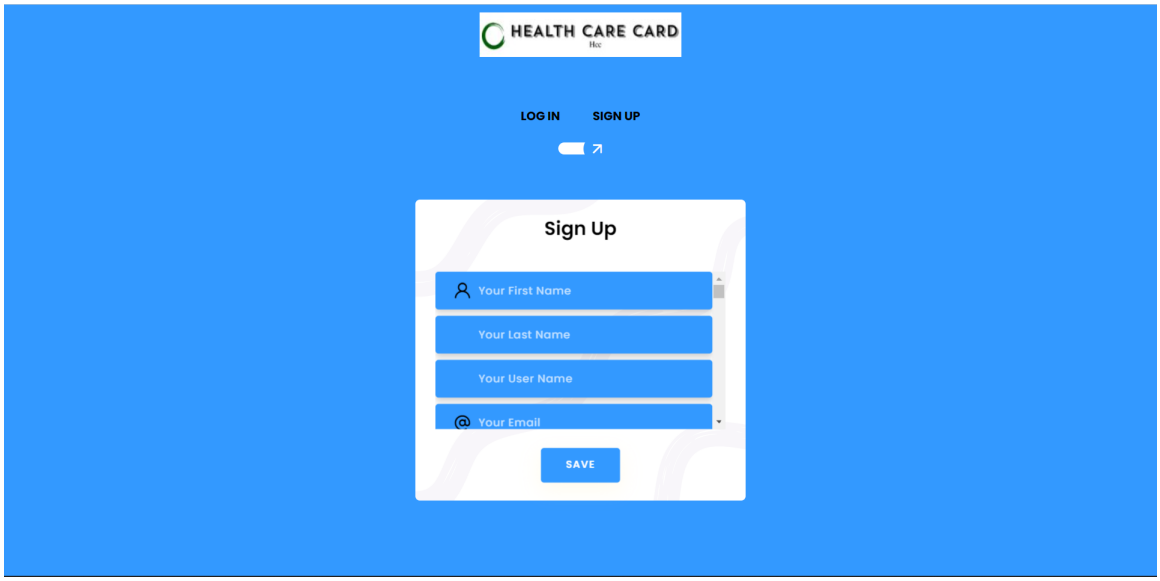

8:59
92%
HCC
Location
Updates
Hospital's
Video Call
Meeting
Lab Test
Help?
Create your own Health Care Card
Get your Health Card and let us help you to take care of all your hospital activities..
Benefits of health care card >
Create your health Care Id >
Allow HCC to access this device's location?
While using the app
Only this time
Don't allow
Book apoints with top specialists


8:54
93%
HCC
Ahmedabad
Book apoints with top specialists in your city
General
Hospital1
Hospital2
Popular Health chekup and lab tests
Hospital8
General
ENT Specialist
Popular hospital in your city
Hospital1

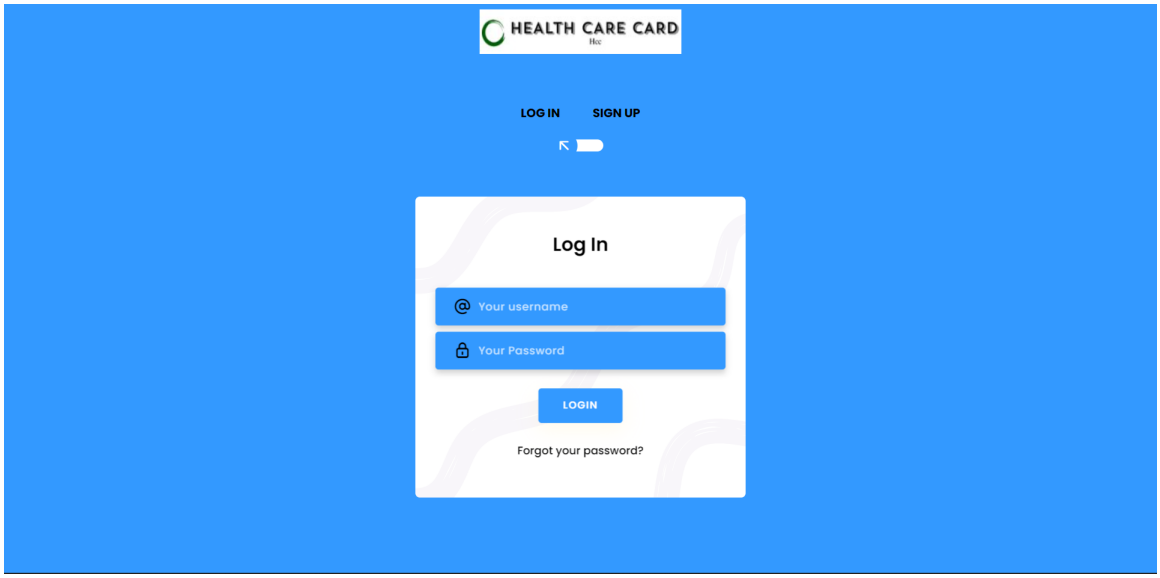

8:59
92%
HCC
Ahmedabad
Updates
Hospital's
Video Call
Meeting
Lab Test
Help?
Create your own Health Care Card
Get your Health Card and let us help you to take care of all your hospital activities..
Benefits of health care card >
Create your health Care Id >
Not feeling too well?
Treat common systoms with top specialists
Pregnancy issues
Stress & Anxiety
Joint Issue
Book apoints with top specialists

4.3.1 Webpage

Registration-Page:



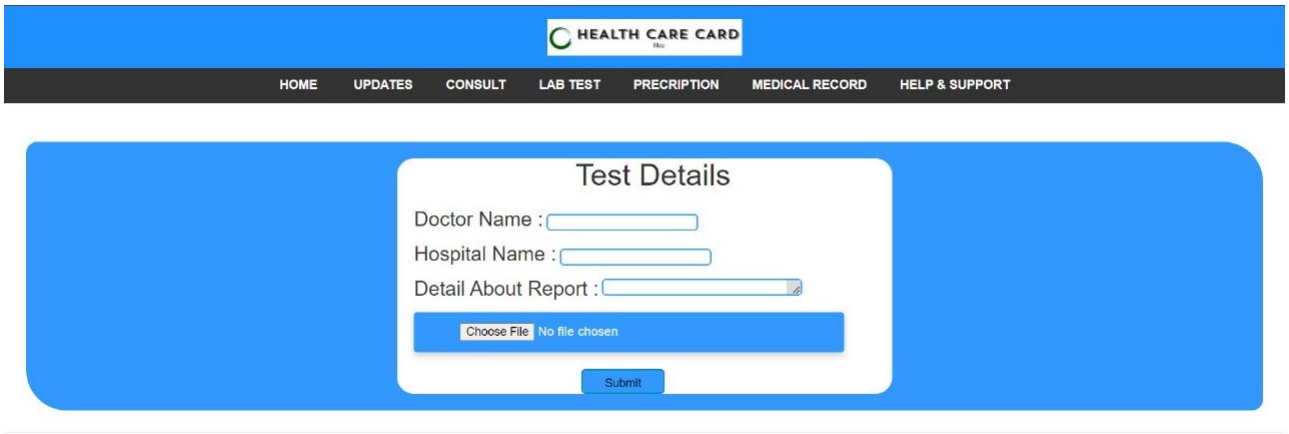
Login-Page:

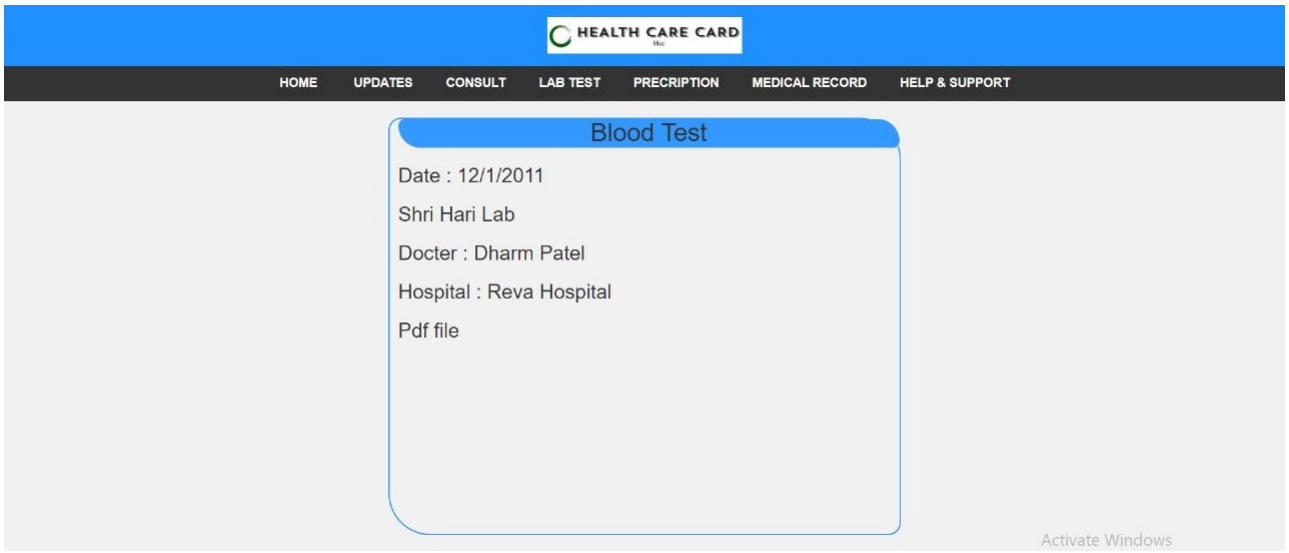


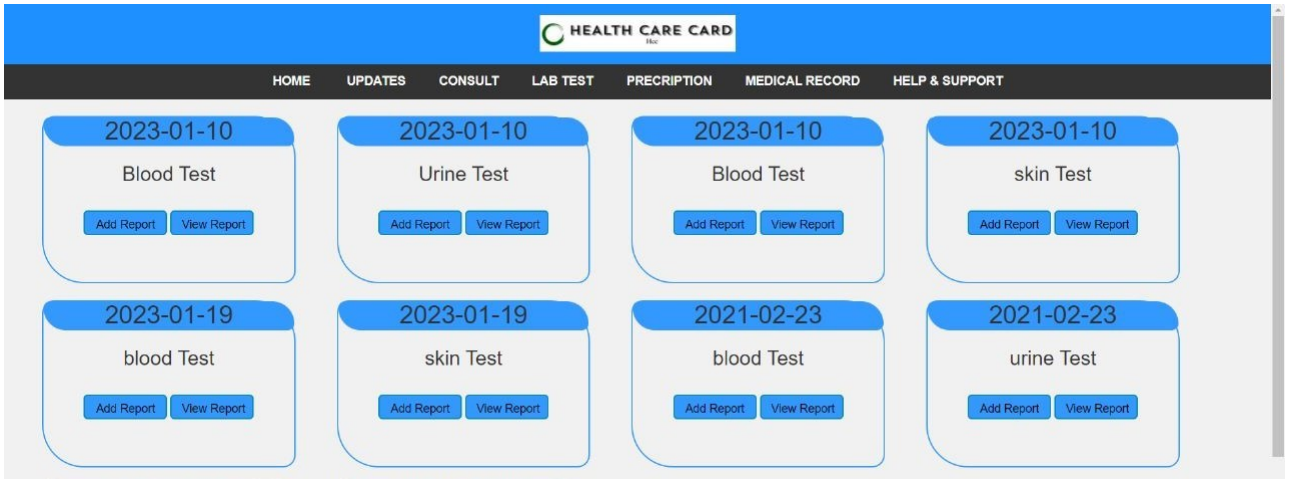
front-Page:


HEALTH CARE CARD
HOME
UPDATES
CONSULT
LAB TEST
PRECRIPTION
MEDICAL RECORD
HELP & SUPPORT
Patient Id:41673163612
Govind Jha
Contact:2147483647
Basic Information
Name : Govind Jha
Date Of Birth :2001-11-19
Father's Name : Ugant Jha
Mother's Name : Pinki Jha
Gender: Male
marital Status : Unmarid
Nationality : Indian
Height : 5.9
Weight:70KG
Blood Group : AB-
Contact Details
Patient Contact Number : 2147483647
Patient Email : jhag2491@gmail.com
Father's Contact Number : 2147483647
Mother's Contact Number : 2147483647
Emergency Contact Number : 2147483647
Recent Address
Room/col & Society Name : 505, Shri Ram Bhavan Society
LandMark : Nehru Street
City : Vapi
State : Gujarat
Insurance Details
Insurance Company : NO
Membership No. : 0
Policy Holder : Govind Jha
Policy Holder DOB : 2001-11-19
Contact : 2147483647
Relation with policy holder : Me
Employer Details
Employer Name : Radixweb
Employement Number : 981273
Employer contact No. : 2147483647
Employer Email : hr@radixweb.com
Employer Address : Ahmdabad,Gujarat
Allergetic Information
Ghee
Sigrets Smell
Alcohol Smell
Tobaco Smell
Injuries & Infection Information
Injuries
Right Hand
Left Hand
Infections
Patient's Previous Health Records
Search
Fever
Date : 2023-01-10
Hospital :Reva Hospital
Doctor Name : Dharm Patel
Doctor Id : 2147483647
View Prescribed Medicine
Cough
Date : 2023-01-10
Hospital :Reva
Doctor Name : Dharm Patel
Doctor Id : 2147483647
View Prescribed Medicine
fever
Date : 2023-01-19
Hospital :Reva
Doctor Name : Dharm Patel
Doctor Id : 2147483647
View Prescribed Medicine
Cough
Date : 2021-02-23
Hospital :mehta hospital
Doctor Name : Dharm Patel
Doctor Id : 2147483647
View Prescribed Medicine
Patient's Previous Lab Test Records
Search
Blood Test
Date : 2023-01-19
Hospital : Reva Hospital
Doctor : Dharm Patel
View Report
Urine Test
Date : 2023-01-19
Hospital : Mehta hospital
Doctor : Jaynesh Mehta
View Report

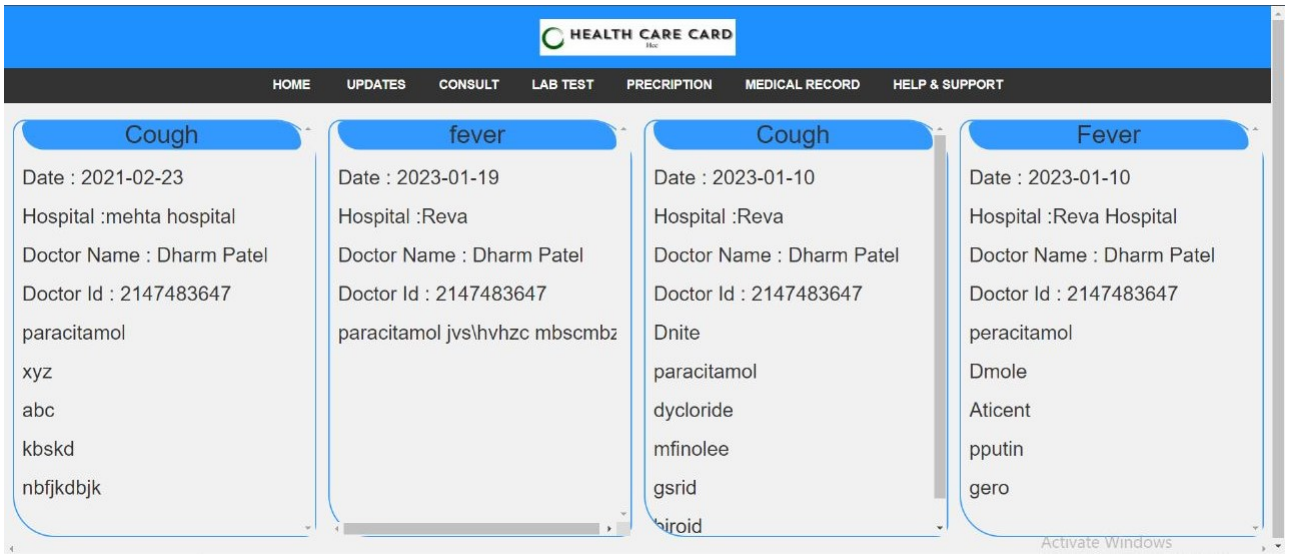
Lab-Test:


HEALTH CARE CARD
HOME
UPDATES
CONSULT
LAB TEST
PRECRIPTION
MEDICAL RECORD
HELP & SUPPORT
Test Details
Doctor Name :
Hospital Name :
Detail About Report :
Choose File
No file chosen
Submit


HEALTH CARE CARD
HOME
UPDATES
CONSULT
LAB TEST
PRECRIPTION
MEDICAL RECORD
HELP & SUPPORT
Blood Test
Date : 12/1/2011
Shri Hari Lab
Docter : Dharm Patel
Hospital : Reva Hospital
Pdf file
Activate Windows

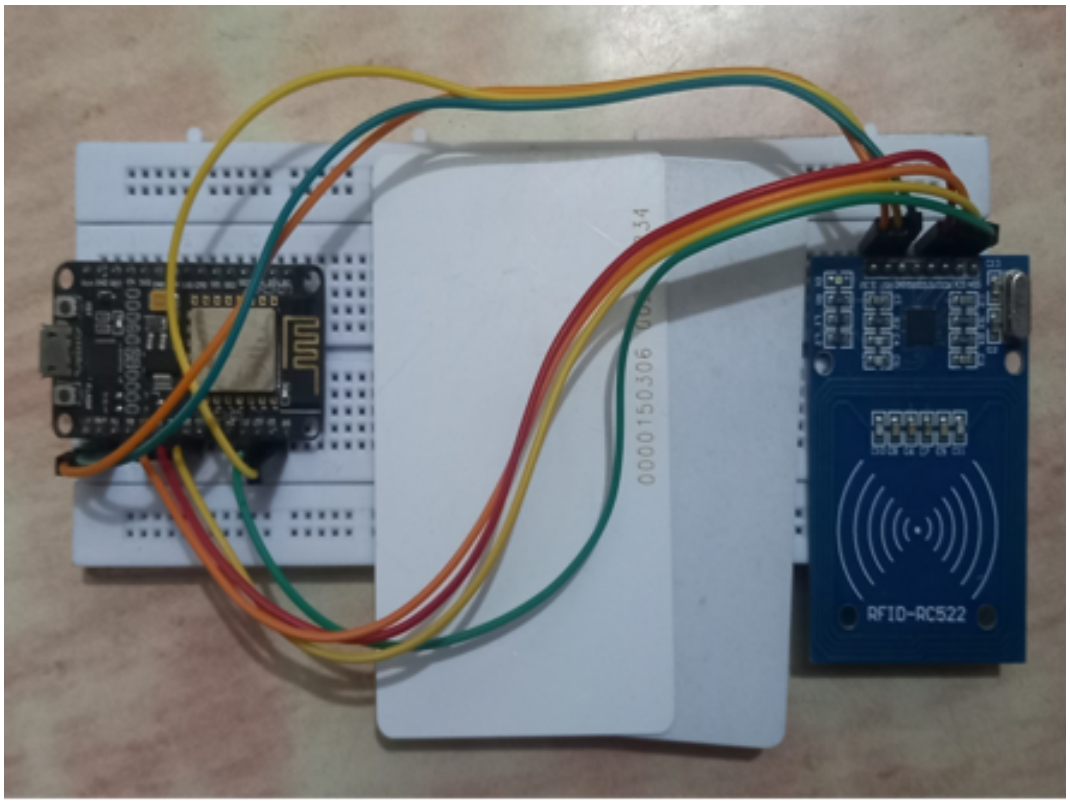

HEALTH CARE CARD
HOME
UPDATES
CONSULT
LAB TEST
PRECRIPTION
MEDICAL RECORD
HELP & SUPPORT
2023-01-10
Blood Test
Add Report
View Report
2023-01-10
Urine Test
Add Report
View Report
2023-01-10
Blood Test
Add Report
View Report
2023-01-10
skin Test
Add Report
View Report
2023-01-19
blood Test
Add Report
View Report
2023-01-19
skin Test
Add Report
View Report
2021-02-23
blood Test
Add Report
View Report
2021-02-23
urine Test
Add Report
View Report

Previous-record:

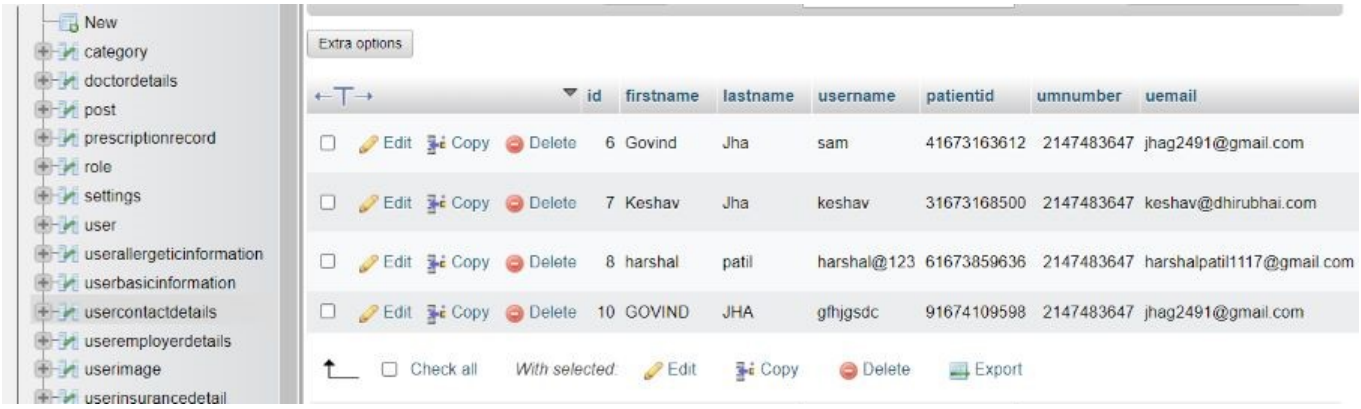


Prescription:

IOT:



Database:



Chapter 5

Conclusion

Using IOT we are creating a card that If someone tap on device that support NFC will got a notification. From that notification that person will redirect to the profile of the card user. If user went to hospital, then user will tap their card into the hospital then hospital staff got the information about that user and after that they appoint a doctor to the user. After treatment Doctor will upload the prescription into Card. Then if user went to chemist shop and tap card there then chemist can see the uploaded prescription uploaded by doctor. Using AI We are creating a chatbot that will that can diagnose the normal disease and provide basic details about the disease before consulting a doctor. If there is symptoms which leads to a big illness the AI chatbot will suggest user to visit doctor. Using ML we will analyze the prescription provided by AI chatbot and then Predict next phase of medicine. The project has a very vast scope in future. The project The project has a very vast scope in future. The project can implement on internet in future. Project can be updated in near future as and when requirement for the same arises as it very flexible in terms of expansion. With the proposed software of database space manager ready and fully functional the client is now able to manage hence run the entire work in much better, accurate and error free manner

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