PRIMARY HEALTH CARE IN REMOTE AREAS USING CLOUD TELEMEDICINE AND DIAGNOSTIC SERVICES

Collection of patient medical data

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Abstract: **Now a days there is an acute shortage of health care in smaller towns and villages. Sometimes, working of mobile applications may fail due to internet problem. To overcome this problem, we can design a mobile application that works without internet. In this, the user can store their details like Aadhar no, medical details like medical reports xray copy etc., through our application which in-turn sends it to the cloud server along with Aadhar number. The cloud data can be then accessed by the doctors in case of emergency. The medical technicians use the finger print scanner system to read the details of the patient from the cloud server. This is used in order to make it easy for patients belonging to low socio economic and educational backgrounds for safe keeping of health records of individual person (MIS). This technology is used to access the human records at fraction of seconds from anywhere and anytime.**

Index Terms: **Health records, patient details, Emergency condition**

I. INTRODUCTION

One of the most important sectors of any nation is their health care sector. The organization of people, institutions and resources that deliver services related to health to meet the medical needs of the general public or any individual is referred to as Health Care System. The importance of health care is immense in a society and over the past years, this sector has been evolving to produce a more efficient and computerized system. Our application used to reduce medical error, fastest medicine to the patient by previous reports provided by our application. This helps to treat the patient faster and no need to wait for the reports of the patient

II. LITERATURE SURVEY

A . The Application of Mobile Telehealth System to Facilitate Patient Information   Presentation and Case Discussion

A Smartphone based Application to Improve the Health Care System of Bangladesh Ahmed Imteaj and Muhammad Kamrul Hossain Department of Computer Science and Engineering, Chittagong University of Engineering & Technology Chittagong, Bangladesh. Email: imtu_1992@yahoo.com, muhammadkamrulhossain@gmail.com Abstract Nowadays, smartphones have reached every hand and every home. As a result, people are making use of the beneficial mobile applications to make their everyday life easier. This paper focuses on development of a mobile application (app) to help providing an effective health care system. Using this app people can get numerous benefits like finding hospital information in the city, information about cabin, cabin booking with payment, intelligent suggestion on choosing suitable hospital, finding a doctor, emergency service calling, first aid informatin, alarm system for medication, Body Mass Index(BMI) calculator etc. This application will be a helping hand for people who find it difficult to select hospital, book cabin, contacting doctor for appointment or seeking help in emergency situation. Besides, it will help the masses in their everyday life by providing health care information, aid and medication information, medicine reminder system, etc.

B. : A Smart Telemedicine System with Deep Learning to Manage Diabetic Retinopathy and Foot Ulcers

Artificial intelligence in combination with modern technologies including medical screening devices has the potential to deliver better   management services to deal with chronic diseases with higher accuracy, and satisfaction. With the recent evolution in digitized data acquisition, computer vision and machine learning, AI solutions are spreading into areas which were previously examined by well-trained clinicians. Early diagnosis of diabetic retinopathy (DR) and foot ulcers (DFU) occurrence through image analysis is in high demand as many individuals are left without any supervision due to the limited resources such as trained clinicians or suitable equipment especially, in rural areas. Furthermore, the existing system will become even more insufficient as the number of people with diabetes increases. In this research paper, we propose a prototype that involves an autonomous system called an Intelligent Diabetic Assistant (IDA), which decides the diagnosis and the treatment prioritization depending upon the observations appeared in the screen. The IDA consists of knowledge-based modules for severity level-based classification, clinical decision support and near real-time foot ulcer detection and boundary screening. We use the System Usability Scale (SUS) in terms of performance, learnability, and satisfaction to measure the usability of the IDA. The mean SUS score was 88.5, demonstrating good but not exceptional system usability. We perform our experiments with clinicians who have been involved in diabetic care.

C. Design And Implementation Of Telemedicine Nursing Monitoring System Based On Android

The application scenario of telemedicine monitoring system is analyzed, and the architecture of telemedicine monitoring system is proposed. The telemedicine monitoring system includes three parts: physiological parameter acquisition terminal, Android mobile phone monitoring terminal and remote monitoring center

III. EXISITING SYTEM

•   Now a days there is an acute shortage of health care in smaller towns and villages. Sometimes, working of mobile applications may fail due to internet problem

•   There are many application available for healthcare and biomedical like

1.   MedIQ: Smart Healthcare

       Phable, etc., which requires internet connection for consulting or uploading a file of their health condition which were developed in the recent years

2 Proposed System:

•   In order to overcome this problem we have come up with a mobile application that works without internet

•   When a person reaches home after a regular medical check-up, the person can upload his/her medical document to the ap

•   The document is converted into text format and sent as a text message to nearby telehealth care center

•   The SMS is then linked with number of the patient related to that number and uploaded to the cloud

•   When the doctor needs to access the patient medical information, the doctor can tap on the patient number and an OTP is generated which will be sent to the patient. The doctor can use that OTP to access the medical information
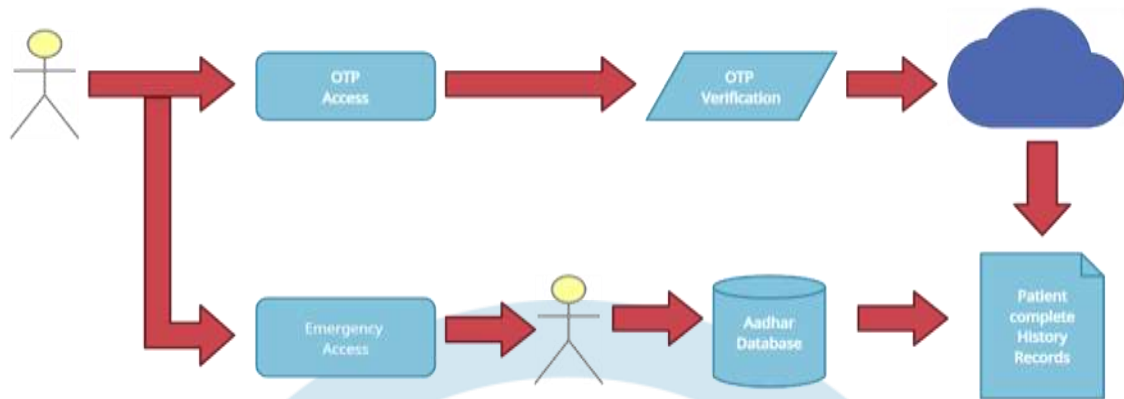
IV. SYSTEM ARCHITECHTURE:

MODULE 1: User Authentication Process
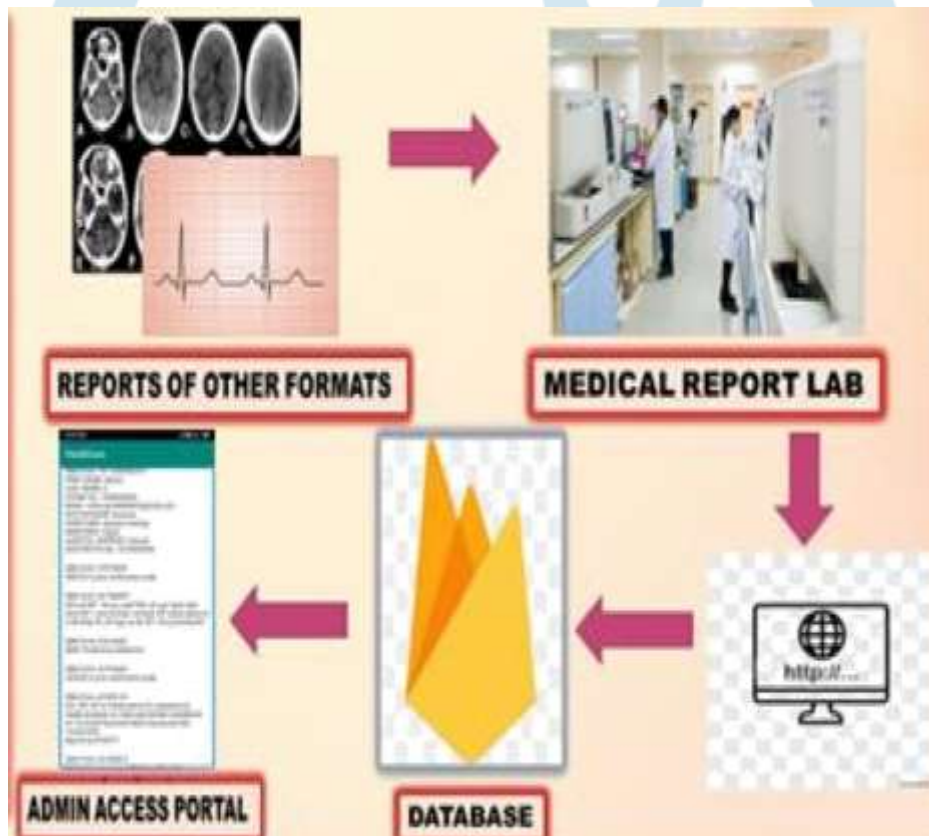

MODULE 2: Admin Access
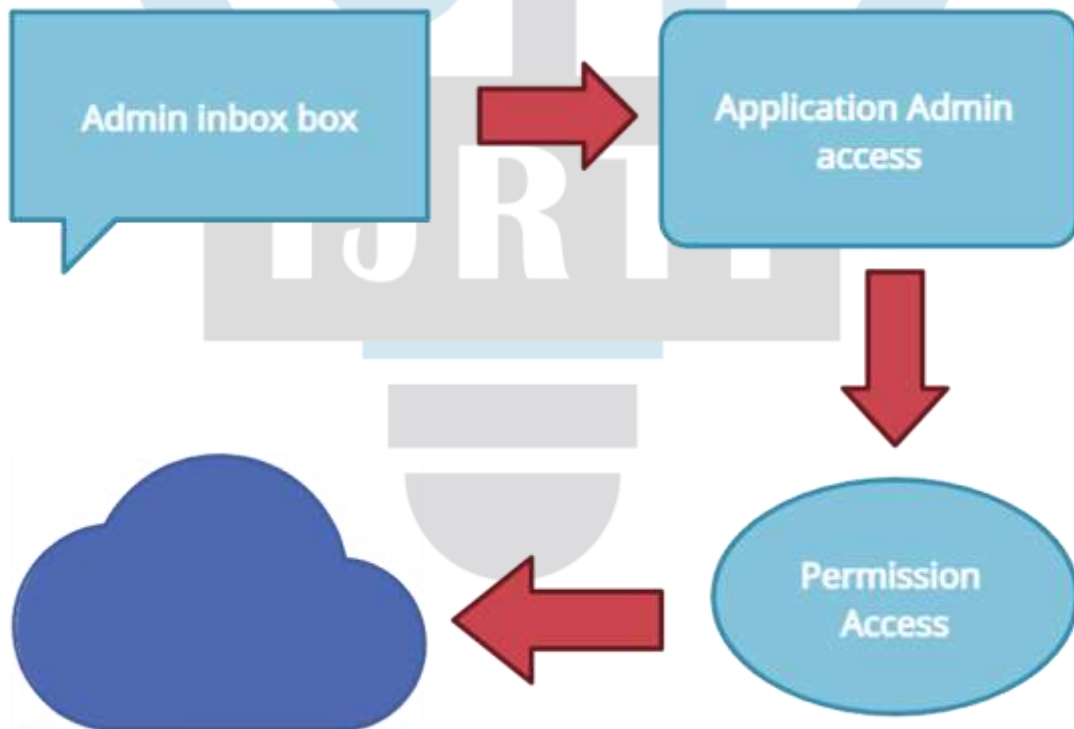
MODULE 3: Doctor Access

UPLOADING DATA:

• Sometimes the reports like MRI scans , X-rays report, ECG reports will be image or graph.

• So the hospital management can upload the information from the hospital along with patient's name and number retrived in admi

USECASES:

Actors: Patients, Tele Health Service Centers, Cloud Servers, Doctors Actions:

• Data is stored in the medical application. The document can be converted into text file by OCR method and the details sent to the Tele Health Services without internet.

• Tele Health Service centers link the details along with Aadhar details and is stored in the cloud server .

• The medical technician can access the details through the fingerprint scanner or face recognition system.

Tele Health Service

Patients Details uploaded into application

Document converted into text format

Message sent to the cloud server Through Tele Health Service

Upload text file to cloud server

Download details from cloud server

User Application

Upload medical record to the application

Details from application is sent to the Tele Health Service

Tele Health Service

Merging patient details with Aadhar Id through mobile number

Store the details onto the cloud server

Hospital

The details of the patients is accessed by their fingerprint by doctors

The details are downloaded from the cloud server

EMERGENCY SITUATIONS:

- When a person who gets admitted to a hospital for emergency, his/her fingerprints will be linked to the aadhar which will already have the patient's mobile number.
- So the patient's medical history can be accessed with the help of biometrics.

ADVANTAGES:
- The accessibility of the medical documents is ensured
- The longevity of the document is increased
- The authenticating power is given to the patients
- The appropriate treatment can be given to patients in emergency situations
- Doctor can monitor the patients health improvements remotely
- As our app functions without internet connectivity the login criteria is fingerprint

SCREENSHOT:

Home page of the app

Uploading patient's data

Before filling the form

After filling the form
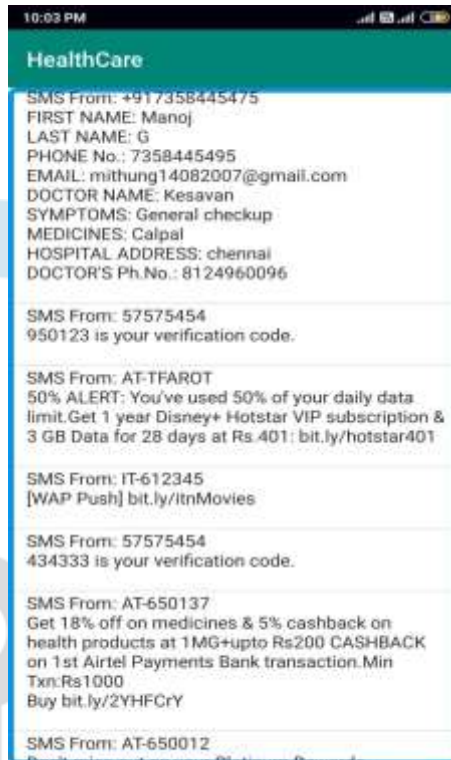
Message sent to admin

DOCTOR'S Ph.No.: 74852496008

26-7 2:04 PM

FIRST NAME: manoj
LAST NAME: guna
PHONE No.: 9840802005
EMAIL:
mithung14082007@gmail.com
DOCTOR NAME: sudhara
SYMPTOMS: fever
MEDICINES: calpal
HOSPITAL ADDRESS: chennai
DOCTOR'S Ph.No.: 9840802005

10:03 PM

FIRST NAME: Manoj
LAST NAME: G
PHONE No.: 7358445495
EMAIL:
mithung14082007@gmail.com
DOCTOR NAME: Kesavan
SYMPTOMS: General checkup
MEDICINES: Calpal
HOSPITAL ADDRESS: chennai
DOCTOR'S Ph.No.: 8124960096

Text message

List of messages

10:03 PM

HealthCare

SMS From: +917358445475
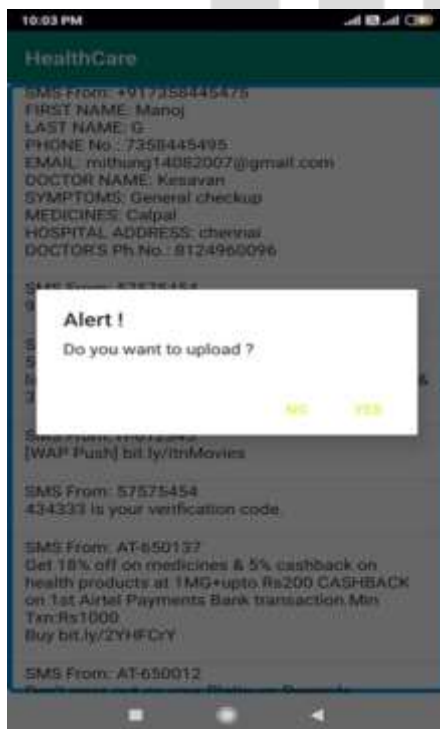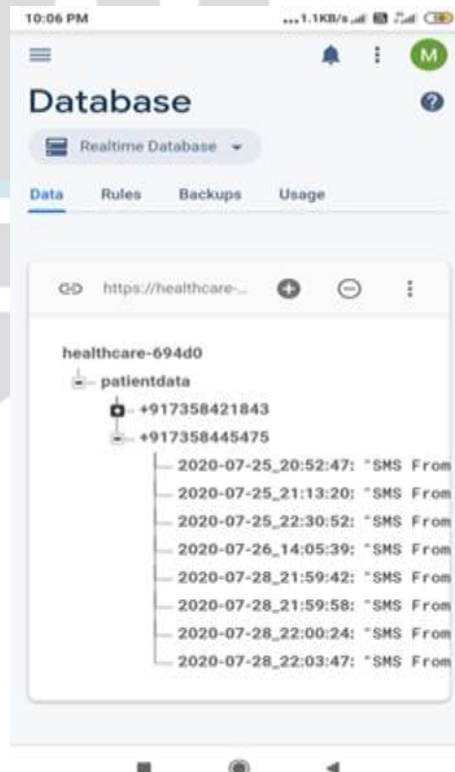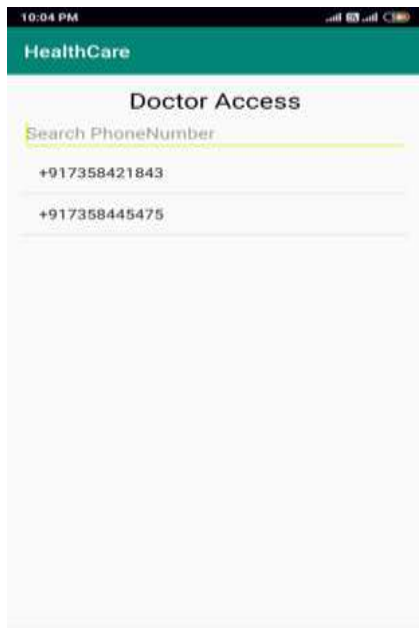FIRST NAME: Manoj
LAST NAME: G
PHONE No.: 7358445495
EMAIL: mithung14082007@gmail.com
DOCTOR NAME: Kesavan
SYMPTOMS: General checkup
MEDICINES: Calpal
HOSPITAL ADDRESS: chennai
DOCTOR'S Ph.No.: 8124960096

SMS From: 57575454
950123 is your verification code.

SMS From: AT-TFAROT
50% ALERT: You've used 50% of your daily data
limit.Get 1 year Disney+ Hotstar VIP subscription &
3 GB Data for 28 days at Rs.401: bit.ly/hotstar401

SMS From: IT-612345
[WAP Push] bit.ly/itnMovies

SMS From: 57575454
434333 is your verification code.

SMS From: AT-650137
Get 18% off on medicines & 5% cashback on
health products at 1MG+upto Rs200 CASHBACK
on 1st Airtel Payments Bank transaction.Min
Txn:Rs1000
Buy bit.ly/2YHFCrY

SMS From: AT-650012
Don't miss out on your Platinum Rewards

Admin uploads data

10:03 PM

HealthCare

SMS From: +917358445475
FIRST NAME: Manoj
LAST NAME: G
PHONE No.: 7358445495
EMAIL: mithung14082007@gmail.com
DOCTOR NAME: Kesavan
SYMPTOMS: General checkup
MEDICINES: Calpal
HOSPITAL ADDRESS: chennai
DOCTOR'S Ph.No.: 8124960096

Alert !

Do you want to upload ?

NO   YES

[WAP Push] bit.ly/itnMovies

SMS From: 57575454
434333 is your verification code.

SMS From: AT-650137
Get 18% off on medicines & 5% cashback on
health products at 1MG+upto Rs200 CASHBACK
on 1st Airtel Payments Bank transaction.Min
Txn:Rs1000
Buy bit.ly/2YHFCrY

SMS From: AT-650012

SMS retrieved in cloud

10:06 PM

Database

Realtime Database

Data   Rules   Backups   Usage

GD   https://healthcare-...

healthcare-694d0
  patientdata
    +917358421843
    +917358445475
      2020-07-25_20:52:47: "SMS From
      2020-07-25_21:13:20: "SMS From
      2020-07-25_22:30:52: "SMS From
      2020-07-26_14:05:39: "SMS From
      2020-07-28_21:59:42: "SMS From
      2020-07-28_21:59:58: "SMS From
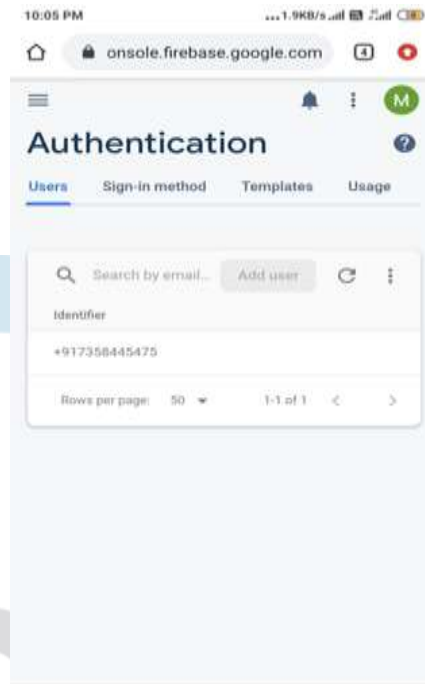   2020-07-28_22:00:24: "SMS From
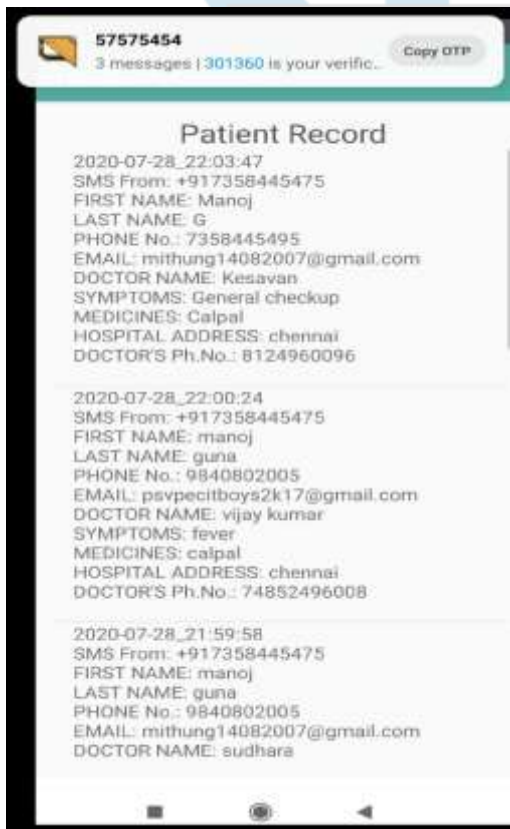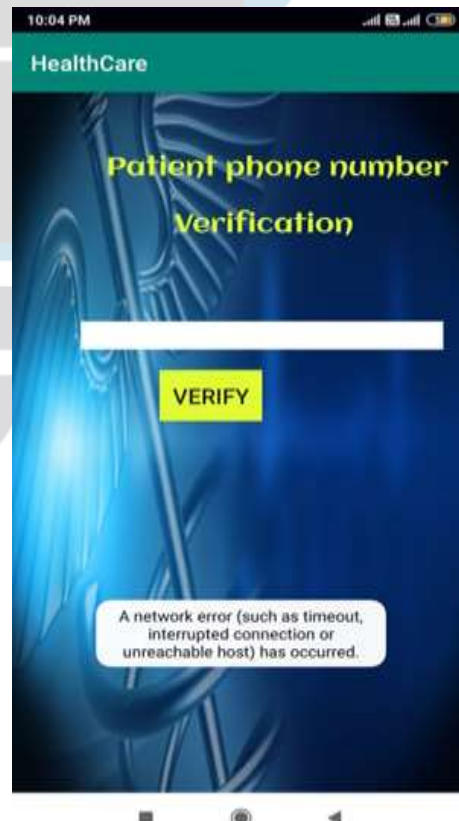   2020-07-28_22:03:47: "SMS From

Searching patient's no

OTP Generation

Patient's record

OTP Verification

V. RESULT AND DISCUSSION

In order to overcome this problem we have come up with a mobile application that works without internet. When a person reaches home after a regular medical check-up, the person can upload his/her medical report to the app. He report is converted into text format and sent as a text message to nearby telehealth care center. The SMS is then linked with aadhar number of the patient that is related to that mobile number and uploaded to the cloud. When the doctor needs to access the patient medical information, the doctor can tap on the patient mobile number and an OTP is generated which will be sent to the patient. The doctor can use that OTP to access the medical information

CONCLUSION

Every user should have this application in their mobile. The user must   properly upload the medical details through our app. It requires the proper functioning of Tele Health Services and Cloud Storage. The doctors should have the access to the patient documents, only through the finger print of the patient.

ACKNOWLEDGEMENT

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