

NOVEL APPROACH TO MANAGE FEVER PATIENT USING MOBILE APPLICATION

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ABSTRACT - In the olden days people wish to undergo treatment for any kind of diseases by consulting the elderly people and wish to prepare the required medicine using herbal plants and ayurvedic ingredients. Due to the advancement in the education and knowledge people started taking allopathy treatment by consulting the qualified doctors. So till last decade, patient has to visit to the doctor for the treatments, now-a-days due to the advancement in the computer hardware and software technology people are dependent more on the electronic devices such as mmobile phones, laptops, etc. to interact with the specialized doctor either online or offline for the necessary treatments to their illness. Due to the Covid-19 pandemic the offline interaction between patient and doctor is also redcued. Patients are consulting to the nearby doctors or specialists over the phone and discuss probable for their illness.

This paper presents and discuss about the mobile application which is developed to interact with the software system and if necessary between the specialized doctor and patient. The proposed mobile application interacts with the patient and gathers the required data, analyzes it and generate the necessary prescription for the patient. The mobile application also generates the required reports which are necessary to the doctor, hospital and patient for future use.

KEY WORDS: Admin module, User module, Doctor module, Generate prescription , validate prescription, report.

1.INTRODUCTION

Telemedicine is the oldest technology available from many decades. It has initially started in the last century when Europeans transmitted bubonic plague information by smoke signals [The History of Telehealth: Telemedicine through the years] during 1840's, there was a revolution in electric telegraph which they used for communication for a long physical distances. The first major use of telecommunication for medical purpose came during civil war where they communicated for a distance of around 15000 miles through the copper cables. This helped to supply medical emergencies and facilities during the war time. In the year 1876, the telephone was invented by Alexander Graham Bell and it was adopted by medical professionals to communicate with the patients and other medical professionals. In 1928 the Australia came out with the first telehealth efforts that incorporated radio communication. Reverend John Flynn founded that Aerial Medical Service(AMS), which used the telegraph, radio and airplanes to deliver treatment to remote areas of the country. Doctors used combination of telegraph and radio communication to diagnose patients and to provide any necessary care. The international attention was received by AMS when it was considered as a first organization by using telecommunication technology to address the limited geographical access to healthcare. Few decades later, radio communication was common all over the world but the invention of television made visual communication a reality and valuable tool for early telemedicine practitioners. The first interactive two way video link was established in 1964, negating the 112 miles between two locations. This not only facilitated remote medical treatment between two locations but also demonstrated the remote diagnosis could be made through interactive television. Researchers showed that X-ray, lab results and medical records could be successfully transmitted aswell. Few years later NASA established the Integrated Medical & Behavioral laboratory & Measurement System (IMBLMS) program. This program was meant to develop a system that could acquire, display, analysis and record a wide variety of medical, biochemical, microbiological data. Late 1960's and early 1970's, the fund for seven telemedicine research and development project was provided by the Federal government. Further they aimed to explore how the technology could be used to overcome challenges of medical care, the majority of them took place in rural area where access to healthcare was already an issue. Space Technology Applied to Rural, Papago Advanced Health Care(STARPAHC) used the remote monitoring technology and they served terrestrial, rural population. The internet changed everything. The speed with which human could communicate and transfer information was

revolutionary. The medical experts had more opportunity and dynamic tools to conduct remote treatment. Telemedicine has been consistently improved and refined over last few decades. Digital tech made the efficient transmission of large data over long distance possible as a result, telemedicine speed and scope was forever enhanced. Now people have easy access to.

2.LITERATURE SURVEY

The author in [1] discusses about HIV care telemedicine, which was from recent data reviewed between Jan/01/2019 and Mar/20/2021 by searching for studies documenting clinical outcomes in HIV care and the patient experience. The study was about patients with HIV, who are receiving care for HIV via telemedicine with reported clinical outcomes or perceptions of using telemedicine in the management of their HIV care. Out Of the 179 studies identified, 12 met inclusion for this analysis. Only two studies provided data on clinical outcomes of HIV (virologic outcomes), One study shows how a safety-net clinic for PLWH in San Francisco, CA, USA, uses phone or video visits during the pandemic. The numbers of missed appointments were less in case of telephone when compared to in-person visit.

The author in [2] shows that the Online Doctor Consultation booking system have quite a few advantages, one of it is that, it can save the patients' time using this system. They can book doctors' appointment online instead of visiting the hospitals or clinics and wait to register. We did not find any published research about existing services which favors the uneducated users.

The author in [3] says that, Telemedicine provides a new approach for wider e-healthcare to help combat the Covid 19 pandemic. Technologies for e-health care support require adequate bandwidth to support the transmission of data, images and sound. There are several telemedicine opportunities emerging for e-health care including wearable, artificial intelligence and big data which have potential to benefit the patients, medical staff and healthcare organization. Data privacy and protection is also a critical issue to the success of telemedicine and e-healthcare apps.

The author in [4] discuss that, Mobile application for electronic prescription has been built using RESTful Web Service as a WEB API that is used to integrate various prescription data from health providers. On the client-side mobile applications are used to access electronic prescription services. This e-prescribing mobile application was built using the Android platform, through the mechanism of Request / Response data exchanged in JSON format. This research has provided an alternative prescription with information retrieval that is faster, more economical in the use of paper media, and integration of health information can be done in a framework so that it will improve health services to patients. This can reduce the occurrence of medication errors for patients. RESTful Web Service can be used as a bridge to integrating data and information from several different health providers, so that information can be accessed easily.

The author in [5] discusses about a neurological disorder that primarily affects older adults called Parkinson's disease (PD).Telemedicine has been suggested as a useful tool in addressing the problem of accessing to specialty care is not only feasible but also economically advantageous for both patients and providers. They proposed an ideal telemedicine system for PD set up as a remote clinic to ensure consistency, which is helpful in addressing movement disorders by video conferencing. PD patients because of their physical disabilities who are unable to travel long distances to consult a movement disorder specialist. For them it has been suggested that telemedicine may be more cost-effective than in-person care for patients with PD considering their specific barriers to care. Author added many studies and have reported high levels of patient satisfaction with telemedicine.

The author in [6] discuss that, Mobile Health care is the maintenance or improvement of health via use of mobile phones in medical care and makes use of health care maintenance with the help of e- prescribing by use of mobile application to educate patients about preventive health care services which includes health tips, check for symptoms, music therapy, setting notification reminders in mobile application. The application is implemented using web technology (HTML, PHP etc.) and mobile technology (Android application) for E-prescribing and Health care respectively. The application keep track of doctor, patient and e-prescriptions data in a database mysql, php and phpmyadmin. In mobile application there are many features and they are prescription viewer, notification reminders, health tips, check symptoms of diseases, and music therapy.

The author in [7] discuss that, MHealth apps were providing Online Doctor Consultancy- related services, CallDoc app only provides offline doctor appointment booking related services. Doctor Appointment booking facility was only given by mFine,

Ask Apollo, CallDoc and MedLife, they provide consultation through text, audio and video callings. Some other applications like MediBuddy and MedLife only offers audio call consultation.

The author in [8] says that, Smart phone use has exploded globally over the past 10 years and the reality is that health advice, diagnosis and calculation is readily available for their users. There are a huge number of health and mental health applications available for smart phones most of which market themselves on the basis of improvement to physical or mental health. A quick search on Google play retrieved apps for depression, schizophrenia, anxiety and bipolar disorders. For physical disorders, there was app to track blood sugar levels etc. A key issue with smart phone is that they will produce data according to the formulae used to build them, which is fed it by the user and is unable to tailor advice based on body language and so risk causing harm where a user may have complex health issues.

The author [9] says that, Nowadays people have been reported to be in favors of Online Medical Consultation services. A study by Pittsburgh University reported that the online medical services offers benefits to patients in terms of speed, access and convenience, without risk of incomplete and inappropriate care.

The author in [10] says that, Telemedicine is the use of ICT's for the delivery of healthcare. It has the potential to make a major contribution to improving access to health services while contracting costs. Utilizing suitable technologies can enhance the quality and the reach of information and communication thus empowering impoverished communities. There are technologies advances the can stretch the reach of primary medical care to the areas. The aim is to provide concrete information that may lead credence to future plans by the government to include modern approaches to expanding healthcare to remote areas of the country.

The author in [11] discusses about Telemedicine which is used for medical service delivered by medical practitioners but Telehealth is broader term of use of technology for health and health related services including Telemedicine. This delivers and facilitates health services including medical care, patient education, health information services and self-care via telecommunications and digital communication technologies.

This book [12] Electronic Transformation of Fig:2.1 Block diagram Medicine will help health professionals adapt to and prepare for changes in electronic medical records and health information technology. It provides a thorough summary of the key issues surrounding electronic prescribing in the U.S. by explaining the limits, cautions, and analyses necessary for successful implementation and patient satisfaction. The benefits and disadvantages of e-prescribing are presented, and the influence of e-prescribing on patients, pharmacists and physicians is detailed. This book also discusses the future of e-prescribing, focusing on how it will impact the health industry professionally and economically.

The author in [13] discusses about an application Mr.Doc an android application which acts as a client whereas the database containing patient's details, doctor's details and appointment details are maintained by website which acts as a server. This application takes User's information as an input which has to be filled through login page followed by registration page. The admin can add doctor, doctor's details and view patient's details, can view appointments also, but the problem is doctors cannot register themselves, All the doctors of the specific clinic are registered by the admin only.

3. PROPOSED METHODOLOGY

In this work, we have proposed 5 different modules which takes care of different activities. The

methodology proposed is implemented using Android Studio and create Mobile App. So the app will have the following facilities:

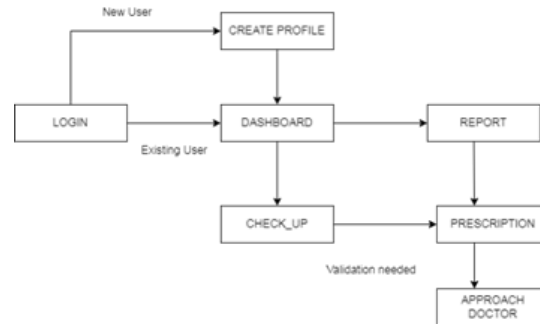


Figure 2.1: Block diagram

- Login Module:** In the Login module, we have proposed 3 separate login viz. Admin, User and Doctor. The facility is created for the new user and the existing user. If the user is a new one, then the user has to enter the mobile number. The system authenticates by generating OTP and after receiving the OTP from the user, the profile page is opened for the new user in which the user has to create his/her own profile by entering the necessary details. If the user is already existing, the system takes the user to the dashboard.
- Create profile Module:** This module is created for the Doctor and the user. The user is asked to enter the basic details like Name, email (optional), phone number (which has been used for OTP generation), Date of birth, weight, height, blood group, location. In the Doctor Profile module, the doctor has to enter the details like Name, phone number, Qualification with Specialization.
- Check-up Module:** In this module, the user is asked about his medical details like temperature, symptoms (cold, cough, headache, body pain, vomiting, and dizziness) along with number of days of having symptoms. According to these inputs, the prescription is generated by the system.
- Prescription Records Module:** This module stored the previous prescription records of the user for further references.
- Report Module:** This module generates the medical report based on the patient, doctor, treatment data and no.of cures.

4.RESULT AND DISCUSSION

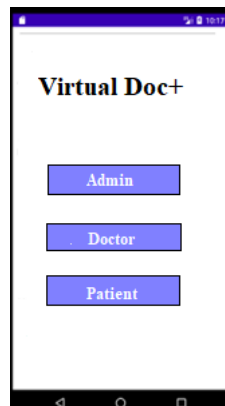


Fig: 4.1 Home page

The home page allows the user to access the application.

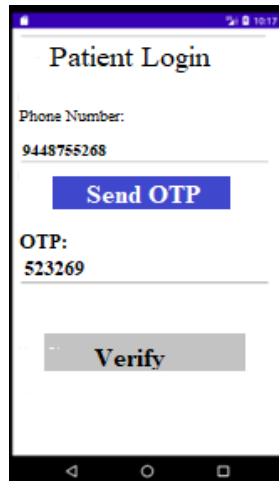


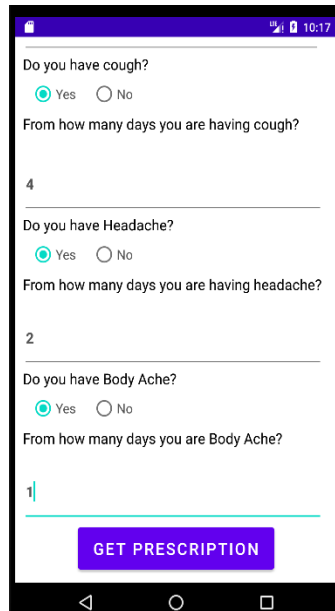
Fig: 4.2 Patient Login

This page allows the patient for login to the app to initiate the checkup



Fig:4.3 Create Profile

This page collects the user details to create a profile



The screenshot shows a mobile application interface for a prescription form. It contains three sections of questions, each with a radio button for 'Yes' and 'No', and a text input field for the duration in days. The first section asks 'Do you have cough?' with 'Yes' selected and '4' days entered. The second section asks 'Do you have Headache?' with 'Yes' selected and '2' days entered. The third section asks 'Do you have Body Ache?' with 'Yes' selected and '1' day entered. A blue 'GET PRESCRIPTION' button is at the bottom.

Fig:4.4 Prescription

This page collects the ailment details from the user to generate prescription.



The screenshot shows a mobile application interface titled 'Your prescription'. It displays the user's details: Name: Ganesh, Age: 50, Gender: M. Below this, it lists symptoms and their durations: Temperature: 45 degree, Cold : 3 days, Cough : 4 days, Headache : 2 days, and Bodyache : 1 days. Under the heading 'Tablets:', it lists three items: *Dolo 500mg 1-0-1, *Sinarest 1-0-1, and *TusQ 1-0-1. At the bottom, there are two blue buttons: 'REQUEST TO VERIFY' and 'EXIT'.

Fig:4.5 Request to verify

This page provides the prescription and facilitates the user to get validation from the doctor.



Fig 4.6 Doctor approval

This page indicates the approval or deny of prescription from the doctor.

5. CONCLUSION

The application is proposed for a virtual health care service, which is easy to use by peoples. This application can further be developed by including other regional languages and all diseases, so that the patient can make use of the system very effectively.

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