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INSTACARE: AN ANDRIOD APPLICATION FOR HEALTHCARE SYSTEM

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ABSTRACT

As the population is growing day by day, many problems related to healthcare are also growing rapidly and people have to spend a huge amount for their daily checkup because they do not have an free and easy access to their checkup with the doctors. Along with wealth, health is important too. Where most of the time the reasons for the deaths and critical situation of the patient majorly delay in emergency help or delay by the doctors at hospital or unavailability of instant medicinal help. Android-based healthcare application aims to overcome the above-said problem. It helps the patient to access the medicinal information about the generic diseases and support systems irrespective of their current location and time constraint.

The current work describes the development of an android application which focuses on the best utilization of technology for immediate medical facilities with various types of remedies for the respective diseases at their finger-tips and also provides the patient about the availability of doctors who are nearby to them based on the location. Every second is precious for the patient, we are proposing an idea based on an android application with a mass storage area where we provide the remedies for the disease, near-by doctors for the disease and provides details of people who are willing to give blood in emergency situations. The proposed application is cost-effective and user-friendly for the patients who are in need since the patient need not be physically present. This application framework provides application mobility and the results reveal that the system provides an easy and user-friendly interface for end-users.

Keywords: *Instacare, Healthcare, Android mobile assistant.*

I. INTRODUCTION

As the population is growing day by day, many problems related to healthcare are also growing rapidly. Nowadays all human being lead their life with full of responsibility, stress, and strain. So people are disposed to diseases due to their lifestyles and it is a primary responsibility of each of us to keep ourselves healthy both physically and mentally. In todays fast growing world everyone has to work to sustain and earn their bread. If there is someone to look after the patient then the patient can be remained to take a medicine dosage in a timely manner, in contrast to this, during the absence of the family member /caretaker it becomes difficult for the family members to call them and remind their timely prescription.

Nowadays the technology has evolved so much that our lives are totally dependent on gadgets like smartphones, tablets etc. Today world is running on smartphones, everyone has a smartphone. With this, we get an opportunity to utilizethe technology in a most effective way. Technology plays an important role in our daily life. Now all smartphones come with android technology.

Many developers who are work on the Android application will write the new application programs to extend its func-tionality. Now android has more than millions of application running on the android phones. The third party can download and installed this application which is stored in the Google play store [1].

As the technology has improved a lot over the past few years even the medical science has been improved. Most of the developed countries make the best utilization of the advanced technology in the healthcare system with the help of smartphones. Utilization of the smartphone is not any less in developing countries like India from this

decade. In the present times, mobile phones have become passionate and the usage of smartphones members are also increased. Due to this drastic change in the smartphone features, the user community is pushing for development of mobile applications. The mobile applications have become the bridge between the users and technology [2]. Now all desktop applications can be used in smartphones. Even many health care related applications have been developed by the developers with the help of experts and experience. The developer design user-friendly application for storing the patient database, retrieving the database whenever required. The proposed work is one among the application which helps the patient to get the remedial details about the generic disease. Instacare-an android healthcare application which can be used by patients as well as by physicians.

II. BACKGROUND

In most of the underdeveloped and developing countries, due to the poor infrastructure of hospitals, women are forced to give birth to babies at unhygienic surroundings. This tends to raise death statistics to a new level, this could be due to the shortage of equipment, shortage of skilled healthcare personnel, or due to the absence of a health center nearby and many more factors can contribute. There are not any shortage of medical centers in India, but the problem is, many of these suffer from lack of facilities to for solving the problem of the patient, which will save the life of the patient. For an instance, consider the situation where the person is suffering from appendicitis, he may be in the need of emergency medical medical infrastructure, the case can go to the complicated level. Majority of government-run hospitals in India are not an exception for the previously described scenario. Due to this medical negligence, many patients never get a proper treatment. So, the sincere attempt is needed in this direction to solve and rectify medical issues.

The current technology has been evolved so well that we can operate everything with-in our fingertips as we can see few applications related to medical care like Doctor, Medical drugs, Disorder, and diseases dictionary and many more which provide the information about the nearest doctor and specialist and some provide information about medical drugs which to take for the disease, some provide the details and descriptions of the diseases and symptoms [3]. There are many such apps which provide the descriptions of the diseases if we want to consult the doctor we need to install one application if we want to get remedies we should install another. These are few applications which will give you partial information [4].

Many Android applications have been already in use that simulates surgical procedures and conduct few medical tests, such as hearing or vision tests. Whereas many mobile applica-tions are not intended to replace desktop applications but are meant to complement them in order to provide some resource that has the potential to improve results at the point of care? The use of medical apps has become frequent and widespread in recent days [5].

The paper [3] “The Optimization of Blood Donor Informa-tion and Management System by Technopedia” proposed an efficient and effective blood donor information and manage-ment system based on GIS integrated into the Android mobile application. The services available are valuable to healthcare sector where a quality of the blood is considered for the safety of the patient through a systematic process by the blood management system. This system will provide the solution for the problems.

In “MBB: A Life-Saving Application” [4] this paper pur-posed the system to keep connected to all the blood donors who are willing to give blood. The system will help in control a blood transfusion service in health care sectors and this system has a database to keep details of the donors in each and every area and city. The users will be able to see which patient is in need of blood .here the users should register themselves as donors by providing the information they receive a request from the local user who is needed in emergency situations.

In “an android application for volunteer blood donors” [6] a smart phones application for the volunteer blood donor to increase the accessibility and efficiency with the purpose of providing a continuous blood supply. This application helps healthcare sectors to provide the blood as soon as possible when it is insufficient of blood in blood banks. The application sends the information and details of the available donors to the system and the blood requests to the donors. In this way, it provides an communication between the health care centers and volunteer donors.

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There is not any shortage of work done related to the healthcare system. Features such as taking the appointment for doctors consultation, online ordering of medicine, location the reliable laboratory for scans and tests and booking them. But, the need of the hour is to develop the applications for giving the details and description and further clarifications regarding the diagnosed diseases. There are some applications in the market but, none of them are fulfilling the above-said requirement. Our application named Instacare is aimed towards addressing this issue.

There are many applications regarding the medical field, diseases, and caretaking.T he existing applications contain few features like consulting the doctor getting an appointment with the nearby doctors, ordering medicines online, finding trusted diagnostic labs and booking tests and scans. There are few more applications which are specific and gives the detail descriptions and articles about the specified disease.

Many of the existing work suffers from the following drawbacks

- Non-evidence based apps.
- Security and confidentiality.
- Medical application regulation.
- Complex design.

III. PROPOSED SYSTEM AND IMPLEMENTATION

To overcome the existing problem, the proposed work Instacare allows the patients to install this application to their devices, which in turn brings user to access tones of medical information to their fingertips. There are various similar kind of options are availed through Instacare, which helps the user to know The proposed application has the fallowing scenarios

- Patient access
- DATABASE Admin Access.
- GPS based Access.
- Problem description.
- Instant remedies.
- Near-by hospitals.
- Links for diseased description (You-tube link).
- Consulting near-by doctors
- Blood bank details
- Rating and Feedbacks

The heart-part and the base of Andriod is Linux kernel. Android supports a range of configurations of smartphones, televisions, cars, watches, goggles. Android initially was de-veloped for cameras, by realizing the true potential of the operating system, the developers ported it to smartphones. Later during 2005 Android was acquired by Google and later on, it grew in the association of tech giant Google. Android is organized as a stack of software, at the low level it is noting but a Linux kernel, which manages power, memory, storage, transaction and another kind of hardware related functionality. On the top of the kernel, we can find Framework, Dalvik Virtual Machine, Framework, System specific libraries and user applications in the top-most layer. There are millions of applications available for user applications layer from the Google play market. Application for Android can be developed

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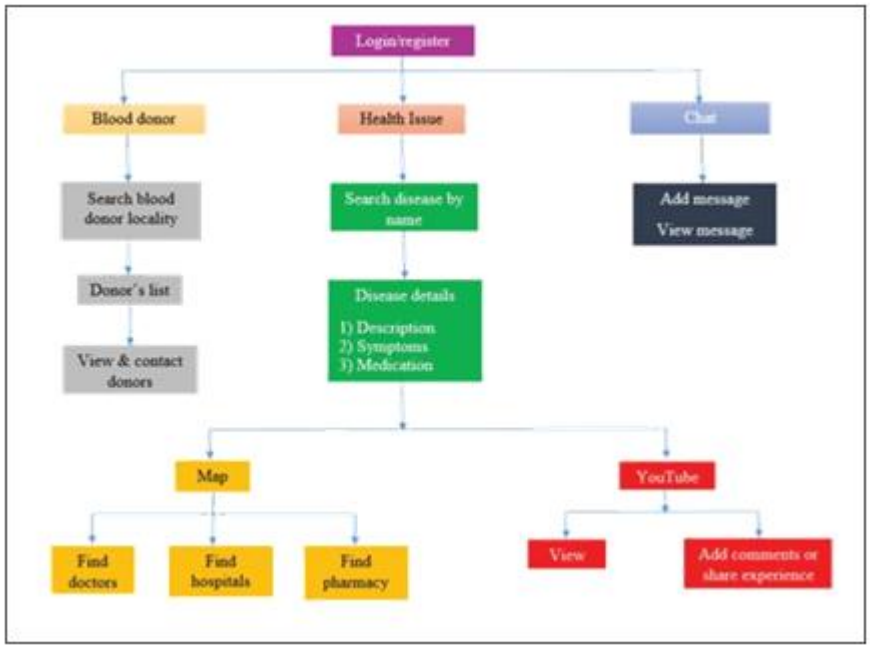

Fig. 1: Instacare Healthcare Application: System Overview

using Android Studio IDE, where the user will be allowed to edit application specific details such as manifest, user interface, and actual logic guiding the application working procedure.

The application can be tested using the actual device or using the emulator running the various configuration of the Android operating system.

Fig. 1 shows the overview of the android healthcare appli-cation Instacare. An input to the system is the information entered by the patient which includes disease search, search doctors, and chats/ inquiry with doctors etc [7].

There are many applications regarding health care technique but none are satisfying the conditions where users should use different applications for different features. There are many applications which support system but fails in features and vice versa. The existing applications give detailed descriptions about the specified diseases [8].

The proposed work gives guidance and enhancement of medical knowledge. It provides the list of nearby blood donors in the emergency situations and also provides the details of selected donors who are willing to help in case of shortage of blood or unavailability of blood within that area or city. It provides medical information to all the users about common curable diseases. It provides details about nearby hospitals, pharmacies and available doctors for diseases with the help of Google map.

The proposed work contains the fallowing fields,

- Login to the application to authenticate the users to achieve security with the help of Google cloud services such as Google Firebase a real-time database and it maintains the users login details and were providing alternate logins by using social media like Google, Facebook, and one-time password verifications through their phone numbers [9].
- Retrieving details from database in the cloud with respect to the users requests such as Availability of medicine, doctors, blood bank details, remedies etc. for their health issues.
- Redirecting to Google, YouTube for further details about health issues.

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- Locating nearest hospitals, medical shops, blood banks, using GPS and Google-map services and retrieve the available doctors and medicines with the help of GPS and Google maps services.
- Consulting the doctors for appointments through an application within in no time.
- User can chat with doctors for their queries and sugges-tions and all the users can share their medical knowledge and experiences each other through broadcast messages
- In emergency conditions in need of blood here patients can get the details of nearby people who are willing to help by donating the blood with that area or city [10]. Advantages:
- Provide a place for the users where they can find the response to their requirements
- Easily understandable by every user and simple to use.

It gives guidance and enhancement of medical knowledge. It Provides the details of blood banks in the emer-gency situations. It provides medical information to the rural people about common curable diseases

IV. RESULTS

The application Instacare provides regular information to the patients, good user interface, nice user experience and it support many new features supporting medication adherence. We took dataset which contains the remedies, health articles, images in disease search; Doctors contact number and doctors appointment in find doctors field, and also contains chats with doctors, give suggestion about their disease and so on.

The proposed System Scenario involves the following steps:

Fig. 2: Login Page

Fig. 2: Login Page
Fig. 2 shows Login scenario for the Instacare Application where the registered user has entered the login credentials to enter into the main page and a new user have to register first.

Fig. 3 shows the different services provided by the android application Instacare which includes the description of differ-ent activities.

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Fig. 4 shows the search engines where the user can furnish the details about the disease he wants to search. The proposed application contains information about the generic disease.

Fig. 5 describes the detailed description about the particular diseases, where he can find basic knowledge and remedies about the requested diseases.

Fig. 3: Home Screen

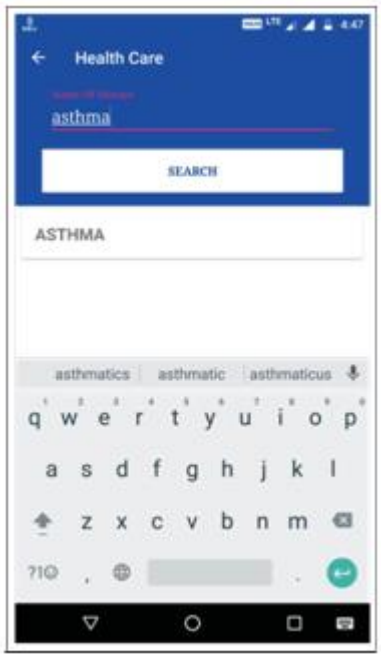

Fig. 4: Disease Search Engine

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Fig. 6 shows the videos where the user can watch homemade remedies for the immediate relief and also share the feedback and experience about the query.

Fig. 5: Details of the search disease

Fig. 6: Videos of Search Disease

Fig. 7 shows the availability of the blood donors based on the selected blood group and the locality.

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Fig. 8 shows the details of the selected donors. The user can ontact the donors in emergency situation through a message or call option provided in the application.

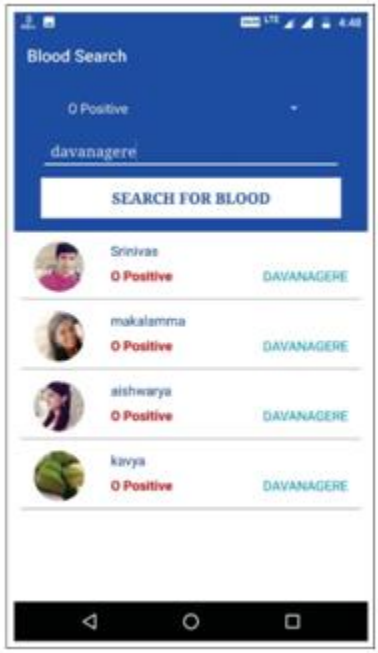

Fig. 7: Blood Search

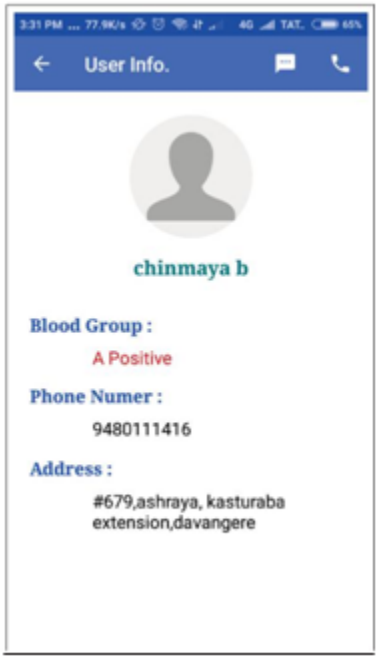

Fig. 8: Blood Donors Details

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V. CONCLUSION

Many healthcare applications have been developed on different platforms. Many of the existing systems require deep knowledge about the applications and the GUI is also complex to operate. So in order to provide easily accessible, user- friendly GUI in healthcare system an effort is made to de- sign and develop a new Android Multi criterion application Instacare-an healthcare application. This application plays an important role in the healthcare system which provides the information about the generic diseases and medication about the diseases, which reduces the patient time in search of the doctors and also helps the patient to care themselves with the help of information provided in the application. This application also provides the availability of blood donors which reduces the search time of blood in an emergency situation where there is insufficient blood in blood banks, creates a channel to communicate with the connected users and shares their experience about the diseases.

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