ISSN(Online): 2320-9801
ISSN (Print) : 2320-9798

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 3, Issue 9, September 2015

Design of 'Dr. on Click' Android Application

Thakor Swapnali S.[1], Patil Nayana Y.[2], Parikh Shubham A.[3], Thorat Pooja K.[4]

B.E, Dept. of Computer, SRES COE, Kopargoan, India[1]

B.E, Dept. of Computer, SRES COE, Kopargoan, India[2]

B.E, Dept. of Computer, SRES COE, Kopargoan, India[3]

B.E, Dept. of Computer, SRES COE, Kopargoan, India[4]

ABSTRACT:A patient is not able to select an appropriate hospital for his/her emergency in unknown area. The main purpose behind this research is to create an efficient module which guides a patient to find an appropriate hospital based on selected category. This App collects current location detail from the Global Positioning System (GPS) and use the GCD (Great Circle Distance) Algorithm to determine the location of nearest hospitals. This App is also used to take an Online appointment based on availability of doctor, remind a people to take a medicine at given period of time and also allow to send report by pathologist to doctor and patient. The Android platform is an efficient and open source OS which used to develop, design and integrate all system components.

KEYWORDS: Android, GPS (Global Positioning System), Great Circle Distance (GCD) Algorithm, GCM (Google Cloud Message) Smart Phone, API (Application Program Interface) and ASDK (Android Software Development Kit).

I. INTRODUCTION

Today Smart phone and mobile device have rapidly become a part of everyone's life. The feature of mobile phones likeCheaper, faster and capable device has led to many innovations in different field. Mobile technology is also use in hospital management by helping with search hospitals; improve health outcomes and medical system efficiency proceedings.

E-health management available through different application platforms, which are typically operated by the Owner of the mobile operating system, such as the Apple App Store, Google Play (Android) Windows Phone Store and BlackBerry App World. Some of the general mobile Apps are email, calendar, banking related Apps, GPS and location based services, and order tracking, ticket purchases and also public demand are increase day by day. Medical field is no exception. They are changing the traditional way of doctors and patients approach of health care.

In next sections of this paper we included existing system of hospital management, and then proposed new idea to modify the hospital management system for betterment of doctors and patients.

II. EXISTING SYSTEM

In the existing system, to consult any doctor is very tedious task for the patient. We have seen that a patient is not able to select an appropriate hospital for his/her emergency in unknown area. Again, if any patient wants to take an appointment of specific doctor then patient has to go to the hospital and patient has to standing in a queue to take the appointment. This is very time consuming process. Also, sometimes doctor's schedule may get change at that time patient's appointment may be got cancelled. Even though the appointment is got cancel but patient may not aware of that cancellation, Because of this time of patient get wasted and in the case of emergency it may cause harm to the patient. If doctor gives prescription to patient sometimes patient forget to take medicine. Every time patient needs to go in hospital with consulted test report. This increases the overhead of the patient. This process is very time consuming for the patient and doctor.

ISSN(Online): 2320-9801
ISSN (Print) : 2320-9798

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 3, Issue 9, September 2015

III. PROPOSED SYSTEM

In this system firstly patients have to register into the application. After registration patient will get username and password. Patient can use this username and password for logging into app each time. Patient can search the hospital based on the categories i.e. Orthopaedic, General Physician etc. After selecting the category hospital list will be display. Patient will select hospital from that list. After selecting hospital doctor's list will be display. Patient can see doctors profile. From that patient can search the specific doctor from any hospital. Also the patient can view doctor's schedule and look for an appointment according to his convenience.

The patient will send request for appointment. Then doctor can either accept or reject the appointment. The database will get update accordingly and the patient will get confirmation message. In this system patient will receive notification before the actual appointment. This is useful in case patient tends to forget the appointment.

After appointment doctor will give prescription to the patient. This reminder will give alert to patient for medicine, test, etc. If doctor give medicine to patient and patient have to take that medicine at morning and evening session. Then system will give notification to patient at morning and evening time for taking medicine. Doctor will recommend the test to patient and pathologist. After test pathologist will send report to patient and doctor.

a) SEARCH HOSPITAL: The 'Dr. on Click' is an Android App that helps the patient to search the hospital which is near to him/her. Patient search the hospital based on category like orthopedic, neurologist, general physician etc. The location of patient can track using GPS. Calculating the path between the patient and hospitals is done using two attribute Longitude and Latitude. The Haversine formula is used to calculate great-circle distances between the two points that is, shortest distance over the earth's surface.

b) ONLINE APPOINTMENT: After searching the hospital patient can view the profile of hospital and doctor. The patient will book appointment as per availability of doctor. The database will get updated accordingly and a unique token will be generated then same can be sending to the patient.

c) PRESCRIPTION ALERTS AND PRESCRIPTION VIEWER: Patient can also receive appointment alert before actual appointment. This will be very useful in case the patient tends to forget the appointment and it also reduce the hesitation of queuing and filling the registration forms.The proposed system gives the reminder to the patients to take medication at the given instance of time this is possible by sending alters/notification using GCM (Google Cloud Message). This will be very useful in case the patient tends to forget of taking medicine. It also gives an alert of test recommended by doctor.

d) SEND REPORT: The report sending is also possible using this App, it help the patient to receive its own report from pathologist. Pathologist can also send the same report to specific doctors who actually recommended which saves the time and also simplifies the task of patients.

IV. SYSTEM ARCHITECTURE

In this section we have included system architecture and also described various components of system architecture.

1) MOBILE APPLICATION FOR PATIENT:

The patient has to register into application for first time. Password and Username used for login into this app. After login patient can perform various operations i.e. Search Hospital, Take Online Appointment, Alerts/Notifications, Send Reports.

2) MOBILE APPLICATION FOR ADMIN:

Doctor/PA/Admin has toregister into application for first time, for the registration of the hospital.

3) MOBILE APPLICATION FOR PATHOLOGIST:

Pathologist has to register for the first time into the application. So that Username and Password is used for the login. After login pathologist can view the test recommended by doctor. Also, he can send the report to doctor and patient.

ISSN(Online): 2320-9801
ISSN (Print) : 2320-9798

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 3, Issue 9, September 2015

4) WEB APPLICATION FOR ADMIN:
Web Application is used by Admin. By using this Admin can perform various operation like add department, add doctor, view the list of department and doctor.

5) WEB APPLICATION FOR DOCTOR/PA:
Web Application is used by doctor/PA. By using this doctor can update his schedule, view appointment, give the prescription etc.

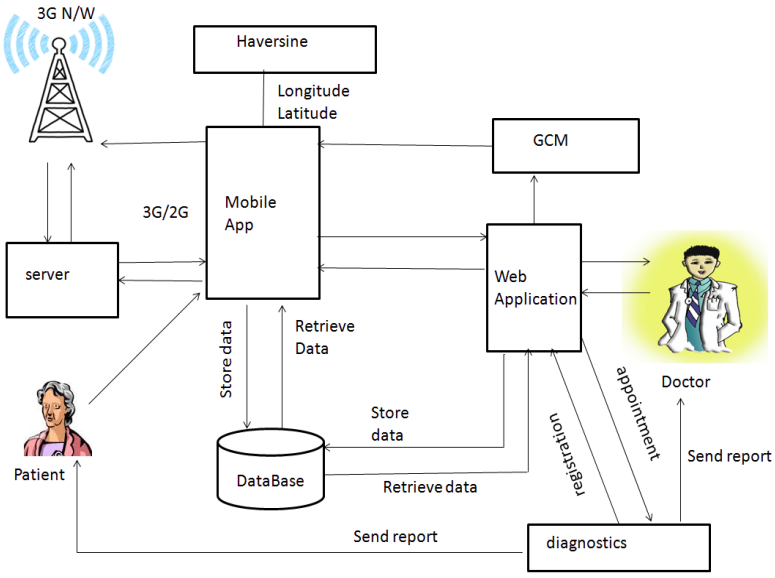

Fig 1: System Architecture

V. IMPLEMENTATION DETAILS

a) SEARCH HOSPITAL: In this research paper, this module will help the patient to search appropriate hospital based on selected category. When patient click on "search Hospital" then list of categories will be displayed like ENT, Gynaecologist, Orthopaedic etc. Patient will select category and based on that list of hospitals will be displayed.The following technical concepts are used in implementing the Search Hospital. Before searching the hospital administrator should register his hospital location through android app and list of available departments (ENT, Gynaecologist, Orthopaedic and General Physician etc.) then available specialist doctors.

1) GPS:
In this research paper, GPS is used to capture the latitude and longitude of user's location. GPS is inbuilt in user's android phone which should be enabled. A GPS tracking unit is a device, normally carried by a moving person that uses the GPS (Global Positioning System) to determine and track its precise location.

2) Great circle distance algorithm:
In this research paper, to search hospitals based on the categories great circle distance algorithm is used. Hospitals are searched from the user's current location by using this great circle distance algorithm. But, for this user's mobile GPS should be enabled. The great-circle distance is the shortest distance between two points on the surface of a sphere, measured along the surface of the sphere. This algorithm uses the haversine formula which gives great-circle distances between two points on a sphere from their longitudes and latitudes.

ISSN(Online): 2320-9801
ISSN (Print) : 2320-9798

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 3, Issue 9, September 2015

Haversine formula:

The Haversine formula is an important equation in navigation, giving great-circle distances between two points on a sphere from their longitudes and latitudes. By using this formula it is easy to calculate distance between patient and registered hospital. For any two points on a sphere, the haversine of the central angle between them is given by
haversine (d/r)= haversine(φ 2 − φ 1) + cos(φ 1)
cos (φ 2)haversine(λ 2 − λ 1)

Where,
d : − is the distance between the two points,
r : − is the radius of the sphere,
φ 1 , φ 2 : latitude of point1 and latitude of point2,
λ 1 , λ 2 : longitude of point1 and longitude of point2

By applying above methods on captured points of user's location and hospitals locations, distance is calculated.

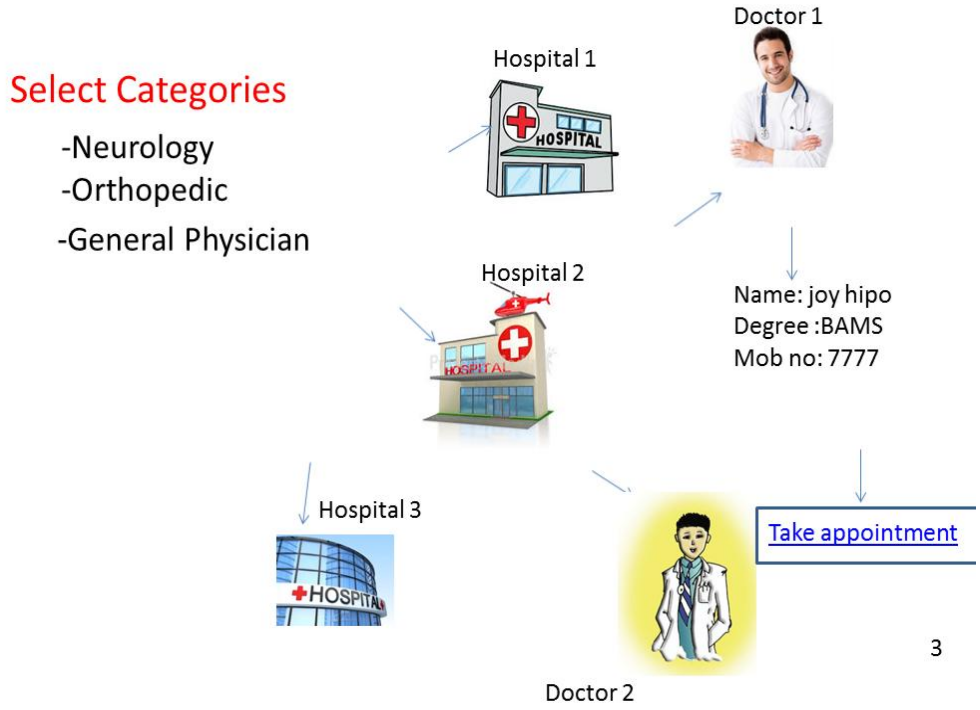

Fig 2: Example of Search Hospital

In the above Fig 2. patient select the specific category based on categories hospital are going to be select. Suppose patient select a General physician the all available hospital are going to be selected. During the time of hospital search the GPS of patient's are used which track the current location of patient. Hospital's latitude and longitude are used to calculate distance between patient and hospital. Calculation is done by using GCD (Great Circle Distance) Algorithm are used.

b) ONLINE APPOINTMENT: In this research paper, this module will help the patient to take online appointment. After searching hospitals, patient can take online appointment. Patient can view the doctor's schedule. After taking appointment token will get generated. To complete this task doctor has to schedule his availability in following specific manner.

ISSN(Online): 2320-9801
ISSN (Print) : 2320-9798

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 3, Issue 9, September 2015

Table 1: Appointment Schedule of Doctor

DATE	FROM	To	Max Patients
1/09/2015	10.00 AM	11.30 AM	20

c) PRESCRIPTION ALERTS AND PRESCRIPTION VIEWER: In this research paper, by using this module patient will get alerts regarding medication and general precautions. After consulting with doctor, Patient can view his/her prescription whenever he/she want. If appointment is cancelled by doctor, then patient will get notify about that. To accomplish this task doctor has to give prescription in following manner.

d)

Table 2 : Prescription of Medicine Given by Doctor

Medicine	Date From	Date To	Turn1	Turn2
Crosine	1/09/2015	3/9/2015	10 AM	3 PM

The above given prescription will be send to patient as alerts using GCM.

GCM: In this research paper, we used "Google Cloud Messaging" service to send the notifications to the patient regarding medication and about general precautions. Google cloud messaging (GCM) is an Android platform API provided by Google for sending and receiving push notifications to and from an Android application. "Google Cloud Messaging" helps to send data from servers to their Android applications on Android devices. Using this service you can send data to your application whenever new data is available instead of making requests to server in timely fashion. Integrating GCM in android application enhances user experience and saves lot of battery power. To receive notifications on the patient's android phone, its mobile should be connected to the Internet.

e) SEND REPORT: Pathological test recommended by doctor for a particular patient will send to the pathologist. Pathologist will receive test recommended by doctor on his profile. After generation of a test report, Pathologist will send that report to respective doctor and patient also. In this way, all the modules mentioned in this research paper will be helpful and time saving for all its users.

VI. SYSTEM REQUIREMENTS

It includes minimum software and hardware requirements of project.

a) Software Requirements:

• Operating System: Windows7/Ubuntu
• Front end: Java
• Server-side scripting language: PHP
• Android app development tools:
1) Android SDK
2) Android visual studio
• Database: MySQL

b) Hardware Requirements:

• Hard-disk 40GB
• RAM 2GB

ISSN(Online): 2320-9801
ISSN (Print) : 2320-9798

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 3, Issue 9, September 2015

VII. CONCLUSION

The 'Dr. On Click' Android App is helpful for patient to search the hospital based on specialist. This application is simplify the task of patient and doctor. Patient can take online appointment so that time of patient will saved. This application facilitates the interaction between patient and doctor. It helps to optimize the work of patient and doctor. Patient can receive the prescription alerts which helpful for patient to keep a record of its prescription. Installation of the app in the smartphone is quite simple and more useful to patients who have normal idea of android mobile. The 'Dr. On Click' is a simple, efficient and powerful Application for society.

VIII. ACKNOWLEDGMENT

We felt great pleasure in submitting this paper on 'Dr. On Click-Android App'. First and the foremost We , express my deep sense of gratitude, sincere thanks to Prof. P. Saiprasad for the best support ,opinion, views, comments and thoughts have been really helped us.

REFERENCES

1]. Anandhi Ramachandran, Vipin Vasudev S Pai, *"Patient-Centered Mobile Apps for Chronic Disease Management"*, International Conference on Computing for Sustainable Global Development , 2014.
2]. MuhammadWasim Munir, Sayed Muhammad Omair, M. Zeeshan UI Haque , *Än Android based Application for Determine a Specialized Hospital Nearest to Patient's Location "*, International Journal of ComputerApplications, May 2015.
3]. Yuanqing Liu, Minghui Wu*, Honglun Hou, *"The Design and Implement of Mobile Heath management Software Base on the Android Platform"*, Fourth International Symposium on Information Science and Engineering, 2014.
4]. K. Prahlad Rao, Mohammed Ahmed Hanash, Gaafar Ahmed AL-Aidaros, *"Development of Mobile Phone Medical Application Software for Clinical Diagnosis"*, International Journal of Innovative Science and Modern Engineering ISSN: 2319-6386, Volume-2 Issue-10, September 2014.
5]. Zaid A. Habash, Wan Hussain Wan Ishak, and Mohd. Hasbullah Omar,*Ändroid-based application to assist doctor with Alzheimerpatient"*,International Conference on Computing and Informatics, August 2013.
6]. Swabik Musa Abdulla Wani , Suresh Sankaranarayanan , *Ïntelligent Mobile Hospital Appointment Scheduling and Medicine Collection"*,International Journal of Computer and Communication System Engineering ,Vol. 1 No.02 August 2014 .