SOFTWARE REQUIREMENTS SPECIFICATION

ARUN CLINICAL LAB

Purpose

The purpose of this document is to give a detailed description of the requirements for the "Arun Clinical Lab" (ACL) software. It will illustrate the purpose and complete declaration for the development of system. It will also explain system constraints, interface and interactions with other external applications. This document is primarily intended to be proposed to a customer for its approval and a reference for developing the first version of the system for the development team.

Scope

The "Arun Clinical Lab" is a GPS-based mobile application which helps people to find the closest Hospitals (which is a franchise of ACL), based on the user's current position and other specification like doctor fee, hospital specialization, functionalities, current status of medical testes (if sample given to Hospital), availability of doctor and more. The application should be free to download from either a mobile phone application store or similar services which should be available in all platforms.

Doctors can provide their hospital/clinic information using the web-portal. This information will act as the bases for the search results displayed to the user. An administrator also uses the web-portal in order to administer the system and keep the information accurate. The administrator can, for instance, verify hospital/clinic details and manage user information.

Furthermore, the software needs both Internet and GPS connection to fetch and display results. All system information is maintained in a database, which is located on a web-server.

- User will have a facility to contact a nearest hospital/clinic in emergency situation and the hospital/clinic will send ambulance to the detected location of the user or By using the GPS-Navigator, users can view hospitals/clinics on a map and be navigated to them.

The application also has the capability of representing both summary and detailed information about the hospitals.

Definitions, acronyms, and abbreviations

Table 1 - Definitions

| Term	Definition
User	*Someone who interacts with the mobile phone application*
Admin/Administrator	*System administrator who is given specific permission for managing and controlling the system*
Doctor	*Someone who has a hospital and wants his hospital to be a part the application*
Web-Portal	*A web application which present special facilities for doctor and admin.*

Product perspective

This system will consist of two parts: one mobile application and one web portal. The mobile application will be used to find hospitals/clinics and view information about them while the web portal will be used for managing the information about the hospitals/clinics and the system as a whole.

The mobile application will need to communicate to a GPS application within the mobile phone, which in turn communicates with a physical GPS device to find the location of the user. The GPS will provide the mobile application with locations of both the user and the hospitals and the distance between them, but it will also provide maps and the functionality to display the application's data on the map. The functionality provided by the GPS will be embedded into the application in order for the user to be able to use the functions in the application in a seamlessly manner.

Since this is a service and data-centric product it will need somewhere to store the data and keep it constantly updated. For that, a database will be used. Both the mobile application and web portal will communicate with the database, however in slightly different ways. The mobile application will only use the database to get data while the web portal will also add and modify data. All of the database communication will go over the Internet.

The mobile application has some restrictions about the resource allocation. To avoid problems with overloading the operating system the application is only allowed to use 20 megabytes of memory while running the application. The maximum amount of hard drive space is also 20 megabytes.
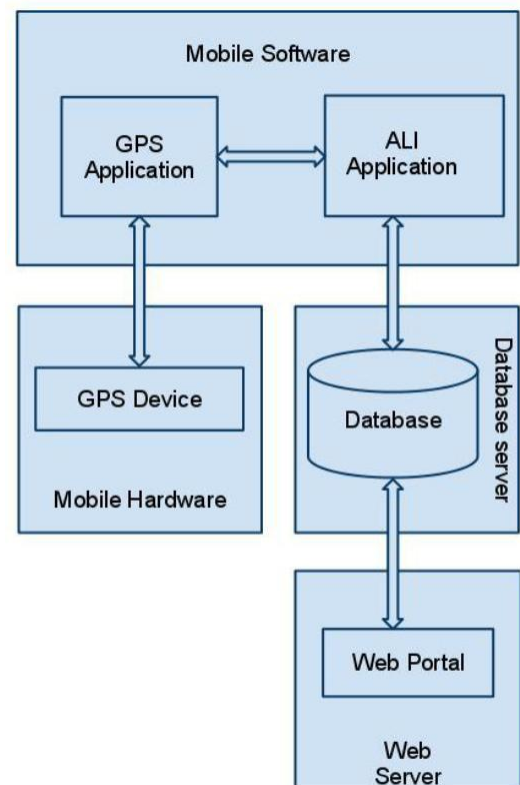
Product functions

With the mobile application, the users will be able to search for hospitals/clinics. Thehomepage will show the map, in which the user and nearest ACLs will be displayed, it also has a search bar in which the user can input their criteria. There are several search criteria and it will be possible for the administrator of the system to manage the options for those criteria that have that.

The result of the search will be viewed either in a list view, depending on what criteria included in the search. The list view will have a list of hospitals/clinics matching the search criteria and show a small part of the hospital/clinic information so the user can identify the hospitals/clinics. Once the user selects a hospital/clinic, the map view will be displayed in which each hospital/clinics location as a pin on the map as well as the user's own location and the user will be guided to that location. Map view will show each hospitals/clinics location as a pin on the map as well as the user's own location. In both views the users will be able to either select a restaurant as target destination or get information how to get there, or view the information of a specific hospital/clinic.

The web portal will provide functionality to manage the system and the restaurant information. It will also provide information about the system, for example show when there is a new update.

User characteristics

There are three types of users that interact with the system: users of the mobile application, Doctors and administrators. Each of these three types of users has different use of the system so each of them has their respective portal.

The mobile application lets the user to find or search for ACL hospital/clinic, choose a hospital/clinic and then navigate to it. If the users is specifying a specific hospital/clinic then he/she needs to apply some criteria and then the specific result will appear only if the hospital/clinic satisfis the criteria.

The doctor will not use the mobile application but the web portal instead. There they will manage the information about their hospital/clinic, for example , doctor's specialization ,contact information ,timings and other services.

The administrators also only interact with the web portal. They are managing the overall system so there is no incorrect information within it. The administrator can manage the information for each hospital/clinic as well as the options for both the mobile application users and the doctors.

Constraints

The mobile application is constrained by the system interface to the GPS navigation system within the mobile phone and the Internet connection is also a constraint for the application.

Since the application fetches data from the database over the Internet, it is crucial that there is an Internet connection for the application to function.

Both the web portal and the mobile application will be constrained by the capacity of the database. Since the database is shared between both application it may be forced to queue incoming requests and therefore it may increase the time it takes to fetch data.

Dependencies

This application is depended on the mobile phones which has the GPS and GSM/CDMA/LTE Network compatible devices.

GPS components in all phones work in the same way. If the phones have different interfaces to the GPS, the application needs to be specifically adjusted to each interface.

Specific requirements

User interfaces

- ✓ A first-time user of the mobile application should see the log-in page when he/she opens the application,. If the user has not registered, he/she should be able to do that on the log-in page.

If the user is not a first-time user, he/she should be able to see the search page directly when the application is opened via one-touch log-in.

The user will get a map view where they find their own location and few ACLs around them(if it is nearer (within 1km)) and he/she will be displayed a search bar on the homepage. User can able to view certain options like:

1. Search Bar- Here they can enter the doctor name, type of medication or else they'll be provided with a filter bar.
   - Filter bar: here they can filter the total options by their desired criteria, for instance, doctor's fees range, timing for consultation, type of medicine .,ex. Ayurveda, English medicine.
   - Book a consultation : user can make a appointment with a specific doctor and proceed with making the payment for it, to complete the consultation booking. (the date & time of the appointment will be saved in the server and will notified to the user and the doctor)
2. Result list :The results will be displayed as a list of hospitals/clinics as per the criteria issued by the user. The user can select any of the option and the directions to the hospital/clinic will be displayed to them.

- ✓ Every user should have a profile page where they can edit their e-mail address, phone number and password, and all his past and present medical reports.Also, the user can set the mobile application to his/her preferred language. The "P" icon shows where the user can click to navigate to his/her profile page.
- ✓ Emergency SOS: The user can enable the option of widget on his/her phone's lock screen, where incase of emergency situations he/she can click this option, and then the request will be sent to the nearest ACL along with all with their medical reports. Further, the respective ACL will detect their location and take action ASAP.

 In the map view each hospital/clinic is represented by a pin. If the user touches the pin, it provides a more detailed description of the hospital/clinic, as mentioned for the list view along with options like Get directions, Book a consultation and Back .
The restaurant owners and administrators interact with the system through a web-portal, see Figure 8. A restaurant owner should be able to register on the web-portal in order to log in and manage the restaurant information. An

administrator should also be able to log in to the web-portal where he/she can administer the system by for instance editing restaurant or user information.

Hardware interfaces

Since neither the mobile application nor the web portal have any designated hardware, it does not have any direct hardware interfaces. The physical GPS is managed by the GPS application in the mobile phone and the hardware connection to the database server is managed by the underlying operating system on the mobile phone and the web server.

Software interfaces

The mobile application communicates with the GPS application in order to get geographical information
And send it in case of SOS . The communication between the database and the web portal consists of operation concerning both reading and modifying the data, while the communication between the database and the mobile application consists of only reading operations.

Communications interfaces

The communication between the different parts of the system is important since they depend on each other. However, in what way the communication is achieved is not important for the system and is therefore handled by the underlying operating systems for both the mobile application and the web portal.