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MOBILE BASED HEALTH CARE SYSTEM

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Abstract — **The health care system according to the World Health Organization is a system to achieve good health, responsibilities to the expectation of the population and their financial contribution by providing them emergency services. The process of "Golden Hour' of a human in case after the accident there is very important to save life. In that case many kind of situation are getting faced towards human. This situation the patient needs primary emergency service to save their lives.**

Keywords: **Testing, Usability testing, Think Aloud Method, Usability Heuristics**

I. INTRODUCTION

In the upcoming generation of Information and mobile communications, mobile Internet-enabled devices and third generation mobile communication networks have become reality. The emergency services should be provided to the affected peoples as needed.These crucial advances in location based services have opened up new opportunities in real time patient tracking for personal healthcare applications.

In this paper, mobile based location of a patient can be track by using technique of the Global Positioning System. This function will be integrated into the Patient Location Tracking System to assist caregivers or family members in locating patients such as elderly or dependents when required, especially in emergencies. This paper will be helpful to provide all the emergency services at one click of our android mobile phone. In this here is system of message sending the saved contact numbers and server also tracks the location of patient as well.

2. SYSTEM ARCHITECTURE

Many mobile and satellite transceiver units support the sending and receiving of SMS using an extended version of the many software sets. The smart modem 300-baud modem can connection between the terminal equipment and the transceiver can be realized with a serial cable.

Common AT commands include:
AT+CMGS (send message)
AT+CMSS (send message from storage)
AT+CMGL (list messages)
AT+CMGR (read message)

Above commands are users friendly for read SMS from modem as well as sending replay back after data processing to the client who has android phone or smart phone.

After setting up an account with a wireless carrier or an SMS service provider, you can start sending SMS messages using a protocol / interface supported by the SMSC or SMS gateway. To communicate with an SMSC, an SMSC protocol is required. Most of these SMSC protocols are proprietary to the company that developed the SMSC. One widely used SMSC protocol is SMPP (Short Message Peer to Peer).

Fig. 1. System Architecture.

I. DATA HANDLING

There is a planning to maintain application server as .Net stand alone application in which we are storing data into mysql server database. This data may contain information of ambulance location, user personal identification information, authentication information of user, reports information etc. There is a scope of maintain persistent data in data base and core business logic written in .Net language which servers request and make decisions according to incoming request and given response according to request.

There are two ways of sending response back to application

1) Send SMS via same modem using standard GSM card.
2) Send SMS via SMS gateway provider via internet (cost effective solution).

The key idea for SMS was to use this telephone-optimized system, and to transport messages on the signaling paths needed to control the telephone traffic during periods when no signaling traffic existed. In this way, unused resources in the system could be used to transport messages at minimal cost. However, it was necessary to limit the length of the messages to 128 bytes (later improved to 160 seven-bit characters) so that the messages could fit into the existing signaling formats SMS is

a stateless communication protocol in which every SMS message is considered entirely independent of other messages. Enterprise applications using SMS as a communication channel for state full dialogue requires that session management be maintained external to the protocol through proprietary methods as Dynamic Dialogue Matrix (DDM).

II. MODULES

a) Ambulance

In this part we will design such a rigid and accurate application that can find out the nearest center (with necessary) from which the people can get the Ambulance as early as possible, to reach at appropriate emergency operation center. This app will be compatible with rural area phones as well as PC`s of primary health center.

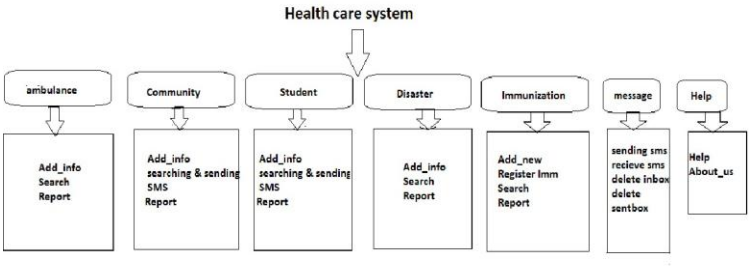

Fig. 2. System Scenario

b) Fire Brigade

In emergency situations there is also a provision of fire brigade. In the sudden fire cases this facility comes into play and provides the necessary emergency response.

c) Student Community

Our second objective is to target the academic students (Medical) and community partnership in this we will design the database of such a students and community members who can in emergency situation and as per there who work we can give them award for "Grampanchayat".

d) Disaster planning

In this paper there is scope to manage the disaster awareness and display the primary medicines availability in the nursing home which can help people in emergency conditions.

e) Immunization

In this vaccine will going to provide to the new born child and on each vaccination alert will be given to the respective parents. This is a way to maintain the healthy life from childhood to upcoming age.

3. LOCATION TRACKING

There are 3 location providers in Android.

I) *GPS* :- (GPS, AGPS) name of the GPS location provider determines the location of patient using satellites. Depending upon the conditions, this provider may take a while to return a location fix requires the permission of android permission access fine location.

II) ***Network* :-** (AGPS, CellID, WiFi and MACID) determines location based on availability of cell tower and WiFi access points. Results are retrieved by means of a network lookup. Requires either of the permission or android permission access coarse location and android permission access fine location.

III) *Passive* :- (CellID, WiFi, MACID) A special location provider for receiving locations without actually initiating a location fix. This provider can be used to passively receive location updates when other applications or services request them without actually requesting the locations yourself. The best way is to use the "network" or "passive" provider

first, and then fallback on "gps", and depending on the task, switch between providers.

IV) *Mathematical Module*

The first step is to obtain the latitude and longitude coordinates of any locations you want to make searchable. In the restaurant scenario, you'd want the latitude and longitude of each eatery, to calculate the latitude and longitude coordinates for a search perimeter's north, east, south, and west bounds (bearings of 0°, 90°, 180°, and -90° or 270° respectively). I can then search the subset of records that have locations which falls within this bounding-box.

I use the following formulas to calculate target coordinates and restrict my dataset search:

$$\varphi_b = \sin^{-1}\left(\sin(\varphi_a)\cos\left(\frac{d}{R}\right) + \cos(\varphi_a)\sin\left(\frac{d}{R}\right)\cos(\theta)\right)$$

$$\lambda_b = \lambda_a + \operatorname{atan2}\left(\sin(\theta)\sin\left(\frac{d}{R}\right)\cos(\varphi_a), \cos\left(\frac{d}{R}\right) - \sin(\varphi_a)\sin(\varphi_b)\right)$$

Where:-

- d is distance
- R is the Earth's radius (WGS84 model semi-major axis is 3,963.19 miles)
- φ is latitude
- λ is longitude

The θ is bearing

6. APPLICATIONS

In this paper this is insure that the quality of services and user safety will be provided at server side. In this paper we are going to attract and retain the healthcare workforce. We are going to improve services level for immediate response towards the society and improve utilization of appropriate healthcare resources. Also provide quick service to the user.

7. CONCLUSION

This project is user friendly with no complications also it is a need to the society. This project would reduce many common problem in the society related to hospitality and medical facilities at emergency level that may of ambulance, fire brigade and police protection at one time through mobile android application.

8. REFERENCES

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