

Emergency Management System Using Android Application

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Abstract: In this Global odysseys of android based applications, designing a system that aims to provide emergency service at the accidental spot, faced or witnessed by the user, using a single click of a button. Emergency service is provided to patient who has met with an accident in an unknown location through the GPS inbuilt. Inculcating cloud computing so as to manage and maintain the patient's medical records in the EMS server. This system also proposes interesting functionalities such as blood bank services, acknowledging relatives through message text and doctor provided prescription if user faces uneasiness in health.

Keywords: *Emergency service, location tracking, Cloud computing, bloodbank .*

I. INTRODUCTION

Emergency Medical System (EMS) is a revolutionary approach to medical treatment in case of emergencies. This paper proposes Android Based Tracking for EMS on cloud. A user encountering or witnessing an accident can use this android application to call an emergency service on the spot just by the simple click of a single emergency button. This button will trigger the process of emergency help that will direct a message to the administrator who will confirm that the alarm isn't a false alarm

and send an ambulance aid to the victim as soon as possible. The administrator will also acknowledge relatives of the victim about his whereabouts.

With the main objective being to provide immediate help to a victim in case of emergency, the system also proposes other secondary functionalities. It will also provide all health related information including medical prescription for common diseases to registered users. It will also maintain a blood bank directory which will maintain updated information on the blood groups available in different blood banks.

This paper focuses on providing emergency service to users who are registered with the android based application. If user is not registered with the application, primitive technique of approach is applicable.

II. LITERATURE SURVEY

A. An Android-Based Emergency Alarm and Healthcare Management System

The paper presents a system that has two main functions: emergency alarm and healthcare management. The emergency alarm can be triggered manually or automatically when an unexpected

situation occurs and alert the family members and doctor of the user. The alert message even contains the location of the user so that help can be sent immediately. The health care management system on the other hand, is used to get prescription from the doctor for a particular illness and can send regular reminders to the user to take the medicine. This system is deployed using the latest technology i.e. Android based smart phones. As the world is becoming increasingly digital, and almost every person has a smartphones these days, it is feasible to deploy the system on these phones. Moreover, using smart phones has various advantages as these phones have many advance features which are beneficial to the system.

B. AN EMERGENCY MEDICAL SERVICE SUPPORT SYSTEM FOR PATIENTS IN RURAL AREAS [3]

This work by Li-Linchen was developed to reduce the time required for people in rural areas to reach emergency care services and prevent the tragedies like death due to lack immediate help and convenient transport. This support system effectively transports emergency patients in rural areas to hospitals promptly to receive appropriate medical treatment. It consists of the emergency support centre and patient's rescuing unit. The emergency support centre enables data entry, mapping and confirmation. GPS is used to identify patient's location by the system. The support centre notifies the hospital of the patient's condition to enable rescue preparation; and sends an ambulance to the relay station to transport the patient from the mountainous area. The system interface for the patient side is based on cell phones. Residents of rural mountain areas can enter their personal information into this program in advance. Therefore, when they require emergency services, if they dial 119, an application on their cell phone automatically transfers their information to the information interface of the emergency support centre.

III. PROPOSED SYSTEM

A. User authentication

in this module role based access control method is

used for authenticating a user. New user has to sign up before using the application Each user will be provided with unique credentials after sign up.

If new user uses the application initially a prompt message to fill the registration form will appear. Once the user registers he can view the previous detail and edit them whenever he wants to..

The registration form consist of personal information like name, address, age, gender and so on and medical information like blood group, medical history etc of the patient. Personal information shows the information which user has given while registration. This medical history and Information can be useful for doctors.

B. Electronic Health Record

An Electronic Health Record (EHR) is a digital version of a patient's paper chart[4]. EHR's are real time. They are a modern approach to medical care and go beyond the standard clinic data collection. EHRs can:

- Contain a patient's medical history, diagnoses, medications, treatment plans, immunization dates, allergies, radiology images, and laboratory and test results
- Allow access to evidence-based tools that providers can use to make decisions about a patient's care
- Automate and streamline provider workflow

C. Cloud Server

Database will be maintained of all the hospitals, Clinic and Blood bank over the server cloud. Cloud server will also be used to maintain the EHR's of the users.

D. Nearest Hospital Tracking[1]

This module helps to track the nearest hospital depending on various factors such as:

- Which emergency condition arises
- Whether doctor is available or not

- Location of the patient

K-means clustering is a method of vector quantization, originally from signal processing, that is popular for cluster analysis in data mining and has been used in the system to find out nearest hospitals from user's location. Once the hospitals are tracked in that location an optimal path between the user and hospital is chosen by Dijkstra's algorithm. Basically it provides shortest distance to reach the nearest hospital.

E. Blood bank and clinic

This module will maintain the data about the clinic and the blood bank located near to the user. Clinics will be categorised according to the field (Physician ,dentist etc.). Updated information about the blood bank regarding the location, blood groups and quantities of blood available will be provided to the user within the application.

F. Alerts

Alert messages will be sent:

- to the emergency contact/s of the victim if he meets with an accident.
- to the user regarding various updates and blood donation drives.

any of the following four functionalities available to him:

1. Emergency Services
2. Blood Bank Information
3. Alert Family Members
4. View/Edit Medical History

V. Conclusion

With the vast development in technology and the advent of smartphones, the world is increasingly revolving around these gadgets. It is about time we modernised the approach to medical care and treatment. The proposed system does so effectively by incorporating the latest developments in the field of Information Technology for the treatment of victims during emergencies.

References

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[3]Li-Linchen," An Emergency Medical Service Support System For Patients In Rural Areas - An Example From Taiwan" Proceedings of the 2012 International Conference on Machine Learning and Cybernetics, Xian, 15-17 July, 2012

[4]<https://www.healthit.gov/providers-professionals/fqs/what-electronic-health-record-ehr>

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IV.. WORKING

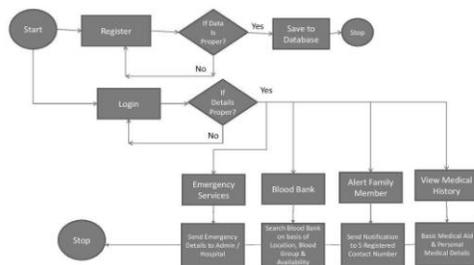


Fig (1)

User will first download the android application. Once the user opens the application he will be asked to register. If the data he provides is right it will be saved to the database and the user will be provided with a unique ID and password. The user the logs in using these credentials. Once logged in he can use