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RESEARCH ARTICLE OPEN ACCESS

# Emergency Medical Services (Ems)

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**ABSTRACT-**
The Emergency Medical Services presents an emergency alarm and healthcare management system to make decision and to create a computational model to direct the emergency patients to appropriate hospital, which is mainly deployed in an android-based phone that is conveniently used and carried. They should transport the patient from emergency site to the appropriate medical care institution in the vicinity as directed by Emergency Dispatch Center. With the help of the GPS and GSM network, the system can make sure the location of the users when they are in trouble and trigger the alarm. When the doctor or family receives the alarm message, they can immediately take measures to rescue the user and hence manages the health record of the user. The user can take online medical to send their physical condition and then get prescription from doctor who will send the prescription on the user's mobile phone. The main aim is to assist with emergency ambulance resources management and search out the vacancies in respective hospitals regard to the injury of patient. After that the life reminder system can remind the user to take medical on time.

***Keywords*** **-** Android; Emergency alarm; Emergency Medical Services; ; Emergency Patient ; Healthcare and management; Life reminder; Resource Management;.

## I. INTRODUCTION

As modern social accidents occur frequently, it is more important to design a health security system for people. As mobile phones play more and more important role for people it is the best choice that the system will be deployed on mobile phones. The main goal of this emergency service is to provide medical treatment to those who need urgent medical attention in the transportation vehicle itself and also shift them to the nearby clinic / hospital in case of critical injuries / illness.

Normally, a healthcare emergency alarm system is deployed on an independent device and then connected to the hospital or emergency center. A healthcare management system has two main functions. The one is life reminder system which is helpful for the senior people and chronic patients to give a friendly reminder for medicine. The other is On-Line medical.

Firstly, open operating systems on cell phones such as IOS, Android have many applications and easy to extend by developing application. Secondly, user can make a phone call to their friends and family, and with the help of GPS chip, their location can be acquired. Finally, the phone can make fall detect by gravity sensor. For example, if an old man accidentally falls down, the phone can automatically trigger an alarm.

Android is a mobile operating system initially developed by Google. Compared with IOS, Android is an open source system, so we can modify it to fulfill the specific needs by changing or rewriting the source code. Our system has two main functions: emergency alarm and healthcare management. Emergency alarm system can be triggered manually or automatically when the unexpected event happens. The alarm will send emergency messages and calls to the user's family and the doctors. And the emergency message can include the location information in order to locate the user.

## II. LITERATURE REVIEW

Literature recommends that Operation Research techniques can be applied for building good decision making tools. But the fundamental requirement to apply operation research technique is to identify variables affecting EMTs decision making. Shi Su et al. [1], Hirschberg et al. [2] and Christie et al. [3] tried to do so in their research. They used computer simulation technologies to establish simulation models for EMSs; and they found that variables like the number of injuries & their attribute, rescue manpower planning, building evacuation transportation modes, number of ambulances, hospitals capacity and the number of patient who were waiting etc., should be considered.

We can also see several people using the Analytic Hierarchy Process (AHP) which is known multi attribute weighting method for decision support and being used for solving complex decision-making problems in various disciplines, e.g. public policy, strategic planning, viability determination, forecasting, and project management[4]. Lee [5]used Analytic Hierarchy Process to develop a capability

index of disaster response system through the quantitative rating procedures. Chen [6] also used AHP to investigate the important factors influencing Kaohsiung City's prevention and protection system. Seyda Topaloglu et al. [7] present a Goal- oriented Programming (GP) model that accommodates both hard and soft constraints for a monthly planning. AHP was used to compute the relative values of the soft constraints which were used as coefficients of the deviations from the soft constraints in the objective function. The model had been tested in major local university hospitals

Also, the use of IT tools can be seen in EMSs. Community in Multnomah County, Oregon, US developed an on-line computerized system known as Computerized Hospital On-Line Resources Allocation Link (CHORAL) that visually displays the all hospitals resource status to the 911 centers. Six patient care resources are monitored that included Adult Ward (AW); Computerized Axial Tomography Scan (CT); Critical Care (CC); Labor and Delivery (LD); Pediatric (PEDS); and Psychiatric Secure Beds (PSB).

## III. PROPOSED SYSTEM

The We will develop such an application which is capable of while entering into particular emergency, Service in Application will automatically perform its respective operations like Auto Email to hospital, select optimal hospital for patient.

## IV. DESIGN OF THE SYETEM

As shown in the above diagram, model is categorized into two basic part : client and server.
The client side contains Android phone and internet connection for establishing connectivity and running the application. In that system two major component are used. One is the Emergency Assistance in which for alert mechanism there are alarm executor, alarm service and action manager. Alarm system is
used for emergency when unexpected event occurs. On the other hand we have Emergency Management that consist of several application such as fill information used for entering user data identification, edit information when modification are to be made, data management is handle for only authorized users and send emergency is processed.

The server side possesses EMS Server in which two major blocks are Emergency Assistance

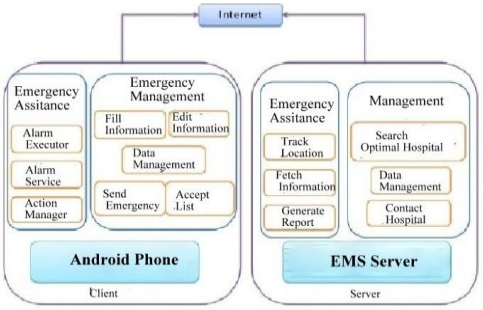



Fig. System Architecture of EMS

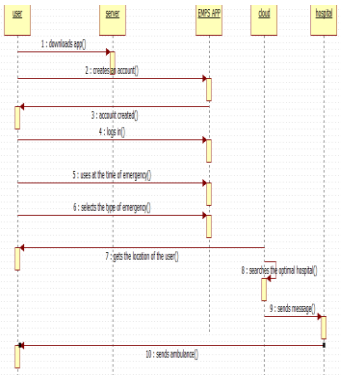
and Management. In Emergency Assistance , track location is used for tracing the exact locality of patient, fetch information will be tackled and retrieves the basic information fed by the patient and will generate the report. The Management will perform the optimal search of the hospital server will handle and manage the data and will contact the closest and available vacant hospital.

In the below sequence diagram, first the user downloads the application on his android mobile and then creates his account on the application and then the user logins.

At the time of emergency the user selects the type of emergency the cloud gets the location of the user searches for the optimal hospital according to the emergency selected, sends the message to the hospital and hospital sends the help/ambulance to the user accordingly.

## V. SYSTEM FLOW

The life reminder function that is one of healthcare management's functions can help user to remind when to have medicine and some other things which we often call as doctor prescriptions. It is fairly useful for the chronic patients. Furthermore, by linking to the Hospital Information System (HIS), doctors can push directly the prescription to the reminder system for each individual patient via specific interfaces. Now mobile phones support Internet access, so when the user is not feeling well, he can log in the system, their status will be sent to the server.




SEQUENCE DIAGRAM

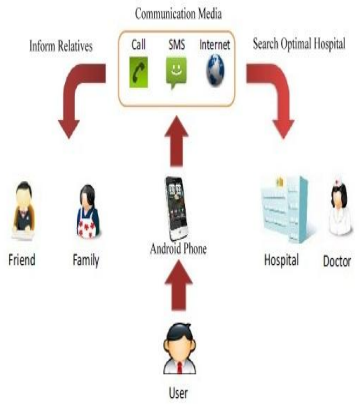



Fig. Emergency Medical Services

## VI. RESULTS

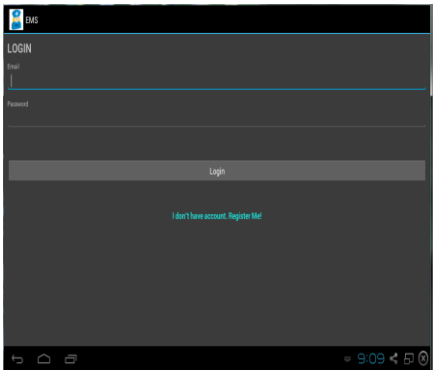



**Fig.6.1.** Registration Page

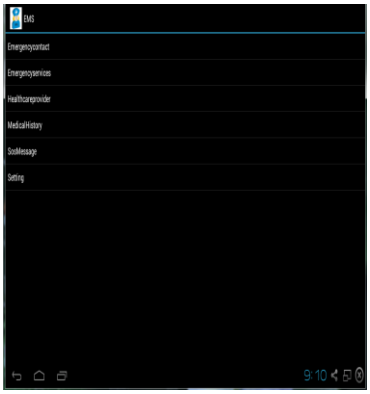



**FIG.6.2. EMERGENCY OPTIONS**


**FIG.6.3. HEALTH CARE PROVIDERS**

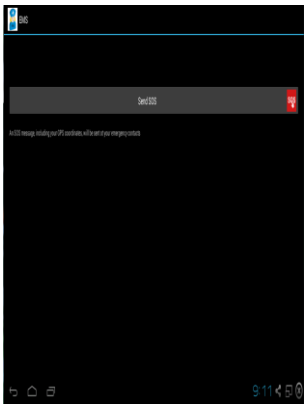



**FIG.6.4. SOS MESSAGES**

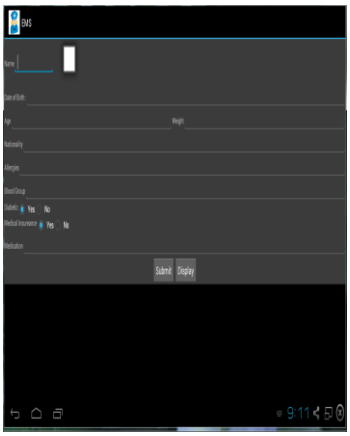



**FIG.6.5. MEDICAL HISTORY**

## VII. CONCLUSION

We have implement EMS system which can perform functions like

1. Tracking the Optimal Hospital
2. Auto SMS
3. Information of non emergency hospitals for android operating System.

An android-based Emergency Alarm and Healthcare Management System deployed on android-based Phones. This system can give

emergency help at anywhere and anytime and can remind users for medicine or response by the doctor's prescription, and can provide the function of seeing a doctor to the user. This does not only undoubtedly provide the senior people and the chronic patients the more convenience and safety, but also provide most of people.

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