Location-Aware HealthCare System
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Abstract— in recent times, many advances have been made in the field of mobile positioning system along with telecommunication system. This has given an impetus for development of location-aware healthcare applications. The goal of this project is to provide immediate medical assistance to people who have met with an accident and are not able to communicate vital information or their location verbally. The application alerts emergency care-units on just a single click on the interface from the victim. The emergency services would be able to track the patient’s location through the application. The secondary features of the application include medical prescription reminders for patients, it also allows them to track medical facilities in their locality and fix appointments. On the other hand, the doctor can easily track medical history of patients through the application.

Key words: mobile positioning systems, telecommunication, location-aware, healthcare, medical assistance, emergency care-units, prescriptions.

I. INTRODUCTION
In recent times Mobile communication has taken rapid strides into the day-to-day life of people. Mobile has become a massive means of delivering key information between two entities. One such use of mobile communication is depicted in this project; it deals with how improvement can be made in the field of Healthcare services. It is very common nowadays to hear about death-caused by accidents, more unfortunate is to know that the victim could have been saved had he/she had received medical attention on time. The primary objective of location-aware healthcare system is to eradicate this discrepancy of delayed medical service to victims. Usually when a person meets with an accident he tries to inform his/her relatives, but they may not be able to do so due to the severity of the injuries making them unable to voice their problems or type an SMS. In such cases location-aware healthcare system is the solution. The Main feature of the project is the one click based mobile application. It allows the victim to send an alert to the nearest medical emergency service as well as his closest relative (editable by the user). The alert message delivers the location of the victim to the service through GPS and Google maps. The additional features of the system include a Web interface for medical Centre to manage patient data in a more simplified manner. The medical Centre can edit a patient’s medical information according to his/her on-going treatment. Apart from this the mobile application provides patient’s with a medicine prescription alarm system that reminds them of their timely medicinal needs. The patient can also book an appointment with a physician in his/her locality using the mobile application.

II. EXISTING SYSTEM
In recent years, wireless systems seem to be contributing more towards healthcare systems. With the complex tasks that need to be performed at hospitals and health centers, it requires mobility and coordination. Hospitals make use of artifacts such as whiteboard that helps in communicating information about patients and nurse.

Medical records consist of patients’ clinical data. With the advancement of wireless communication system, electronic patient record systems were developed that provides access to clinical information and prevents the loss or misplacement of information. With the help of this system healthcare professionals can access patients’ information by connecting to various institutions information or database department. Patients’ information includes heart rate, blood pressure and other similar physiological aspects. It is important on part of physicians to know what patient requires, what is its current location to provide aide to the patient at his current location. But this system could not provide all these facilities. This system only reduces the paperwork.

This scenario was improved with the development of different system like wireless systems for elderly people with dementia, intelligent nurse call system and others. In wireless system for elderly people with dementia, the system keeps track of patients. And in intelligent nurse call system, this system is used to help patients at their home. As in some cases a nurse is assigned to take care of patients, this system replaces the nurse and thus reduces the cost. But these systems are not efficient in every aspect. The biggest drawback is that the existing systems are limited in space. These systems are only limited to a particular hospital or medical center or in best case to a small region. In these systems appointments cannot be directly made. Some of the system made use of RFID technologies but it is also limited in space and user has to take care of RFID tags. In this way, many existing systems have improved the previous system but are still lacking in some of the aspect. Currently, there is no wireless system that covers all the properties over long distances.

III. PROPOSED SYSTEM
From the above literature study we can conclude that it is difficult to provide efficient and quick performance in case of healthcare system over long distances. Our paper describes a location aware health care system that provides a solution in emergency situations in a reliable and efficient manner. In case of adverse situations like when someone is injured and the person is unable to communicate and provide vital information to others, in such situations medical authorities must sometimes treat patients without
any provision to contact someone who can help them in emergency situations.

The health care system consists of a backend system that has a database for all patients. It stores information like patient's blood group, illness, drugs prescribed, allergies etc. The health care system consists of a website for managing patient's data which can only be done by the doctor. All the appointments will be managed using this website. It also provides a mobile application for patients. Using this application patient can make appointments, check their medical history. It provides an automatic alarm by which patients can take medicines on time. Before using this website all hospitals and medical centers must register. The website helps doctors to add patient's information in the database, update patient's information, drug information. Important information like allergies, blood group etc. are stored in database and sent to mobile application as medical history. The website will be designed in an efficient manner.

The mobile application has a special feature which will help the user in emergency situations. The application has an icon which the user can click when he cannot express his medical condition to others. On clicking this icon GPS location of the patient will be sent to the website. Also it will send messages to doctor and patient's friend. The application will show patient's data and in case of emergency surrounding people will know how to treat him. The mobile application also has a reminder which will help the patient to take prescriptions on time. Using the mobile application patient can book an appointment with doctor. Doctor can cancel appointment by sending message to the patient. This feature will help doctor to handle his daily appointments easily.

The backend system will be used by the mobile application when it needs to update and retrieve information present in the database. The database will also store information related to the GPS parameters such as longitude and latitude. The main aim is to build a reliable health care system and help doctors and hospitals to manage patient's data in an efficient manner.

IV. CONCLUSION

With the deployment of wireless networks, the role of wireless technologies is expected to increase in healthcare applications. The field of healthcare should keep up pace with the technology advancements so that doctors and nurses can effectively treat patients during emergency. Our article offer services such as a mobile application for patients using which they can get immediate attention during emergency and a website for doctors to effectively manage his or her patients. It is expected that implementation of our project will help to reach a step closer in realizing the idea of wireless healthcare.

REFERENCES

[6] Yang Xiao, University of Memphis; Xuemin Shen, University of Waterloo Bo Sun, Lamar University; Lin Cai, University of Waterloo, Security and Privacy in RFID and Applications in Telemedicine.