Smart Ambulance Service

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I. INTRODUCTION

Ambulance plays a vital role in saving a patient's life from being in a health risk zone.Demand has been increasing, with the number of serious calls to which an ambulance arrives at the scene growing by an average of around 6 percent a year from 2011. Using the proposed mobile application, User and driver need to register their details to login into the system. User need to book an ambulance while in the case of emergency. Using Google map API, user as well as driver's location are tracked. Based on the availability of the nearby ambulance, it may get allocated. Using the user location driver reaches the place. Then the patient should be boarded. The details of the patients are sent to the hospital, while the patient was boarding in the ambulance. Since the detail of the patient is already available the treatment can be done in a more efficient manner.

II. LITERATURE SURVEY

Aditya Gupta &Anuja Gaonkar[1]. Has developed interactive system CityCabs which functioned as a Cab Booking System for customers to effortlessly book cabs for travel. It is an online portal throughwhich customers could view available cabs, register the cabs,view profile and book cabs. Separate database is maintained to handle all the details required for the correct statement calculation and generations. Divya D. Nanwani, Puja R. Kshirsagar, Bhavana P. Kawalkar, Pritish Deshmukh[2].The developed project performs three main functions. First oneis Patient health monitoring; second one is tracking the Ambulance which is carrying the Patient and third one is to send above two details to the Hospital or Doctor using a GSM technology. With the help of the project they can find out the location of ambulance and at the same time they can monitor various health parameter of a patient. These parameters are temperature, humidity and heart beat rate. A text SMS containing location and values of all the sensors is sent to a Doctor's mobile. Then that person can intimate Doctor about ambulance location and health. By using that parameters, doctor can do the necessary preparation for treatment of patient. They used Visual basic software at PC in monitoring system to display location of ambulance by using Google earth map and displaying SMS. After receiving SMS hospital can prepare their staff for proper treatment of coming patient. Amrapali Dabhade, Dr.K.V.Kale, Yogesh Gedam[3].In this study, they are tried to solve problem by representing the shortest path facility for finding the nearest location of the hospitals from user's location. They used the ArcGISsoftware and the Dijkstra's algorithm to provide the shortest path from one location to another. G.Jemilda, R.Balakrishnan, B.Johnson, G.Linga Sangeeth [4].They proposes an Android mobile phone application

that gives information about buses, bus numbers as well as bus routes both online and offline. Reason for Android platform Android requires an open source development which is probably the most feasible and a present user friendly approach. This paper also deals with Location Based Services, which are used to track the current location of the bus as well as give an estimate remaining time for the tracked bus to reach its destination using the client –server technology. Also it display the required maps with the help of GPS. Md. Palashuddin, Zahidulislam, Md nadim[5].They overviewed the market for location-based services and discusses algorithmic innovations that address challenges posed by urban environments. Fei-Yue Wang; Key Lab. of Complex Syst. &Intell. Sci., Chinese Acad. of Sci., Beijing, China [6].They presented an overview of the background, concepts, basic methods, major issues, and current applications of Parallel transportation Management Systems (PtMS).

The developments and applications described here clearly indicate that PtMS is effective for use in networked complex traffic systems and is closely related to emerging technologies in cloud computing, social computing, and cyber physical-social systems. A description of PtMS system architectures, processes, and components, including OTSt, Dyane CAS, aDAPTS, iTOP, and Trans World is presented and discussed. HoomanSamani, Rongbo Zhu[7]. They have designed and developed the ambulance robot, which brings along an AED in a sudden event of cardiac arrest and facilitates various modes of operation from manual to autonomous functioning to save someones lives in smart cities. Hyuk-Jae Chang [8]. They have used the Internet of Things(IoT).That technology allows acquisition of remote monitoring of pulse oximetry data, blood pressure readings, ECG traces, and the monitoring of patients' movements. Consequently, IoT-supported EMS connects this daily healthcare information to in-hospital care. Amar Nath, Ankit Khandelwal, AkulKanojia, Ishitva Minocha,Rajdeep Niyogi [9].In this design and implement the intelligent agents based distributed cab system for serving passengers using local information.

The implementation and analysis of proposed approach are carried out by using a Java-based distributed multi-agent system framework - Java Agent DEvelopment Framework (JADE). Simulation results manifest that our approach is able to encounter the shortcomings of the centralized approach. Rashmi A.Nimbalkar, R.A. Fadnavis[10].The system will identify availability of the nearest available specialized hospital all through EMS server which provides continuous information about the incoming patient to the hospital. This paper proposes Android Based Tracking for EMS (Emergency Medical System) on cloud.

III. ARCHITECTURE:
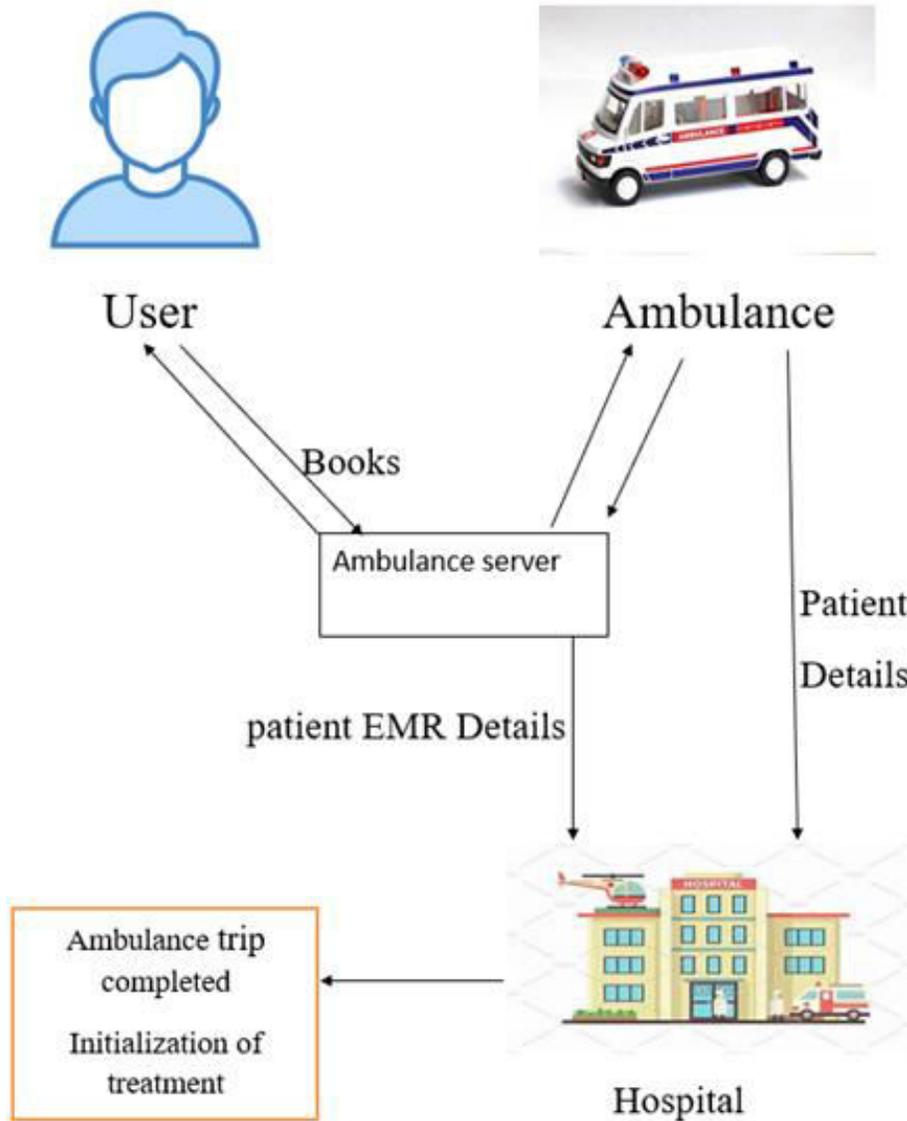
IV. EXPLANATION:

User and driver need to register with their respective mobile applications. User need to book the ambulance in the emergency condition. The location of the user is received by server form the server User location is send to the ambulance driver. Using the user location driver reaches the location and board the patient to the respective hospital. During the time of boarding the patient detail was sent to the respective hospital by the nurse in the ambulance. Patient EMR details is sent to the hospital from the server. After the patient reaches the hospital driver need to click the ambulance trip completed initialization of treatment button.

Modules

User registration module:
The user needs to register to the mobile application in order to use this application.

Ambulance booking:
User books the ambulance in the emergency situation. The location of the user is sent to the server through GCM(Google Cloud Messaging). Push notification in the GCM saves the time by sending the user's location to the driver's application. Using the location the driver reaches the user location in a faster way than the traditional approach.

Tracking ambulance arrival:
User can able to trace the arrival of the ambulance to their respective location.

Sharing patient details:
After the patient gets boarded into the ambulance, the medical assistance get started to record the patient health conditions such as gender, Blood Pressure, Heart beat rate and the treatment for which the patient gets suffered is mailed to the hospital at their appropriate mail IDs.

Sharing electronic medical records:
Electronic Medical Record(EMR) details of the patient is sent to the respective hospitals from the server.

Collecting hospital feedback from user:
Depends upon the treatment which was given by the hospital, feedback is collected from the user.

Experimental setup.

Hardware:
- System – Dual Core Processor & 4 GB RAM or more
- Android Smart Phone – Any Processor & (2 GB)RAM.

System Configuration:

Hardware system configuration:
- RAM - 4 Gb (min)
- Hard Disk - 260 GB

SOFTWARE
Software Requirement:
- Windows XP or more.
- JDK 5 or more.
- Android SDK Tool.

S/W SYSTEM CONFIGURATION:
- Operating System : Android.
- Language   : JAVA, android XML.
- Server   : GCM.

Experimental outcome.
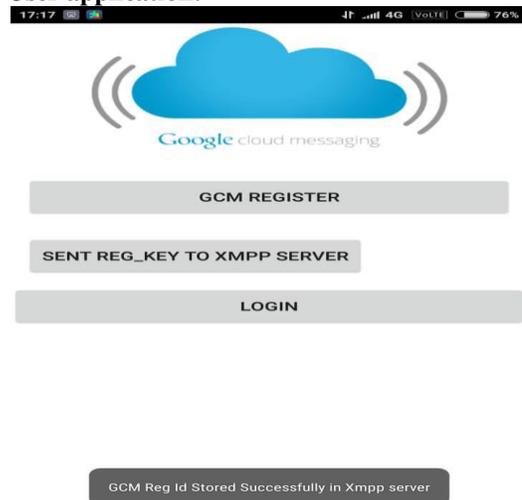
User application:

Figure.1. User application:

Fig 1: Represent the user model. User need to register with the GCM Register and to send the registration key to XMPP server. Then the user need to press the login button.
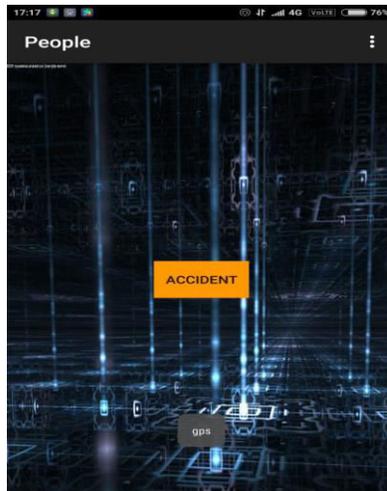

Figure .2.

Fig2: Represent the user model,when the user clicks the login button the page will navigate to the next page and shows the accident button. On clicking the accident button GPS is activated and the location of the user is sent to the driver.

Figure.3.

Fig 3:Represent the user module, Where the user need to select the hospital.

V. SERVER

Figure.4.

Fig 4: Is the server which shows the location of the user when the user books the ambulance. User location is sent to the server. From the server user location is shared to the ambulance driver.
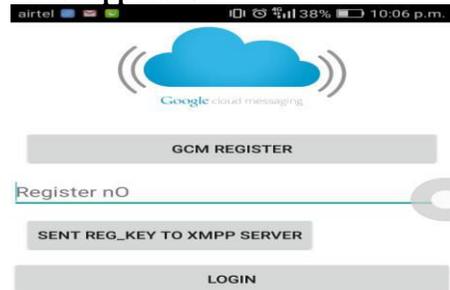
Driver application:

Figure.5:
Fig 5: is the ambulance driver module. First the driver needs to register with the GCM server. Then the driver needs to send the register no. to the server and to login in to the server.

Figure. 6:
Fig 6: Using the location of the user, driver reaches the user location.
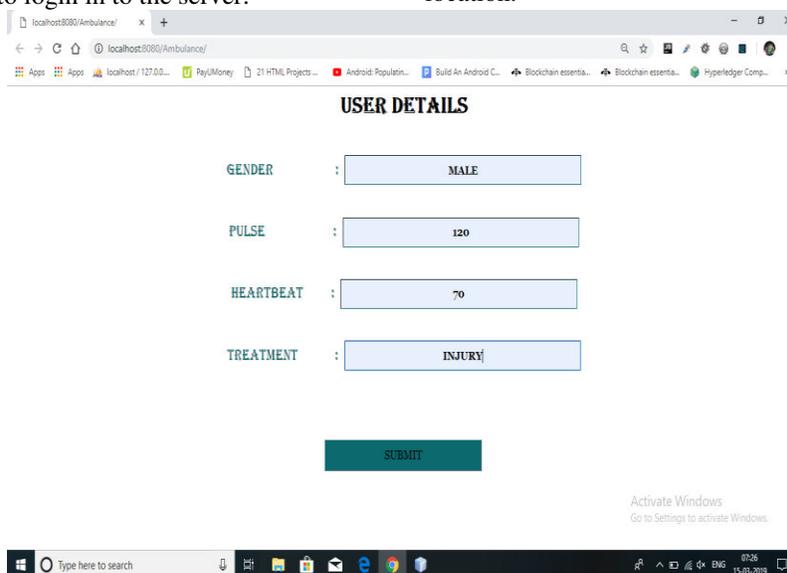

Figure.7:
Fig 7: This module is fixed in the ambulance. The ambulance assistant will check the condition of the patient and send the patient condition to the respective hospital.
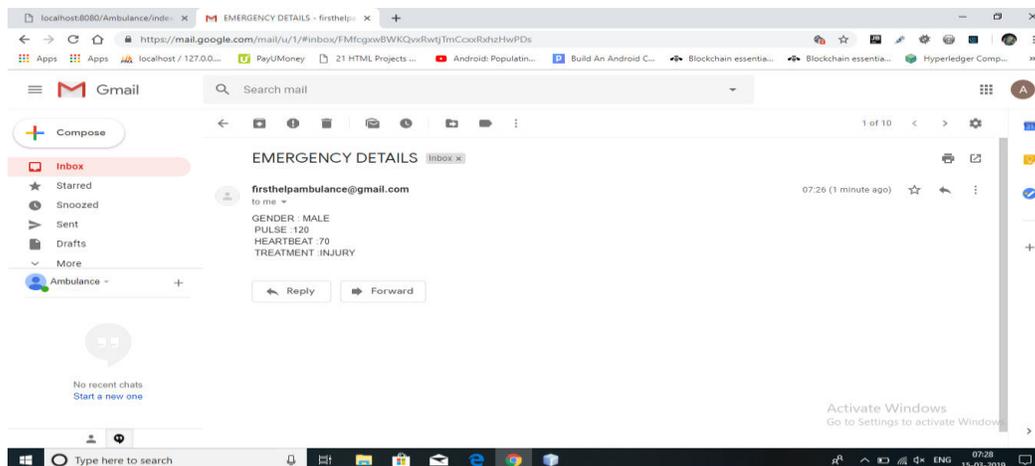

Figure. 8:
Fig 8: Hospital admin will check the mail. Since the detail of the patient is already available, they can prepare for the treatment in advance.

Table.1. Comparison with the existing system

Si.no.	Existing system	Proposed system
1	Accurate location of the patient is not known.	Accurate location of the patient is known.
2	Time consumption is more in the traditional approach.	Time consumption is less in the proposed system when compared with the existing system.
3	Patient details is not known in a prior manner.	Patient details is known in prior than in traditional approach.
4	Time taken for treatment is high.	Since the patient detail is already known, treatment can be initiated in a short period of time.
5	Driver location can't be traced.	Driver location can be traced.

VI. CONCLUSION

Since the location of the user is known the driver reaches the location in time. The user can track the ambulance location. Patient details are shared to the selected hospital. Hence the treatment can be done in efficient manner.

VII. REFERENCE

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