

# Call Ambulance

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**Abstract—**

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Emergency medical response in Bangladesh is lagging behind other countries. This is partially because of lack of technology implementation at ground zero. To address the issue, we are introducing smart ambulance system. It would take Bangladesh to competitive position in emergency services around the globe. Over the last few years there is a revolutionary development in the field of Internet of Things (IoT). It can be used seamlessly & widely in large number of end system where subset of a large amount of data can be accessed and processed easily and powerfully. IoT and smartphone technologies helps in building a platform which serves every smartphone user. The application collects location information from Global Positioning System (GPS) hardware and uses Google Map Application Programming Interface (API) to plot details of the ambulances on the Google Map Client of the Smartphone App. Same functionality can be used for the other module which enables user to find the hospitals with the number of services provided by those in brief manner. With the help of medically equipped and technologically powered ambulance, information about patient's health details can be sent to the hospital in order to take further action. Interaction between the smartphone and the centralized database can be done using Firebase. The platforms that are used, capable of molding into various services that are implemented and it is believed that these technologies can make a revolutionary work in public GPS work if utilized properly.

## Keywords

Hospital, Ambulance, Emergency, Public Safety, City, Smartphones, Android Studio, Firebase.

## 1. INTRODUCTION

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In today's era, there are many cities which are working on transforming themselves into Smart Cities. If the city is going to be called as Smart City, then it should have all possible advancements in the sector of smart technology. Improving efficiency in healthcare

sector if one of the difficult and most challenging jobs. That includes various aspects such as getting ambulance within minimum amount of time, providing proper treatment to the patient so that the chances of surviving increases in critical condition. Traffic congestion is one of the major problems in urban areas, which have caused much hitches for the ambulance. Moreover road accidents in the city

have been increased and to bar the loss of life due to the accidents is even more crucial.

We can overcome these limitations by upcoming technology like IoT[1] i.e, Internet of Things. Various hardware devices can be connected with each other via wired and wireless networking tools and software implementations. Use of various

## 2. RELATED WORKS

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Google has developed API for user's ease. Google Maps gives information about hospitals nearby, with its rating and distance from user's current location. The drawback of Google Maps is that it only pins the hospitals but does not provide their detailed information. Hence user may need to access information about the hospital by going to particular hospital's website.

Smart ambulance system application overcomes this drawback and gives hospital information related to user's medical emergency. It's a protocol that gives information efficiently about the patient's health including pulse, blood pressure etc. It also tells about the respective drugs and medicines automatically. All this is informed to the doctor and the caretaker about the patient's condition. All these interactions are controlled and takes place under Ambient Assisted Living (AAL) system. This Project has a facility of delivering the prescribed drugs to the patients. A Device named Ubiquitous Drug Injector (UDI) also has designed. One More pervasive device is designed which is for patients. It receives inputs from the ambient sensor devices. It correctly infers the patient's condition. All the things done in this project facilitates in prescribing appropriate drugs for the respective diseases and saves lot of time [2].

This project has a goal to create a smart environment at the hospital and the ICU unit is the main aim. Here a small difference or the

treatments given at that time can make great changes. For implementing this researchers have used ZigBee which is a wireless Communication protocol, OSGi it's a middleware called as Open Service Gateway initiative. A knoplerfish is used which is a framework for implementing OSGi. The ICU can be made more sophisticated by the use of pervasive computing devices, sensor, and wireless communication technologies. This project helps doctors to get information about his patient admitted in the ICU. All the changes in patient's physical condition can be received by the doctor remotely. Various outputs given by the monitoring systems is collected. It is then sent to the orchestration server and which hosts the web services. A camera is fixed at the patient's end. All the collected information of the live feeds of the patient is stored at the distributed database. It is then displayed in the web service according to the doctor. Hence, doctor gets information about the patient's condition and caretaker gets the information about the prescription of the patient [3].

The Importance of communication during the disaster times is understood well by this project. Emergency situation includes disasters like fire, medical emergencies, accidents, earthquake, floods or any other natural calamity. The project works on enabling ad hoc smart phone based communications at the emergency time over WIFI, to avail the service the person in trouble shall call EMS(Emergency Management System) designed by this project. Requests are received by the server. Lent server system principle is used the server responds to the client's request. Client and rescue application is developed as an android application. Server is implemented as a web based application. The system is tested using various GPS enabled android Phone [4].

The health status of the wireless sensor networks is relatively opaque to the network administrators, and they are deployed to monitor the environment. This project provides detection of failure and symptom alerts also. The project is divided into 2 parts as, energy efficient protocol and distributed failure detector module. Energy efficient protocol is used for delivering state summaries. The failure detector is robust to packet losses and attempts

That the reports of failure will not exceed a specific rate on negative side. The findings are evaluated by implementing for tiny OS platform on Mica2 nodes on a 55-node network, and find that the project gains 8090% reduced bandwidth usage as compared to standard data collection methods [5]

### 3. OBJECTIVES

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Call ambulance is a very useful app which is perfectly designed to help people in their indeed time and our main goal is to provide the classified Ambulance in their mean time from their list nearest hospital/place.

Emergency services bring patients to a hospital facility for further treatment. Patients may end up admitting to the surgery or casualty department, Intensive Care Unit (ICU) or elsewhere. The objective of emergency medical services is to keep the patient safe during the transfer and connect them to the next level of care. So it's our responsibility to make sure that patient can have their journey safe and proper well towards the hospital. Because It is not only the transfer of the patient in an ambulance but also providing care during that period which may involve cardio-pulmonary resuscitation (CPR), ventilation

or any other life-saving maneuver. Because sometime it's very important to give them the proper environment on their journey.

## 4. SOFTWARE/HARDWARE REQUIRED

### 4.1 Software required

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Call Ambulance has been developed by using Adobe XD, Android studio, Firebase. These are the main software which helps us to fully complete the all the targets that we have been using the call ambulance app right now.

Adobe XD is a vector-based user experience design tool for web apps and mobile apps, developed and published by Adobe Inc. It is available for macOS and Windows, although there are versions for iOS and Android to help preview the result of work directly on mobile devices. XD supports website wireframing, and creating simple, immersive, interactive click-through prototypes. Using Adobe XD we got the concept design which was very useful for our App. Using adobe xd we create many design and concepts for our app then making it as a drawable we implement them as background.

Android Studio is the official integrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development. Basically Android Studio has many features and options. When I used android studio first setup SDK tools which is very important for making project than I made a emulator where I run and see my app, how I made it. Android studio has java, resource, gradle. In the part of java here basically I work with java codes, it's a backhand work for a project, and here we implement codes which is need for the app. There are another part which is called resource. Resource is important for designing the app. How the app is look like. Resource has some options named drawable, layout, and values. In the part of drawable we use it to add photos, icons means which type icons and photos we want to set. Layout part basically design part here we create our app button, textview, spinner etc. Values has three part named colors, strings, and styles. This part basically used to set font, styles, and colors. In Android Studio I work on those parts. [2]

Google has developed a platform named Firebase which helps us to build, improve, and grow our app and also using one of the Firebase database options, that we typically write code to query the database in our client app... Firebase with android studio than set Authentication because of sign in and registration. In the part of Authentication here we can see the list of registered people throw our app. Then I set to connect Real Time Database. In the part of real time database where we can see the list of data who want to hired ambulance. Those are the part of firebase works I did. [3]

### 4.2 Hardware required

Microsoft Windows 7/8/10 (32-bit or 64-bit)

3 GB RAM minimum, 8 GB RAM recommended (plus 1 GB for the Android Emulator)

2 GB of available disk space minimum, 4 GB recommended (500 MB for IDE plus 1.5 GB for Android SDK and emulator system image)

1280 x 800 minimum screen resolution.

## 5. METHOLODGIES

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Before starting to develop our app which is known as Call

Ambulance, first we started our research to gain more information about our related works. Then we redesigned our app concepts and

basic look than we modify our features that what we are going to provide which was a perfect classified ambulance's to our user.

Then we started to learn all basics about Android studio, Firebase, Adobe XD. Using design we tried to implement as drawable and use them as background in our android studio project file and for other functions and buttons we started work and design in xml file. [2]

After finishing every xml part we started to develop our main code in java file which was a backend platform.in this we have used many functions and we connect every sub class properly. [3]

And finally we connect our apps backend platform with firebase which helps us to store and retrieve data perfectly for every type of data on real time. [4]

## 6. RESULTS/DEVELOPMENT Id: 173-15-10309

The user interface of our Call Ambulance starts with impressive way which is connected with two separate models named as sign in and sign up activity. The sign in and sign up interface helps user to move into dashboard interface. There are 6 activities stored which is packed with hire, ambulance details, history, payment, logout. In details user can know the type of ambulance car available in the app.there are other activities such as history records the users activity, payment successfully complete the payment process and so on . But in the main activity when it comes about hire, it helps to finish the main process to set destination of hospital of user .Thus it complete its process.

At first we connect android studio with firebase. Than we send firebase authentication which is mainly helped to store sign in and registered information and data .and in this process we easily succeeded to finish the process. Than we connect the firebase real time database where user all trip perfectly stored and we complete the all processed perfectly. And the result comes with its real perfection.

## 6. CONCLUSION/FUTURE PLAN Id: 173-15-10309

In this report we tried to show the concept of the call Ambulance app where In this paper, an idea is proposed for saving a patient's life in a faster way possible. It is beneficial for users in case of emergencies as it saves time. With this Application, the ambulance can reach the patients as location is given through the app and can provide necessary equipment required for the patient's health.

Information about the hospitals provided helps in getting the appropriate hospital which is suitable for the patient's treatment. Hence it reduces the time complexity and helps to provide faster medical services.

There are some future scope of this project can be planned by using some of the similar concepts used in this project. In order to save

lives there are many other factors which can be taken into consideration.

Traffic is one of the most serious issue faced in day to day life in Dhaka city. This can create delay for the ambulance to reach the hospital. Traffic police can help in this if they know the ambulance's current location in advance. For the same, traffic police will be provided with an application which shows the current location of ambulance through GPS. Henceforth, traffic police will be able to clear the traffic in prior making way for the ambulance [2]

There are some other plans where the live feed data sent through the ambulance to the hospital helps in keeping track of patient's health details and reach the hospital without any time lag. Sending patient's health information to the hospitals helps the hospital staff to get the necessary pre-requisites regarding the patient's treatment. [3]

There are some other plans such as we decided to provide ambulance service to those animals when they are injured and face some accident. And if any pet lover notice that they can easily use our Call ambulance app and it can provide its best service.[4]

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