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A Survey on: Android System for Public Services

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Abstract - In Today's world, Android is one of the most widely used technologies. It is being used in various fields like gaming, communication, social media, shopping, and daily organization, etc. There is one more field where android technology is being used such as public services like Police, Hospital/Ambulance, Fire, Transportation, and Food/Restaurants, etc. Their existing applications or web services which provide these services to user but through different application. The existing system are developed using simple SMS facility. Here, propose a system which is not only based on SMS facility, but also include Internet Based facilities like Wi-Fi, GPRS, and GPS, etc. Now days, security is an essential component for user, so we have also provided security as well as anonymity. This application is user-based i.e. anyone can use it.

Key Words*: Emergency Services, Android, SMS-Based, Internet-Based Facilities, EB, GPS.*

1. INTRODUCTION

Android System for public services is a location-based system which is used for safety purpose of the user. Nowdays, an android mobile is available with every next person. An android application can be used for both personal or in the business. So, these android applications can be used for helping people in emergency situations.

Consider, a person who usually receives assistance from the emergency services like hospital, police, etc., but in most of the situations these services are not received at the right moment, as the public nearby hesitate to help the person in need. Location Based Services provide public services to all the people based on their current position using Global Positioning System (GPS) and Wireless Communication (WC) technologies.

Using the location-based services, people who want to search the nearest Hospital, Police station, and Fire in case of emergency. The person in an emergency or anybody at the emergency site will send message using the location-based emergency services. According to those message received by the services, the emergency team will provide immediate response to the respective user.

2. LITERATURE SURVEY

As per 'World Road Statistics 2015' released by international Road Federation, Geneva, India recorded the second highest number of road accident fatalities per 100,000 populations, which was at 11. Russian Federation topped the list at 19 per 100,000. 1,374 road accidents take place everyday resulting in 400 deaths. This number translates to 57 accidents every average hour and resulting in the deaths of 17. That's a high number by any standard and should be a major cause for worry for all stakeholders that use and manage roads and highways in the country. In the year 2015, as per the survey of Indian governments ministry of road transport and highways departments, there were near about 5, 01,423 lakh road accidents in India, as against 4, 89,400 lakh in 2014. The number of deaths in 2015 was 1, 46,133 lakh as against 1, 39,671 lakh. The number of people injured from these accidents was 5, 00,279 lakh in 2015, as against 4, 93,474 lakh in 2014. There is loss of life due to the delay in the arrival of ambulance to the hospital in the last minute. When a vehicle meets with accident, it immediately sends its GPS location to the services. The database of the system has contacts provided by the users. The user selects the nearest ambulance to the accident spot using the database containing the details of free ambulances at that point of time.

Mobile applications are the best way to keep the consumers busy. As the increasing demand for smart phones and the efficiency of wireless networks, the demand for mobile applications has increased drastically. Android is one of the most popular open source platforms. As it offers the developers to access the framework API's to build innovative applications. The main aim of this system is to build an Android application that helps the users to get the emergency service as fast as possible. In our day-to-day life, we use different types of application based on Android. In market, there are various SOS based application are developed using Android platform. The SOS application is Google–Map based application which helps in finding emergency services. The SOS tracking system uses the Location tracing system by using GPS based Localization in order to help people. Emergency occurs anywhere at any location, at anytime and in various ways will make one at risk and require a speedy response. The

emergencies include Fire, Medical Emergencies and accident, etc. In this paper we present a system for Emergency Services, which enables location-based service available in smart phone. Location Co-ordinates are sending on each request. The common man can make use of this system in case of any emergencies. As a part of literature survey, we have gone through women safety applications that already exist in the market. The motive is to observe the working of these applications and in what way they can be improved and how they are different. In the survey, it is been observed that the Android App for women safety are better and are offering relatively similar service.

In the survey, we have studied various social emergency alert service which selects nearby members of the social group of the victim and notifying them about the victim's need for help and the victim's location. When an accident happens the message is send by the user/victim to control room or a rescue team by using GPS Technology. GPS is a group of more than 24 communications satellites that transmit signals globally around the world. Using a GPS receiver, anyone can quickly and accurately determine the latitude, the longitude, and in most cases the altitude of a point on or above Earth's surface can determine. Due to short circuits in many areas there are chances of fire generation. So at that time Fire service is required. If the service is not provided at moment then there is possibility of great loss. In most of the countries, there are senior citizens who stay alone, away from their family in old age homes or alone by themselves. Suppose if we consider emergency situations like fire at home due to some unfortunate conditions and as being alone or sleeping at home leads to major injuries and even sometimes death. The security of women at night and at times even in day when travelling alone is a concern. If in any case the emergency situation occurs, the ambulance and other service had reached the spot late hindering emergency medical treatment, and then any heinous crime may happen with the women. In this situation the nearby police can help to the helpless women in that area. They can reach as fast as possible using the emergency application.

There is a free telephone number for emergency services in India. It is currently operational in 20 states (Andhra Pradesh, Assam, Bihar, Chhattisgarh, Goa, Gujarat, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Meghalaya, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttarakhand and Uttar Pradesh) and two Union Territories (Dadra & Nagar Haveli and Daman & Diu.) The 108 Emergency Response Service is a free emergency service providing integrated medical, police and fire emergency services. The service is a public-private partnership between state governments and private EMS providers. This NAS system was introduced by Central government of India. When an emergency is reported through 108, the call taker gathers the needed basic information and dispatches appropriate services. Basic information obtained includes:

- Where the call is placed from. (district / tehsil /city / town / exact location / landmark)
- The type of emergency.
- Number of people injured and the condition of the injured.
- The caller's name and contact number – for location guidance if required.

The caller needs time to gather this information, till that time the ambulance reach to the specified place the patient may unfortunately die.

So as per the survey, we are developing an android application which will provide basically three emergency services as well as one Emergency Button (EB), which will give the nearest location of these services with the location of the user and using the EB the message is send to the contact numbers.

2.1 EXISTING SYSTEM

There had been many separate development on emergency services and SOS applications, but some of them didn't have few limitations like portability, reliability, and ease of usage. Making priority is one major issue. Also they may not be suitable for personal emergency for a common man like handicap adults or old-age citizens.

In existing system, the user sends help request on helper's phone with its location. Then the nearest person from the social group receives a request. After receiving client message based on the distance of the victim whether to display the alert request or not id decided.

The existing system describes about an SOS application developed in android platform. The SOS application available is that the user need not spent time in searching menu inside the phone. Many applications available in the market send a message to the number registered but not the location of the user. Because of this drawback the location is not traced exactly and the emergency service is not provided on right moment.

2.2 PROPOSED SYSTEM

In our proposed system, we have used three emergency departments. In this an Emergency Button (EB) is also used for sending an instant message to Fire, Police, and Ambulance. The victim/user can also send the separate message to particular system. At the same time the number saved by the victim in the system also gets an alert message for instant help. It uses the GPS for finding the location of nearest service.

The application needs GPS service to be available in the mobile phone for full functioning. If the mobile phone does not have GPS service, then this application will show an error message, but still sending the message to the registered contact numbers. This feature is very useful for those users who don't have GPS enabled mobile phone.

Let us, illuminate certain points in order to understand the situation and need for this application:

- Unable to contact during emergency.
- Unable to reach nearest hospital in case of emergency.
- Unable to find the route to a hospital, police station in case of emergency.
- Unable to save some important locations and their route.
- Unable to send multiple messages during emergency.

In this system includes some modules for the user:

1. **User Module:** User raises the issue in case of any emergency from his/her Android Application with message. User's location tracked with the help of GPS. All the details of user location is send to the services for further assistance.
   - User Login/Registration: Here the user has to register his details and create a login account by providing User ID and Password.
   - Account: The user can change their own number as well as the numbers of friends/family members saved in the database while registration setting.
2. **Service Module:** We implement sub modules in service module;
   - Fire
   - Ambulance/Hospital
   - Police
   - Emergency Button (EB)

This System is motivated by the observation that police and ambulance units often reach too late on crime scenes and people unknown to victim are often helpful. The Proposed system is an SMS based system which is simple and fast mechanism to call for help in necessary situations. We propose system which overcomes the so-called bystander effect. Nearby people often do not recognize or take responsibility for ongoing emergency situations.

We motivate an emergency alert system that makes use of the wide availability of smart phones and inform nearby emergency services and send message to the contacts provided by the user to the system. It requires no more interaction from a victim/user, just a simple click on a smart phone.

3. ARCHITECTURE

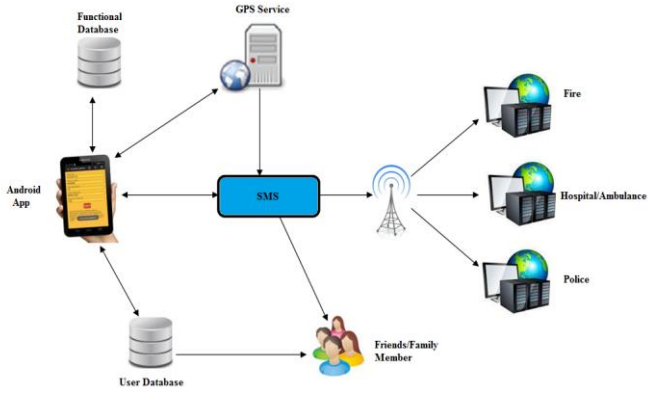

Fig. System Architecture

When the app is started during the emergency situation, the user will have to select the respective emergency service or click on the emergency button (EB). By selecting any of the services or EB the user's location is tracked and saved in the database at the same time the nearest emergency service is showed to the user. The user may send the predefined message or edit the message and send it to the respective services.

When the victim click on EB, a predefined message is send to the friend /family member's phone numbers, which are already saved in the user database during the registration phase in the app for the first time.

CONCLUSIONS

We have concluded that this proposed system is user friendly and easy to handle. This system is simple & gives fast response to the user/victim in need. Additional features like sending messages by simply shaking the phone, on a single click in emergency situation on Emergency Button, user's current location is send to the emergency services and to the friends/family members (which are registered in the user's app). In this system user can send message through WhatsApp, Hike, E-Mail and SMS, etc. because it uses both online & offline services. This system is based on GPS service which tracks the exact location of the user/victim and provides immediate service to the user. So, this system is having both safety & security which is important in today's world.

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