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Research on Emergency Call and Location Tracking System with Enhanced Functionality for Android

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Abstract: Android is an operating system for mobiles which is based on the Linux kernel and currently developed by Google. Android is full featured and lightweight. Most of the Android applications are written in Java-like language that can be ported to new platform easily thereby adopting huge number of useful mobile applications. This paper elaborates the enhanced functionality of the emergency call for android. This is an application that people activate on mobile phones before you might get into an emergency situation. Then the people have to only press this application present on the home screen. Soon the device will send an emergency call or message to a friends, family, police, and doctors and send the exact current position. This system will help to people who fall into a situation where instant communication of their situations becomes indispensable to be informed to certain authorized persons.

Keywords: Android, Call, GPS, Location Tracking, SMS.

I. INTRODUCTION

Now a days security of women at the night and at a time even in a day when travelling alone anywhere is a big concern. Various terrible crimes have been occurring in the different parts of the country. New Delhi, the capital of India is a big eyewitness of such a crime. Along that when any person travel longer distance from the home in unknown areas, their security is an important concern also. It has been observed that the instance communication of message of one's locations precisely is a problem.

This paper describes Emergency Call system developed in Android platform. The individuality of this application separately from other application available is that the user needs not waste time navigating inside the phone menu i.e. to unlock the screen, to initiate the service. Instead of this they can directly press or touch the button and thus sending the location of that user in terms of latitude and longitude also name of that area along with the link of map which will show the location with the help of GPS. The location will be send to the pre-registered phone numbers in the application. There are many such applications available in the market which sends a custom message to the number registered but not the location of that person also these applications are not able to send message again and again after some interval of time. But in this newly proposed and verified application the longitude and latitude information which gives the universal idea of the place of the current position of the mobile user is attached with the custom message that had been originally set in the application. And then this information is conveyed to the phone numbers which is registered already. So thus this newly featured application supports to find the exact location of the person in need also it will be so beneficial in tracing the location of occurrence easily at latter time.

When your Android mobile is locked with the default pattern, it is easier to open and use an this emergency call system. Emergency calls services are accessible to any of your contact number. The phone will allow you to make as many emergency calls as needed. The Android phones will only dial emergency calls which ever we assign and the location in the form of message. In the Android OS, we can create shortcuts to emergency numbers as well as take it a step further with the Maps app. Using Google maps we can send the present location where we are and send it in the form of a message. The main scope of this

app is to call and as well as message (SMS) the present location where we are, to certain selected contacts by activating the app on to the home screen.

Another aim is to repeat the same process i.e. calling and message sending after some interval of time to the other contact. In the same way message in the form of SMS i.e. the location will be sent to every number. This will help when the previous call is disconnected or does not respond to the SMS. Also this system is capable to send link of map which will give the travelling road from user to the persons who got this emergency message. After receiving the message or call the person reaching to the emergency situation can reply to the rest of the persons whose numbers have already registered. Also this system will automatically find the police station, hospital nearer to the user and then automatically can call to these numbers repeatedly and also can send SMS repeatedly. This feature of the application not only helps in finding the exact location of the person in problem but also will help the police to trace the location of incident at latter time easily.

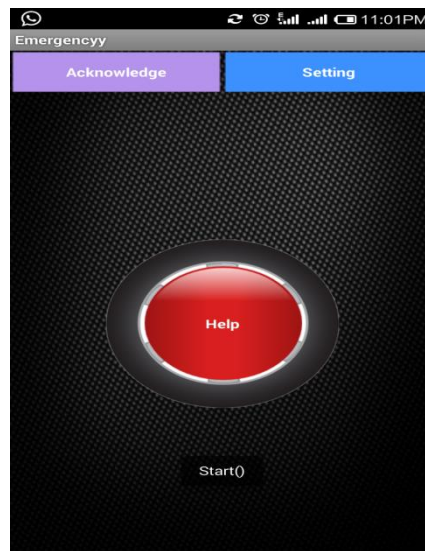


Figure 1: Emergency Call System

The above figure shows new proposed application present on the home screen of the mobile device. Only user have to press this button or only shake the mobile device and then the system will work accordingly.

II. LITERATURE SURVEY

Rashmi A. Nimbalkar[1] developed a “Domain Specific Search Of Nearest Hospital And Healthcare Management System”. This system locates nearest available hospital, contacts its ambulance emergency system, accesses a Electronic Health Record of emergency patient that can critically assist in pre-hospital treatments. 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.

Dhrubajyoti Gogoi[2] proposed “Android Based Emergency Alert Button” which is a SOS application which works on android platform. This system helps those sections of the people who unexpectedly fall into a situation where immediate communication of their situation becomes necessary to be informed to certain persons which will helps them in this condition. The proposed model is designed and implemented with the objective that it has to be user friendly and triggering of the application should take least time. The location of the user in problem should also be precisely known to all those persons whom message has been sent.

Yuanyuan Du[3] emerged “An Android-Based Emergency Alarm and Healthcare Management System”. This system is mainly deployed in an android-based phone that is conveniently used and carried. So this system is suitable for most of the people. 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. It can also manage 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 phone. After that the life reminder system can remind the user to take medical on time and so on.

III. PROPOSED SYSTEM METHODOLOGY

- **User Handler Phase**

In this phase of the proposed system user are capable of saving the numbers which they want to send SMS and calls for help in emergency situations. This phase is very important in the perspective of connecting to the people in their family, also with the hospitals and police stations. Using “Setting” button present on “Help” button of mobile screen user can save, edit, and delete any contacts numbers and make changes which they want.

- **Location Tracking Phase**

Location tracking is the most valuable and promising phase in the proposed system to make the system more enhanced and useful. With the help of GPS the system i.e. mobile device will automatically track the location of user from Google Map. The device will track the location in the form of longitude and latitude along with the address of that area where the user is present. Along with tracking the location of user the system is able to track police station and hospital which is located nearer to the user so that the system will send messages and calls to contact the police station and hospitals. Many a systems fails to find exact location of the user but proposed system had worked to improve this phase. But this newly proposed system is able to track the exact location of the person who fall in the emergency situation and unable to help themselves. Figure shows the exact location of the user with the help of Google Map using GPS system.

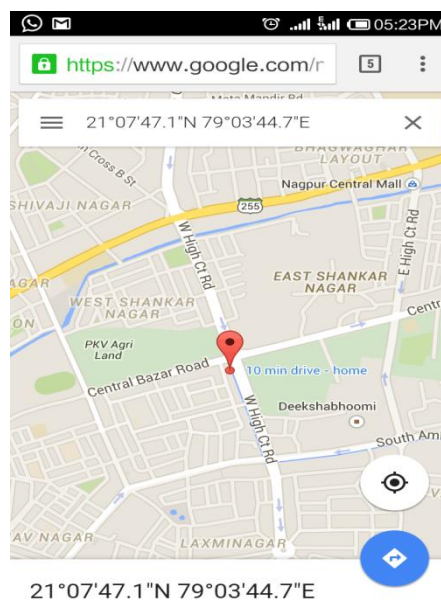


Figure 2: Location Tracking of User Using Google Map

- **Message Sending Phase**

This proposed system tracks the location of the user in the form of longitude and latitude and along with the address where the user is present in any area. As soon as the user press the button present on home screen of the mobile device or shake the mobile, the device will send emergency SMS to the pre-registered numbers. This message will contain longitude and latitude values, address where user is present, and also link of the Google Map which will give route to reach at emergency situation. This system will send message repeatedly after some interval of time. Figure shows how system will give the location of the user in the form of longitude and latitude and also with address and the link of the route to reach that person.

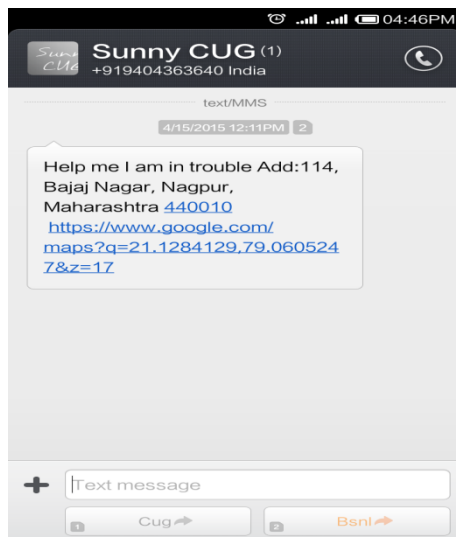


Figure 3: SMS Showing Location Address and Link of Google Map

- **Call Dialing Phase**

In the proposed system as soon as the user press the button present on the home screen of the mobile phone or only shake the mobile, the mobile is able to make call automatically to the pre-registered numbers. As the call gets connected and receiver receives the call the user can talk to make request for the help. Otherwise there is another facility available i.e. as the receiver receive the call, they will hear audio clip which will help to know that user is in trouble.

- **Acknowledgement Phase**

If in any circumstances after sending emergency message or call, the user is safe and he/she don't have anyone's help so he can send acknowledgement (i.e. he/she is safe and the SMS receiver has not to worry about the user) to the all numbers to whom user has sent the messages and calls. Along with that if any person reaches at the location where the user falls in emergency situation, they can send acknowledgement to all pre-registered numbers. Acknowledgement can be send by pressing the "Acknowledgement" button present on the "Help" button on home screen of mobile phone.

IV. CONCLUSION

This Emergency Call Application for Android with Enhanced Functionality is immense useful for the people who falls into the critical situation when they comes out of home or goes in unknown areas. Now a days lots of unwanted crimes has being occurring, so this application will helps in such situations. This application is very user friendly and takes less time to trigger. This application is freely available and runs on Android handsets. Thus it increases the importance of mobile phones and provides best security to the peoples.

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