Detection of Lost Mobile on Android Platform

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Abstract__ **This paper particularly handles to create the application for android mobile phone to find a lost mobile. Once we installed our application in the mobile, its starts to get the latitude and longitude value of the lost mobile by using the inbuilt GPS in mobile. The mobile traveling from one place to another place the value of the latitude and longitude is continuously changing and stored in the memory. But only the latest value is stored in the memory. Once the old SIM card is removed from the mobile it waits for the other SIM card to be inserted. If other SIM card is inserted then, our application will compare both the SIM card numbers. If both the SIM card number matches, it should be idle. If both the SIM card number is mismatched, then the present latitude and longitude value of the mobile is sent as the SMS to the specified phone number. The location tracking process is run as background process by using Android service and it automatically repeats sending this information in a specific interval of time. The results from this process composed of position and Mobile's particular information: SIM code and IMEI (International Mobile Equipment Identity) are sent from the lost mobile to the recipient. The results are displayed in two interface modes which are text message and GUI on Google map.**

Keywords__ **Subscriber Identity Module (SIM), Short Message Service (SMS), International Mobile Equipment Identity (IMEI)**

I. INTRODUCTION

One of the most interesting things about cell phone is that it is really a radio an extremely sophisticated radio, which uses some band of frequency that has the basic working similar to the ordinary cordless phone. The mobile cellular communication has been appreciated since its birth in the early 70's and the advancement in the field of VLSI has helped in designing less power, smaller size but efficient transceiver for the purpose of communication. But however the technology has not yet answered the loss or misplacement of the lost mobile phone which is significantly increasing. In this paper we discuss the problem and the probable solution that could be done. The IMEI number is a unique number that is embedded in the mobile phone. The main purpose of which is the blocking of calls that is made by unauthorized person once the mobile is reported as stolen but here we use it effectively for the purpose of detection of lost mobile.

II. ABOUT IMEI

 The GSM Mou's IMEI (International Mobile Equipment Identity) numbering system is a 15 digit unique code that is used to identify the GSM (Global System Mobile) phone.
When a phone is switched on, this unique IMEI number is transmitted and checked against a data base of black listed or Grey listed phones in the network's EIR.[1]
DESIGNING OF SNIFFER
As stated this proposal is about the detection of lost mobile phone and for this purpose we are designing a new device called the Sniffer. The sniffer device has to be designed precisely and size should be reduced for easy mobility for the purpose of detection. The device can be called as a mobile base station that includes the following important components.

a. Sniffer base station

b. Design of unidirectional antenna

c. Software for the tracking

A. *Sniffer base station*:
The sniffer is a small base station, it includes transceiver section. It should operate at a frequency that is much different from the frequency of the current cell in which the operation of detection is being carried out. Some of the main important things are the frequency that has to be generated by the transceiver section is around 900MHzrange which is a VHF range and it is necessarily to design the oscillator circuit for that frequency range .Another important is the cooling that has to be provided to the circuit while designing the circuit that is to be operated at 900MHz range of frequency. Hence proper design of base station is an important thing in the design of the sniffer. Mobile phones as well as the base station has low power transmitter is also transmitting at low power. The transmitter of the sniffer has to be a low power transmitter. This helps in the process of reducing the interference of the device with the devices that are in the other cells.

B .*Design Of Unidirectional Antenna*:
Though the transceiver in a sniffer plays an important role in the detection of the mobile phone but however it is the directional antenna that has a major role in the design of the transmitter. The directional antenna acts as the eyes for the sniffer for the purpose of the detecting the lost mobile phones. Hence the proper design of the directional antenna is required. Antenna is a device which works at specified frequencies range for transmitting or receiving the data signal. In general, antennas transmit power depending on lobe pattern Register). This EIR determines whether the phone can log on to the network to make and receive calls. To know the IMEI number the *#06# has to be pressed, the number will be displayed in the LCD screen it is unique to a mobile phone. If the EIR and IMEI number match, the networks can do a number of things. For example grey list or black list a phone. Grey listing will allow the phone to be used, but it can be tracked to see who has it (via the SIM information).

C. *Software for tracking*:
The software part plays a major role in the tracking of the lost mobile phone It is the base for the antenna to track the lost mobile the main feature of this software is that it helps in the process of creation of the data base and this is mainly done using a Random Access Memory. The mobile phone that is lost has certain IMEI number that is embedded in the chip.
This RAM of the sniffer device stores the IMEI number of the lost mobile phone. Thus this acts as a Data base or the directory of the lost mobile phone number/The software that is to be designed in such a way that the software has the in put as the IMEI number of the lost mobile phone from the RAM and this ID done u sing the SQL query that fetches the IMEI number.[3] After getting the input of the lost mobile phones IMEI number it checks the comport for getting the information whether it obtains any signaling information from the lost device that might respond to the signal sent by the sniffer The programming is done with C or Java. However the C is most preferred as it is easily embedded with the chips. With V B the front end is designed. The oracle SQL is the back end as it helps in retrieving the input data from the RAM using the query. But however the sample program that we have designed does not use the oracle it takes the input directly from the keyboard and this is an example and a dummy program that has been created that helps in the understanding of how the device would work.

III. PRELIMINARIES

A. *The Outdoor Localization System:*
GPS is a system used for the purpose of finding the position of particular object. This system receives satellite signals and determines the location of mobile device. The system can be classified under two types of data transmission.
 i. SMS data transmission:
 This system requires user to send request via SMS on a device of which a GPS tracking device is installed. After that, the device will send the co-ordinate of its respective position and identity to the recipient mobile via SMS. This co-ordinate can be represented on a map software by using Google Map.
 ii. GPRS (General Packet Radio Service)data transmission:

 This is a GPS tracking system which sends the position of the tracking object every single minute from SIM card of lost mobile to the respective mobile. Because this system is a 24/7 service, GPS is widely used in outdoor localization system; it does not perform effectively in indoor location. This is because it lacks the ability to pierce through building wall and requires custom infrastructures for every area in which localization is to be performed.

B. *The android platform system*
Android is a platform for mobile device developed by Google. It gives a wide set of software development operating system, tools and APIs necessary to built applications. Android is recently used in developing mobile application. Furthermore, Android service was created for retrieving mobile particular information and running the data monitoring process from the lost mobile as background process, which will not be identified by the thief.

IV. SYSTEM IMPLEMENTATION

A. *The implementation is done with the following task*:
To Getting the Latitude and Longitude value of user SIM card number Comparison and identity Automatic message sending system.

B. *To getting the latitude and longitude value*
Once our application is installed in mobile phone, its starts to get the latitude and longitude value of the mobile phone by using the inbuilt GPS in mobile phone. The mobile moves from one place to another place the value of the latitude and longitude is taken and stored in the memory of the mobile phone.The application always stores only the latest latitude and longitude value of the mobile phone in the memory.

C. *SIM card number comparison*
In lost Mobile, Once the SIM card has removed from the mobile it wait for the other SIM card to insert.If other SIM card is inserted then, our application compares both the SIM card number.

D. *Automatic message sending*
If both the SIM card number matched, the application remains quite. If both the SIM card number mismatches, then the present latitude and longitude value of the mobile will be sent as SMS to the specified phone number.
As Every five to ten minutes the updated latitude and longitude value is sent as an SMS to the tracker phone number.[3]

V. CONCLUSION

In this paper the android application for tracking the mobile phones is created and installed in a mobile phones system. This application basically works with the help of in built GPS in the mobile phones. When the unknown user tries to change the SIM card in that mobile phone, the current longitude and latitude information is sent as SMS to the specified phone number without the knowledge of user. Using the longitude and latitude values the exact location can be found using Google maps. Now a day Android technology is rapidly

gaining the market, this paper provides a clear view on the development of mobile detective system.

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