MOBITRACK:A COMPARATIVE STUDY ON ANDROID MOBILE TRACKING

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ABSTRACT

Mobile tracking applications are widely in use today. Focusing on the currently most popular mobile platforms, android applications are in great demand. This paper proposes MobiTrack - an advanced model for tracking which primarily monitors the smartphone's location through any type of available networks. The fundamental function of this app is to retrieve and store the diverse kinds of data being generated continuously in a smartphone. The supporting utility   However, this was a challenging task due to extensive forms of data and retrieving cached data accurately in real time to an online database. Furthermore, the android-based MobiTrack is compared with existing mobile tracking applications in terms of capacity and throughput.

Keywords : Global positioning system(GPS),short messaging system(SMS), GooglemapAPI

INTRODUCTION

A wide range of mobile tracking applications are available now a days. Our application not only track the location, it also track all the calls ,messages, browsing history and all applications installed in one's phone. We proposes a cost-effective way of tracking an android mobile. Location based service can be elaborate as the services which uses the users geographical location which consist of X and Y coordinates, which is generated by GPS which acts as positioning device. Apart from using GPS technology, it also uses WiFi or 3G/4G network for tracking. This application enables the user (a) to track a mobile device and send alerts messages to a predefined number via short message service (SMS) if the mobile device is not present in the specified radius or in an interest location radius (b) to send distressed calls to a predefined number via SMS (c) for detecting an unauthorized SIM card in the mobile phone and to send a warning message via SMS from the current GSM cell and GPS position. MobiTrack also maintains a record of the positions which are already monitored. This allows the users to check when and where the mobile device was located using Google maps. The application uses two user profiles the administrator and the user to be tracked. The data could be logged to an online server. Different features are included by modules such as geo-fencing, location-sensing, network tracking, location retrieval through SMS etc. The system consists of two sides - a server side and the client side. Similar to the concept of a parent-child , the server system implements a monitoring service by initiating a SMS request to its client devices. The server is further designed to have access and control of its connected devices with a registered login ID.

APPLICATION

Every day the features and capabilities of mobiles are increasing surprisingly. Location based services can be used for the navigation where one can get the exact route and directions while moving to a new place and push services like advertisement and marketing information are send to the user for particular

geographical area. We know that parents play an important role in a child's upbringing. It is believed that with this knowledge and information, parents will be able to protect their children from high–risks. We focus on child tracking system so that parent can know the locations child visited, incoming and outgoing calls, message history etc. Another use of our App is for a marketing firm to track their salesperson. If this app is installed in a salesperson's smartphone, the company can easily track its employees locations so that they can make sure that he is visiting the target places they specified. This app can also be used to find the lost smartphone even though the SIM is changed. It can still track the locations and calls made or messages received/sent if the phone is connected to any network. The information are saved to the database once the phone is connected to any network. This android app make the Police investigations helpful if the phone got from crime seen has installed this app. The system established a Map service that

helps policeman to identify the Location of accident if occurs. So Location Tracking basically includes searching friends, security of child, security of products for business perspective, vehicle Tracking etc. The application maintains log file which contains user messages, browsing history and call details and it is messaged to the concerned party

RELATED WORKS

Ameet Chatwaal et al developed an Android based LOGLIFE project which is analogous to Tracker application. The application maintains the log of all the places visited by the mobile user. The current Location of the mobile user is also shown on the map. This is a simple user friendly application.

C.Vinothkumar et al proposed a Wireless sensor Network based Locating Tracking algorithm for shipment Industry. The algorithm works in both Indoor and outdoor environment.The Technology used to implement the system are Wireless Sensor Networks. The system finds the Location of objects which is helpful for shipping industries.

MOBILE TRACKING APPROACHES

The Location Tracking techniques can be worked with all today's market cell phones with networks such as GSM(Global system for Mobile Communication),GPRS(General Packet Radio Service) and CDMA(Code division multiple access).

A. GPS

GPS is a world wide used navigation system. The system consist of networks of 24 satellites in six different 12 hour orbital paths. one can determine the Longitude, Latitude and altitude of device.GPS gives much higher accuracy as compare to cell identification, but it updates the location of device after every 5 sec.

B. SHORT MESSAGING SERVICE

In this method the smartphone user can first login to use the android application, then he can insert an additional phone number in the application. The user can also update or delete the previous phone number what he inserted before. One user may have several phone number, so when he change his SIM card then a message will be delivered at that inserted number and charged some money from his current balance. Then you have got the thefts phone number and   instantly you should report that phone number to local police. Also we can send a message to the phone which is to be tracked,so that it reply with all the details about the location,calls made, message history etc.
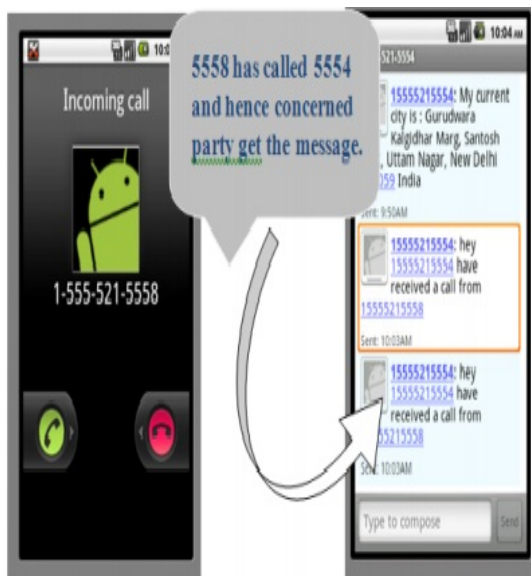

Message Sending
Client
Admin

C. CALL TRACKING

By this approach we can track all incoming and outgoing calls of a client in which the android application to track the smartphone is installed.

The figure shown below depicts that when 5558 emulator has called 5554 (as in left side emulator), the application has automatically sent the call details to the concerned party.

Whenever a incoming or outgoing call is detected it is saved in to the online database. A admin can send an SMS to get all the details about the call history.

Mobitrack will reply the admin with a messge containg the details about missed calls,incoming calls and outgoing calls.

PROPOSED MODEL

Mobi-Track is a mobile application developed for Android smartphones that gathers necessary information from a client's Smart Phone, which can be used to analyze the user's characteristics, location, area of interests etc. It also act as an online backup utility where data can be stored and retrieved from an online server thus eradicating panic for unexpected loss of data. Whenever the App gets installed in the Android Phone, The proposed system starts tracking all the details of the client's smartphone, which includes location coordinates, network details, Mobile OS details, Hardware Details, Call logs, SMS, Installed Apps, Browsing History etc. These details are first stored in local memory and whenever there is an Internet connection, these are transferred securely to the online server. Mobi-Track continuously monitors all changes in the system, such as call invoke, SMS reception, location variation etc. and are effectively retrieved and stored in the server. A registered user can log in to the server and can observe the victim's uploaded information. The registered user can even use his/her mobile to send a SMS to the victim, so as to retrieve the location and other details directly via SMS. If the services are stopped by the victim, it can be restarted via another SMS. Mobi-Track function as a hidden application and the user cannot alter the retrieved information.

COMPARATIVE STUDY

By comparatively studying the papers we can know the limitations of each paper. So we can include more features to the existing system by which it will become more efficient and provide ease of use The main aim of comparison is to find out the cost-effective and easy way to find out the tracking methods for a smartphone.

In all other papers, we have seen that either the location tracking or the call tracking is implemented.None of them provides all these services together to track a mobile. So we hereby implement all the services in one application to track a smartphone.The services our App provide include:

    a) location tracking

    b) Call tracking

    c) Retreiving message history

    d) Retreiving browsing history

    e) Information about all the apps installed

Location Tracking always mean that getting the latitude and longtitude coordinates and sending it to the phone by GPS. To calculate the exact location of GPS user, one can know the exact position of satellites at all the times. The limitation of GPS is to locate device indoor. It works only outdoor not indoor.We use GPRS services to locate the mobile in indoor.

Comparitive table

The figure below shows the table that compare other applications with our MobiTrack.

Papers	Location tracking	Message retrieval	Call Tracking	Retrieving browsing History	Information about installed Apps
Location tracking	✔				
SenseTrack	✔				
Dope Hunt	✔	✔	✔		
Location tracking by GPS	✔				
Short messaging system	✔	✔			
MobiTrack	✔	✔	✔	✔	✔

Fig. 1. Comparison between different applications and MobiTrack

CONCLUSION

MobiTrack is an android tracking application which is designed to work on android 2.0 and above versions. In this paper we compared other applications with our MobiTrack. It is a complete detail retrieving application which will start tracking mobile information, whenever the app gets installed in the victims Smartphone. The applications we compared provide some services like location tracking, call tracking etc. But our MobiTrack is an integerated software that provide all kind of retrieval tasks. Whenever there is a change in the victim's smartphone, ie , an incoming call or sms, the proposed system tracks the corresponding event and updates In the online server. Geofencing and uninterrupted location tracking is one of the major feature of this application. This application also provides a user-friendly environment. Once the victim turn off the services, the registred user can restart the services sending a simple sms to the victims

mobile. The registered user can also derive the details via SMS.

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