

Child Digital Monitoring and Controlling System

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ABSTRACT

The world is changing rapidly due to information technology, and all the people around the world are busy with their jobs, and business, adjusting to this race. Now, parents are giving more time at their business, office, and jobs, instead of passing the time at home, but they always get worried and scared about their children due to abuse of Information Technology and the country's law and order situation. So, parents are wanted to track and monitor their child's activities and location from anywhere to resolve their pressure. But is not possible for every parent to monitor their child physically due to many reasons. This paper presents a system that will help parents monitor their child activities from anywhere using a mobile phone to solve the problem. This android app uses global positioning system (GPS) and mobile services to find the child location and secretly stored all the call logs, short message service (SMS) logs, contact lists, and accurate locations without knowing the children. Children assume that they are using Face book, browsing the net or watching videos from YouTube. It will not hamper any activities of the child. Parents can check all the activities of children using this app.

Keywords: Child Monitoring, GPS, Location Tracking, Application

I. INTRODUCTION

Now daily 80% of individuals on the planet having smart phones use people for different purposes. The most issue of child tracking system android application. The android application uses SMS services and googles geo assistance in locating the missing child's location by the survey of missing children in 2004. There are of total 5996 kids are missing. Out of those only 4092 children return or were found by police. However,

1904 children are missed. And also the kid's ages 14 years and 17 years are missed or ran far from home. The oldsters are worried about their children. By missing the youngsters the parents are scared to go on a family trip. There are many chances to miss the child on the trip. The project is developed for those parents who have worried to miss their child. In Today's world, most of Child's have smart phones. With the assistance of smart phones, geo, and SMS-based tracking applications parents can watch on their child. Geo is

combined with GSM-based SIM card into mobile to look at on Child's location. The google geo uses longitude and latitude to trace the placement the SMS(Short Message Service)is used to communicate child side and parent side applications. SMS service is used when mobile phones don't support internet connectivity. System ready to send the child's smart phone's exact location in the parent's smart phone when parent demand to test the child's location.

II. LITERATURE REVIEW

Al-Mazloun *et al*

A smart mobile phone provides various up to date services to us. Using the global positioning system (GPS), we can get to know our devices' geographic location and give information through hort message service (SMS) service. Al-Mazloun *et al.* used these two services in their proposed system. They introduced GPS and SMS-based child tracking system using smart phone.

Al-Mazloun *et al*

This paper describes how a smart mobile phone helps parents track their children in real-time. Most kids and parents use an android mobile phone, and they know the mobile phone's available service. Their proposed system consists of two sides, the child side and the parent side. A request SMS goes to the child's device to know the child's exact location from the parent device. After getting the request SMS, the child's device replies to the parent's device's GPS position.

Kothawade *et al*

This paper proposed a system "multi-platform application for parent and school using GPS tracking". In this paper, they developed a GPS based application system for an organization and parents mobiles. The organization can use this application for monitoring and tracking the location of the school buses. Parents can get the addresses of their children and locate them on his/her mobile devices. School authority also can monitor and track the school buses timely and ensures the safety of children. It also allows parents to track

real-time information about the school bus during travels.

Almomani *et al*

This paper proposed a system with two types of applications a web application and a mobile application for a user facility. A user can access this system at any time from anywhere. There are two sides: client-server. The server-side carries a GPRS, a web, and an SMS server, and the client-side contains a GPS tracker and a GPS modem. The user information is stored in the database on the server-side.

Al-Suwaidi and Zemerly

There is another similar concept used by Al-Suwaidi and Zemerly in their proposed system named "locating friends and family using mobile phones with a global positioning system (GPS)". They have also developed two approaches: the client-server approach. This paper showed both clients have the same control and command privileges, whereas the other system does not provide it.

Gao *et al*

Gao *et al.* developed a security method named child guard on smart devices for observing children's activities in real-time. Guardians used this system at a low cost, and they can get better benefits by using this system.

Satish *et al*

Satish *et al.* described their paper about an android application used to track missing children. The android application works with two services: GPS and SMS service. The GPS is used to track the location of the missing child. If GPS service is unable, the application can work with SMS service by sending and receiving the message.

Bhoi *et al*

There is another paper where the researcher Bhoi *et al.* implements a project based on a particular area for each child. When the child comes out of this specific area of their school, then an alert message sends to the parent's mobile phone by using a panic switch.

Saranya *et al*

Saranya *et al.* proposed a child monitoring system based on android phones for the children's security. This system helps the parents to know whether their children are safe or not. This system consists of two functions. The software hand function monitors the child's activities, and the danger zone function alerts the guardians about their children's location by using GPS sensors, acceleration sensors, and mobile geographic information systems GIS.

Subramanian and Govindarajan

Subramanian and Govindarajan, discussed different type of Location Prediction Techniques in their study. In this paper, they have used data mining techniques to find mobile users' movements' locations.

Kaittan et al.

Kaittan *et al.* designed a monitoring system for infant baby in "Smart management system for monitoring and control of infant baby bed". This paper designed a baby bed with an intelligent system and used the sensor to monitor the baby.

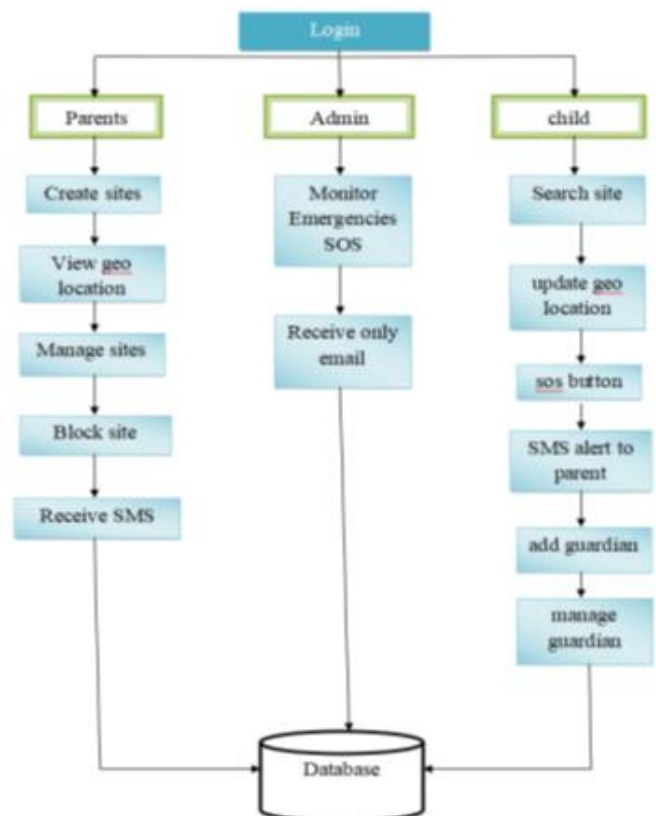
Okilas et al

Okilas *et al.* designed a "Location-based service for information publication using GPS on android-based mobile phone". In this paper, the difference in the accuracy of the GPS readings used in mobile the shifting point is about 18 meters. Table 1 shows recent child tracking researches, methods, and limitation of current researches. In the discussion, most researchers focused on children monitoring systems to protect them from any unwanted accident, missing, and making them secure and safe. But in our research, we introduced a system that will be used to save the children and be used to observe their mobile activities without children's consent.

all the call logs, messages and contact list from the child mobile phone.

- Parent can locate and retrieve details anywhere and anytime.
- Application automatically operates location requests without user interaction because at that time child not have knowledge to update his location at map. The system requires location and telephony services. Third advantage is it can be used at indoors where GPS satellites connectivity is not available. At that time, it can use network provides for location services.
- Network provider service uses cellular ID such as IMEI number for location tracking. Lastly all the controls are in parent side. The child side has less control access.

SYSTEM ARCHITECTURE:



IV.IMPLEMENTATION

- Parent could be able to track child using their separate android application provided for the parent.
- Parent could track the location and also could get

Parent:

The access of this module is only for parents. They can easily access the activities of their children mobile devices

Register:

Parent need to register themselves by filling up basic registration details and by creating valid login credentials.

Login:

After successful registration, parent need to login using their valid login credentials. If parents want to authorize the authentication for accessing their child mobile activities

Add/ View Child Details:

Once the parent is logged into the application, he/she can add their children details. Parent can also view their added children activities without their knowledge.

View:

Once the child details are added, parent can view various details from child's Smartphone as follows:

Call Logs:

Displays all the recent call logs from child's Smartphone.

Messages:

Displays all the messages from child's Smartphone. We can view their recent messages with the details of sender.

Location:

Displays location of child's Smartphone. Using the GPS in a Mobile we can trace the child location.

Contacts:

Displays all the contact from child's Smartphone. We can see their contact book without their choice

Child

Login:

Registered child need to login using valid login credentials.

Use Calculator:

After successful login, a fully functional calculator will be displayed which can be used by the child itself. They can aware about parent monitoring.

MODULES

1. Parent Modules
2. Admin Modules
3. Child Module

MODULE DESCRIPTION

1. Parent Module

- Parent module consists of the next features like Create site details, View Google geolocation, Manage sites, Block Site, Receive SMS & email. the appliance by minimum runs the computer program, mostly for map tracking, also as a service (Listener) that runs within the background of the smart phone application. On the kid side, that's the client, the applying is usually a service or Listener that runs within the background of the Smartphone. A user, the parent which acts as a server, will use the interface to send a location request SMS to the child.
- The Listener at the parent side performs one main function which is to pay attention to the child's reply to the placement request. However, the Listener on the child side (client) performs two main functions. one in every one of these functions is periodically to listen and gets location coordinates updates from GPS satellite or Network provider whichever more accurate. Few elements and fewer user interactions. this may lead to a system that's simple and simple to implement and use, thus making it more user-friendly.
- Primarily, we described the parent's section. To login into the system, parents have to input all of the required information like a name, password, as Figure 5. If all the information match with the database, then a guardian can be able to login into the system, that a parent can track the current

child location, which shows the page of the GPS location of the child application, this is a real-time location track from the child mobile.

- Furthermore, a parent can check the call history from their children's mobile phone to be aware of their childhood friends list and gossiping them. Besides this, parents are also able to view the SMS history of their children and also can check the internet browsing history from their children's mobile phone as which is very important for a parent to monitor their children's all smartphone activities and protected them from any misuse of Smartphone.

2. Admin Module

Admin module consists of the subsequent features like Monitor Emergencies SOS.

3. Child Module

Child module consists of the next features like Login, Search site, Update Geolocation, SOS Button - For emergency, SMS responsive to parent, Add Guardian - Email & Mobile No, Manage Guardian. the kid module is attached to the child. Its primary role is to periodically receive messages and in response send messages to the parent module and alert them if the kid is in peril. The kid module also contains a buzzer alarm that sounds whenever the kid is alarmed. this enables a parent to more easily locate the troubled child.

The main components of the Android architecture:

1. Applications:

These are applications written in Java. Some of basic applications include a calendar, email client, SMS program, maps, making phone calls, accessing the Web browser, accessing your contacts list and others

2. Application Framework:

This is the skeleton or framework which all android developers have to follow. The developers can access all framework APIs and manage phone's basic functions like resource allocation, switching between processes or programs, telephone applications, and keeping track of the phone's physical location. The architecture is well designed to simplify the reuse of components.

Think of the application framework as a set of basic tools with which a developer can build much more complex tools

3. Libraries:

This layer consists of Android libraries written in C, C++, and used by various systems. These libraries tell the device how to handle different kinds of data and are exposed to Android developers via Android Application framework. Some of these libraries includes media, graphics, 3d, SQLite, web browser library etc. The Android runtime layer which includes set of core java libraries and DVM (Dalvik Virtual Machine) is also located in same layer.

4. Runtime Android:

This layer includes set of base libraries that are required for java libraries. Every Android application gets its own instance of Dalvik virtual machine. Dalvik has been written so that a device can run multiple VMs efficiently and it executes files in executable (.Dex) optimized for minimum memory.

5. Kernel – Linux:

This layer includes Android's memory management programs, security settings, power management software and several drivers for hardware, file system access, networking and inter-process-communication. The kernel also acts as an abstraction layer between hardware and the rest of the software stack.

FEATURES

1. **Application framework** enabling reuse and replacement of components.
2. **Dalvik virtual machine** optimized for mobile devices.
3. **Integrated browser** based on the open source [Web Kit](#) engine.
4. **Optimized graphics** powered by a custom 2D graphics library; 3D graphics based on the OpenGL ES 1.0 specification (hardware acceleration optional).
5. **SQLite** for structured data storage.
6. **Media support** for common audio, video, and still image formats (MPEG4, H.264, MP3, AAC, AMR,

- JPG, PNG, GIF) .
7. **GSM Telephony** (hardware dependent).
 8. **Bluetooth, EDGE, 3G, and Wi-Fi** (hardware dependent).
 9. **Camera, GPS, compass, and accelerometer** (hardware dependent).
 10. **Rich development environment** including a device emulator, tools for debugging, memory and performance profiling, and a plugin for the Eclipse IDE

FLOW Diagram



V. CONCLUSION

The word Future resembles the word Children. The future pillars of one's nation", today's children are tomorrow's youngsters, preserving their dreams and life for a better future is necessary. Therefore, every parent should take care of their children, without letting them fall into the dark world of abuse, which entirely ruins them physically, mentally, and emotionally destroying our future. Hence, considering the importance of our future, our project makes it easy for parents to track their children and to visually monitor them on regular basis, which makes them ensure the safety of their children and reduces the rate of incidents of child abuse. It is a big benefit for the parents that many children are using smartphone while in school, and that is why the guardian can monitor the children's activities and track the children through accessing smartphone, which is very important for busy guardians. This paper presented research that will help guardians monitor their child activities from anywhere using smartphone whenever they want from any location. They can also check their children current location, which websites they have visited, how many calls. They have given to friends or

others the SMS logs and which video they have watched without informing and hampering the children's activities to be aware of their child activities in the future if they find any terrible habit of their children. This app is very useful for parents to monitor their children and to resolve their mental pressure

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