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Child Tracking System using Android phones

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ABSTRACT: Now a day's lots of cases seen of missing Childs. The Childs are missing have ages between 14 to 17. Parents are worried about childs. The paper explains about an android application which is used to track the missing children. Nowadays lots of mobile phone users have an android phones. The application works with the help of android mobile. The android application based on GPS and SMS services in Android mobile. The GPS service is used for tracking exact location of Child. The GPS and GSM based systems are used to track the location of Child. There are two ways that can a application works. First is GPS based that is related to the Location services and second is SMS based which is related to the Network services. If Location based services not working then the application uses Network based services which can be able to send and receive messages.

KEYWORDS: Global Positioning System (GPS), Short Messaging Service(SMS),Global System for Mobile immunizations(GSM),Network Services.

I. INTRODUCTION

Now a days 80% of people in the world having smart phones the smart phones uses the people by different purposes. The major issue of child missing can be solved with the help of child tracking system android application. The android application uses GPS and SMS services and GPS help in locating the missing child's location by the survey of missing children in 2004. There are of total 5996 Childs are missing. Out of these only 4092 children return or found by police. However 1904 children are missed. And the children ages 14 years and 17 years are missed or ran away from home. The parents are worried about their children. By missing the children the parents are scared to go to the family trip. These are lots of chances to miss the child in trip. The project is developed for those parents that they have worried to miss their child. In Today's world lots of child's have smart phones. With the help of smart phones GPS and SMS based tracking application parents can watch on their child. GPS is combined to GSM based SIM card into mobile to watch on child's location. The GPS uses longitude and latitude to track the location the SMS (Short Message Service) is used to communicate child side and parent side application. SMS service used when smart phones does not support internet connectivity. System able to send the child's smart phones exact location in the parents smart phone when parent demand to check the Child's location.

II. LITERATURE SURVEY

In Al-Suwaidi and Zemerl (2009), they solved the problem by application "Locating Friends and Family Using Mobile Phones with Global Positioning System (GPS)". Client server based approach used in the architecture. The registration of client phone done by server and after that login saved in database of server. Then client sends location coordinate updates to server the updates saved in database of server. Then with the help of Location Updates the location is tracked. This application was developed for helping to locate the family members and the friends.

In 2011 the Chandra *et al.* used an approach with the help of SMS services. Application was implemented for JAVA mobile devices which supports GPS. The client shares his location through SMS to the web server. The Client views his location on the map. The paper by Almomani *et al.* (2011) proposes "Ubiquitous GPS Vehicle Tracking and Management System". This system architecture is Client-server based application and mobile application. In server side it uses GPS and SMS for storing user details. At Client side have a box which contains GPS tracking device and GSM modem. When user is registered and logged in web server then user details are saved to server. This application developed for monitoring driving behavior of their employees.

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III. APPLICATION DEVELOPMENT

A. Requirements

This paper design work for parents and children. The parents and children both have GPS Based smart phones. The application is used to track the Childs location for implementation of application, Android SDK tools and Eclipse which support android is used. Reason for choosing android OS is that to target more users. Lots of people using android mobile phones.

B.Application Architecture

Solution for missing childs with the help of GPS and GSM technologies. The application uses two main services that is GPS and SMS. For location services is GPS and telephony services is SMS. Generally selected operating system is android to over all the features.SMS is used for communicating between child side and parent side. The System can be designed in a simple way. The application developed to make user-friendly approach on both sides.

Architecture of system shown in figure 1.



Fig 1.Architecture of Proposed System

The architecture consists of two sides. First is parent side and another is child side. Parent side acts as server and child side acts as a client. Basically there are two android phones one is at child side and another is at parent side. Parent's side used SMS service for communicating to child's mobile and with the help of map parent used to view child's location on map. That's why it uses internet and telephony services enable at parent side to track child's location. At child's side another android phone supports GPS and SMS facilities. Child side uses telephony services to communicate with parent side. In child side location services that is GPS is enabled and running in child side .And parent side uses internet connectivity to view child's location on the map. At parent side requirements are mapped for tracking and service(listener)for listening messages coming from child's side. On the child's side listener service always runs in background, at parent side used to send SMS for location of child.

Parent side listener used to listen Childs reply for location request. There are two main functions at child side. To listen and gets location from satellites or network provider. Listener is a very important service at Childs side to listen all SMS incoming and reply SMS which only related to location requests.When parent sends location requests to the Childs side, at child side it listens message and code for this message to reply the location requests on map at parent side. The application is programmed to listen the predefined strings. At the listener the instructions or commands are saved such as "\$getUpdate\$" will be used by sending parent side location requests. Whereas "\$update\$Coord" will be used at child side for location update.



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Advantages

Application automatically operates location requests without user interaction because at that time child not have knowledge to update his location at map. Another advantage is that application uses SMS when internet connectivity is not available. 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 uses network provides for location services.

Network provides service uses cellular ID such as IMEI number for location tracking. Lastly all the controls are in parent side. The child side have less control access.

Disadvantages

Consider any system that always have advantages and disadvantages also. The application have certain disadvantages that can be overcome. The application is not worked well when there is no network available. In that case the application fails the exact location. But the application stores the last location which can be stored at the database server. When mobile is switched off then we consider this as a one of the drawback of system.

IV. CONCLUSION AND FUTURE WORK

In conclusion project was designed for locating missing or lost children. This project was given depth information about child tracking system with the help of two components such as GPS and GSM telephony services the application is built in. Finally for this application has room for enhancement. Geo-fencing , Emergency alerts such features can be added to enhance system. The proposed system will be improved in later work.

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