

Child Tracking System based on GPS System.

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Abstract: In present time there is a drastic increase in number of kidnapping and road accident cases. Crime against the children in the age of 14 to 17 years is more popular, So parents always worried about their children. This paper proposes a SMS based solution using GPS system to aid parents to track their children location in real time. Nowadays, most mobile phones are equipped with location services capabilities allowing us to get the device's geographic position in real time. The GPS and GSM based systems are used to track the location of Child. It helps the parent to get their child's location on a real time map.

Keywords: GPS, GSM, LAN, SMS.

I. INTRODUCTION

By the study of missing kids in 2004, There are of aggregate 5996 Childs are absent, Out of these exclusive 4092 kids found by police. However 1904 youngsters are missed. Today, GPS has an extensive variety of uses including following bundle conveyance, versatile business, and crisis reaction. GPS comprises of a system of 24 satellites in 6 distinctive 12-hour orbital ways dispersed so that no less than five are in perspective from each point on the globe. Short Messaging Service (SMS) is a component accessible on all cellular telephones which permits a little content to be sent between one client and another. Tyke following framework will track development of their tyke while going to class and originating from school to home. In this following framework specific zone will be characterized by utilizing geo-fencing. In view of this if kid is captured or he/she is moved outside of characterize zone then ready message will be sent to separate guardian's enrolled number. So guardians don't need to do ceaseless observing of tyke development, framework will alarm the guardians if youngster is moved outside of bound range.

II. EXISTING SYSTEM

Youngsters following framework is additionally outlined by Yuichiro MORI, utilizing independent Clustering system. It comprises of marks which gather the data of youngster gathering, every kid is given one android terminal and server which stores following data. Name comprise of remote LAN which develop a lattice system furthermore gets and transmit the data with respect to position of kid starting with one mark then onto the next lastly given to PC server which is situated at school control room. This

framework will caution the school that one of the kids is missing however it neglects to tell where the youngster is at the present minute.

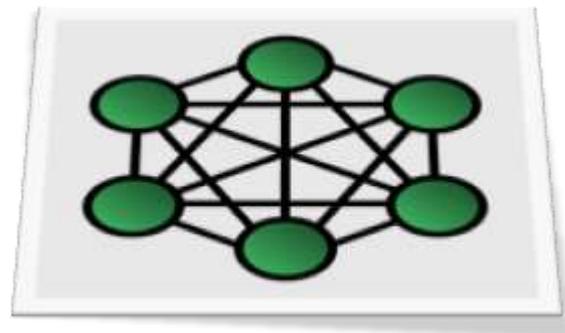


Fig.1 mesh network.

III. SYSTEM DEVELOPMENT

A. Requirements.

This system is design for parents & students. Both must have smart phones which supports GPS & SMS. The system will be develop using Android SDK & Eclipse supporting OS.

B. Architecture.

The application uses two main services that is GPS and SMS. For location based service is GPS and telephony based service is SMS. Generally selected operating system is android for 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 is developed to make user-friendly approach on both sides.

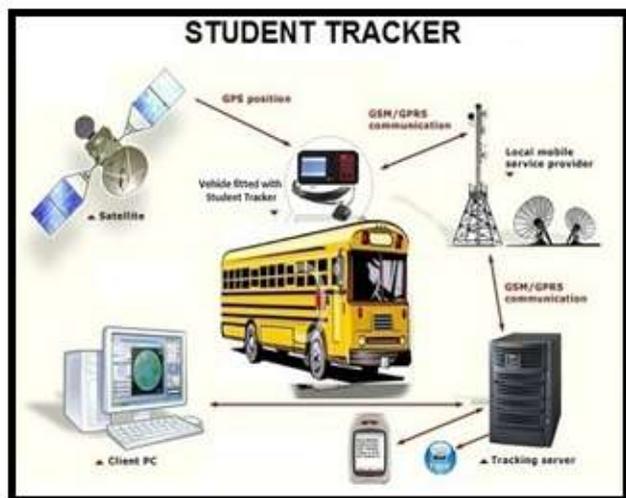


Fig.2 Student tracker outside Home

This system consists of two components: Client (child) and Server (parent/school).

The client will be the android application or android phone. It is designed in such a way that it has very few elements and very less user interaction and the interval at which location updates are received can be predefined, but ideal timing will be every 10minutes.

In this system server will receive data sent from the client side and it will save it in a database and display to the end-user who will be either school authority or parents who wants to track on map.

The above mention tracking is possible with two main components: GPS and Network; these two features are present in almost all smart phones now.

For first time once user installs the app he should start the app and after that every 10minutes or any predefined time the application will start automatically and fetch the location and send to server.

The Global Positioning System (GPS) is space based navigation system that provides location information in terms of latitude and longitude, anywhere on the earth by using satellite. The proposed child tracking system uses this GPS module as one of the function block which will track the location of the child and also alert the parents if child is moving outside of pre-define area with the help of ARM7.

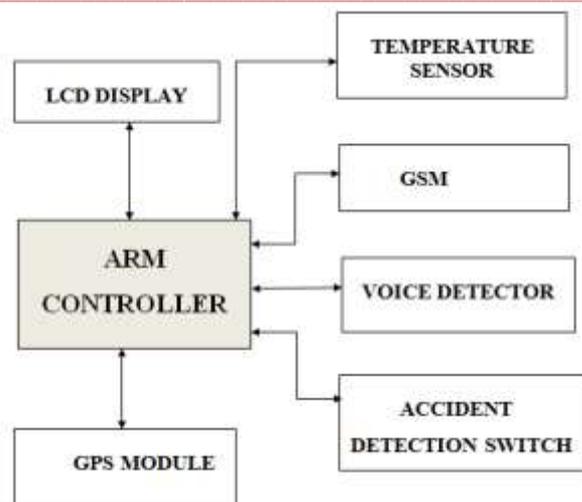


Fig.3 TransmittingModule.

ARM7 has the knowledge to give AT commands to initiate and send the Child information message to Mobile phone through GSM modem. The body temperature, accidental conditions also measured by using the child module and to provide an alert message when any injuries occur to the child. The data from GPS receiver in NMEA format is received on ARM processor using UART1 protocol which contains Information about child position (longitude, latitude) and speed. This information can be check on the android mobile terminal using USB.

I. ARM7

ARM design depends on Reduced Instruction Set Computer (RISC) standards. Timing rate of ARM7 is high and it has awesome interfacing highlights which will be required for GSM, GPS and voice playback circuit. The principle point of interest of utilizing ARM7 is it needs low power for its working.

II. Voice Detector.

Forest - Sound Sensor are utilized for this application since they can effectively distinguish the sound quality of the earth. The principle segment of the module is a basic receiver, which is having LM358 intensifier and a mouthpiece.

III. Accident Detection Switch.

This change is utilized to make a programmed call to the guardians and rescue vehicle instantly when the mishap has happened. The auto dialer and the LPC2148 Microcontroller are utilized as a part of this identification.

IV. Temperature sensor

A LM35 IC is utilized for temperature detecting. It works at 3 to 5 V and can quantify temperature in the scope of - 40 C to +125 C which is adequate for the subject body

temperature range. With the assistance of this sensor guardian will think about the wellbeing of their kid.

V. GPS module

GPS module used for this project is GR-301, which provides latitude and longitude values.

Features of GPS:

- low power single chip High performance: - 159dBm
- tracking sensitivity Low power:
- Backup battery support for faster position fix Blue
- LED for position fix indication IPX7
- Waterproof Built-in magnet
- Industrial operating temperature range: -40 ~ 85°C

VI. GSM module

Global system for mobile communication (GSM) is a standard for advanced cell correspondence. A GSM modem is a remote modem that works with a GSM remote system. The Techniques GSM SMS assumes a primary part in this framework. GSM SMS informing can deal with substantial number of exchange in a brief span. This one GSM association is sufficient to handle many exchanges.

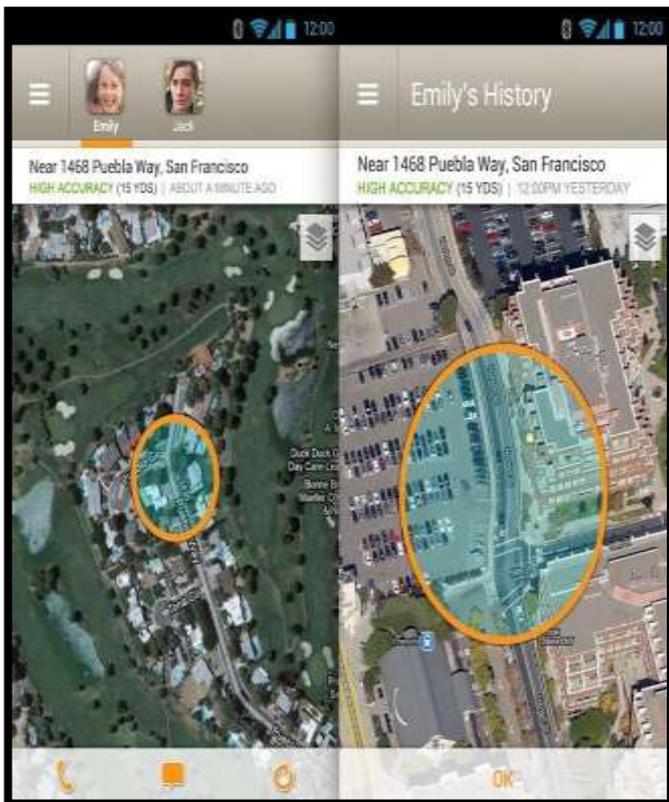


Fig.4 Google Map

IV. ADVANTAGES

For this application automatic operation of location update without user interaction takes place. Because at that time child don't have knowledge to update his location at map. Another advantage is that application sends SMS when internet 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 use network provides for location services.

V. CONCLUSION

In conclusion, this system was developed to locate children for their parents and this research showed that GPS tracking technology is a practical option for monitoring and tracking the children during their trip to and from school & on school busses. This research presents design and implementation of ARM processor based children tracking system. It primarily focuses on tracking a child's position and monitoring health condition of the child is sent to its parent and control room.

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