



GSM and GPSBasedChild Security System

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Abstract:- Nowadays children are facing many security-related problems like kidnaping from school or hijack the school bus. In such situations, they are helpless because they don't have any way to protect them and inform it to their family members, neighbours or parents. Hence there should be a system to protect them in such situation. Our proposed system facilitates them to seek help in such a critical situation. For this, the system contains GPS and GSM mechanism to send their current location to the trusted contacts. Our system is linked to Google map to track the live locations of the child.

Keywords: Location Based System (LBS), Global Positioning System (GPS), Global System for Mobiles(GSM), Base Switching Centre (BSC), Mobile Switching Centre (MSC)

1. INTRODUCTION

These days parents are worried about their children so they want a complete track of child and monitor them all the time, this is really not possible. So we introduce child security system which is helpful for tracking the child and their activities from anywhere in the world. The major issues of a child missing or kidnapping can be solved with the help of child tracking system. And In ou application we use a GPS device to track the child via internet application. This device has an emergency button by which the child can send a message, when he/she is in danger. And then this message goes to the to the database and then to the parent so that they can track them and reach to the child.

In this application we use a GPS device to track the child via internet application. In this device in which there is an emergency button. After pressing it the child can send message when he/she is in danger and then this message goes to the to the database and then to the parent so that they can track them andreach to the child.

This application update the data after every 10 minutes of interval, so that whenever the parents want the data to be retrieved it can be obtained from the database history.

In this there is login limit (example- 4 to 5 peoples/relatives of the child can be login and only they can obtain the child data), through this we increase the security level, that is only trust worthy people will get that information, data, history and only they can track them . So the whole data of each child remains private and highly secured.

1.1 CONCEPT

- This project was carried out due to the criminal activities, like kidnapping that happens frequently nowadays at school area. Most of the time, kidnapping occurs due to primary school kids. As they like to play inside of the school area or outside of the school area. Therefore, the school authority could not guard the entire school at the same time and it leads to such criminal incidents.
- Thats why we give a device to the child, so that he/she can call for the help. As in some schools mobiles are not allowed so we prefer to use a device that can be carried with him/her during school hours.

• EXISTING SYSTEM

The “GPS and SMS based Child Tracking System using Smart phones “, comprises of a GSM and GPS based device and related application.The system provides capabilities of tracing its connected devices. The system consists of two major actorsi.parent and their child. The parent are registered to the application and the child carries the device. The GPS system allows to trace the location of the child while the GSM system allow to send the current location of the child via SMS.

In "Mobile Tracking Application for Locating Child", a tracking application software must be installed in the mobile phone and the child must be previously registered in the child group of application. Apart from these methods, does not require

mobile phone or any software on the help seeker's side to send the current location. Google map is the only application that is needed to be installed on the helper side. Also unlike other systems no sensors are required and no devices are needed to be held all the time. So when comparing to similar tracking systems, our system will be more comfortable.

- **PROPOSED SYSTEM**

The problem of feeling helpless in a missed situation can be solved by this system. This system is required in situations like being kidnapped by strangers. Hence this project is mainly implemented to provide security in such aspects. The system is very portable. Short Message Service (SMS) is the basic service which is mainly used here. The helper needs mobile phone with internet facility that is used only to show the located position in the map. The help seeker needs a device with GPS and GSM services to inform where they are.

3.1 . SYSTEM STRUCTURE

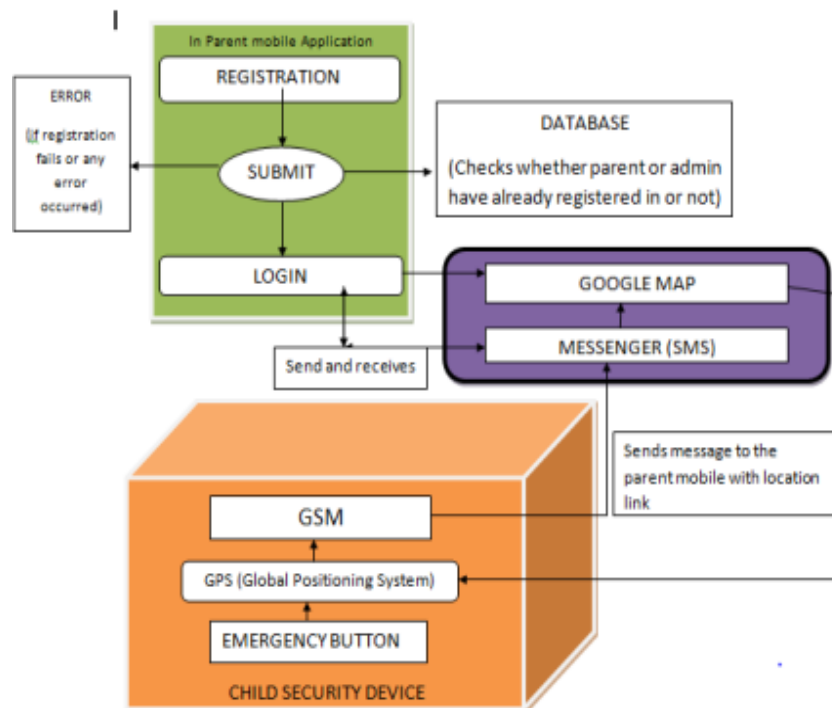


Fig 1. System Structure

3.2. WORKING OF SYSTEM

According to the system structure this is the two way communication device. Which means the child can send alert message to the parent, by pressing the emergency button. so parent can get a quick action on the alert message.

- With the child there is a device in which there is tracker and GSM and an emergency button. On that device child's parents and trust worthy people are registered. Parent /relative own a mobile phone in which GPS is present through which they can track their child. As the child press the emergency button the GSM send the SMS on the parents/relative mobile phone and the link in which contains the traced location through this they can help the child in trouble. When the link is send then parent/relatives can click on that link then Google map page will open in which it shows the exact location where the child is trapped.
- The child's parents/relatives can check the location of the child whenever they want, it's not compulsory that location must be traced when and only when the child is trapped in trouble.

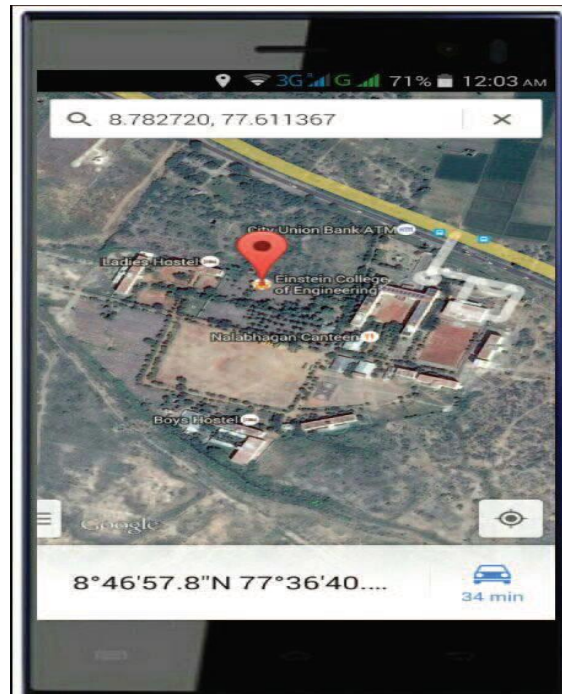


Fig.4 Result of Google map link

- The device store's location data in every 10 seconds intervals in the database history, which is send by the GSM from the device. Through which the parent can keep the track of child.
- On a single device only four to five people can be registered through which we keep the data private and secured, thus the security level is increased.

3.3 REQUIREMENT ANALYSIS

A. HARDWARE REQUIREMENT

A.1. GPS

GPS receiver is a navigation system. It works based on satellite signals. It pinpoints the geographical location of itself. The GPS satellite rotates around the earth and transmits signals to the earth. These signals are received by the GPS receiver to calculate users' exact location.

The GPS uses 'Geofencing Algorithm' for calculating longitude and latitude of the location of child.

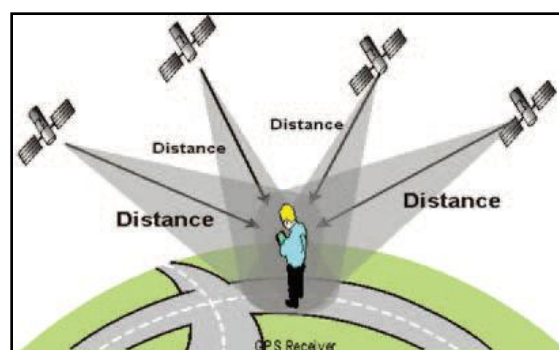


Fig.3 Finding user's position in 3 dimensions

A.2. GSM

GSM (global system for mobile communication) GSM provide many services. In our system, one of the services of GSM is short message service (SMS) which is used to share the location information from the system to helpers mobile. In this system the GSM is used to send the alert message from child to the parent



Fig.4 SMS sent by the system

A.3. ARDUINO

Arduino is an open-source hardware. The software company, project, and user community, designs and manufactures single-board microcontrollers.

The microcontroller kits is used in building digital devices and interactive objects that can control and sense objects in physical world.

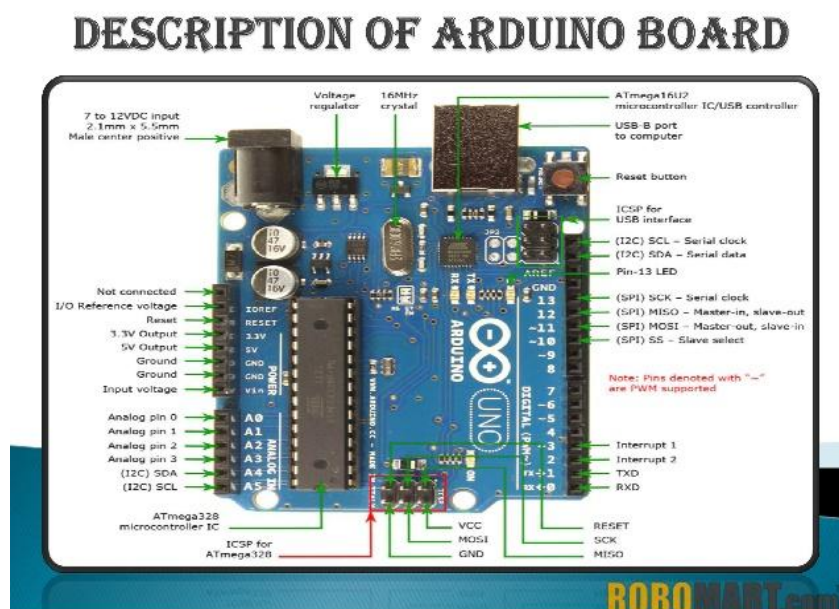


Fig.5 Structure of Adriano Board

B. SOFTWARE REQUIRMENTS

B.1. XML

The XML stands for Extensible Mark-up Language. XML is document formatting language used for designing. It is the higher version of HTML. In this the XML is used for front end designing.

B.2. JDK

The JDK stands for Java Development Toolkit. This application is used as a back end controller in this software. The JDK is used for coding android software for parent.

B.3. ANDROID STUDIO

Android Studio is the official integrated development environment for developing android application. It uses Java language for developing the application. Its latest version is 3.0.1.

B.4. SQLITE

SQLite is an open source SQL database. It stores the input data to a text file in the mobile storage. It is a inbuilt SQL database in Android Studio.

4. FEATURES

1. Used to track child using their separate android application provided for the parent.
2. Used in making the process easy and user friendly for parents to track and show current location of child on Map.
3. To reduce kidnapping crime in day to day life.
4. To develop accurate and highly-efficient application with respect to location.

5. CONCLUSION

- This application can be used by any parent who wants to track or monitor their child without any physical interference.
- It also provides child the facility of informing its parents whenever they feel unsafe and provides them a better security.

6. REFERENCES

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Fig.

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