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Child Tracking System Using Arduino & GPS-GSM Kit

Atul Ahire*Pooja Domb*Mithilesh More*Pushkar Pednekar*Anushree Deshmukh#
Department of Information Technology
*BE IT Students, #Assistant Professor, Rajiv GandhiInstitute of Technology, Versova, Mumbai University

***Abstract*—**The cases of missing children are a major concern now a day.This paper tells us about the android application which has features of tracking the children,the exact location of child can be tracked by GPS service. GSM will be used for network services and it also provides internet. Arduino will also be used as a microcontroller that can sense and control objects in the child's module.The paper is aimed to prevent child kidnapping and trafficking.

Keywords*-SMS, GPS, GSM, tracking, Arduino.*

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I. INTRODUCTION

In today's world, kidnapping and trafficking of children has increased by 84% over the past 3 years. According to a survey done in Delhi, 180 children get kidnapped on a daily basis in India. Tracking and monitoring of the missing child is very difficult. In this paper, we are trying to make a system which will track the child using GPS, GSM and Arduino. GPS is a service which offers astonishing performance to get the device's particular location within seconds and sends its location over 20 to 30 seconds time interval depending on the device's accuracy.Hence, GPS can be used to track locations of a child who has been missing.

With the help of Arduino, we can establish a connection between devices present in the child's module and web server. Arduino will gather the information from GPS & GSM kit and transmit it to the web server.

The web server will then send the data to the Android application at the parent's end. Hence, the parent gets to know thecurrent location of their child. In this paper, GSM will be used which sends SMS to the Android device stating the current location of child.

II. LITERATURE REVIEW

In [3], the author proposes that the system allows the applications to work on smartphones that don't support GPRS, 2G,3G or any sort of internet connectivity.

In [1], the author proposes that the system consists of client module (mobile), server, database, GPS. It also had a bluetooth API which was a disadvantage because of less features which are given by bluetooth.

n [5], the author proposes thatthis systemdepends upon the GPS functionality therefore, its working completely depend upon the cellular network, it will not work perfectly if the cellular network is poorly or not available.

III. PROPOSED SYSTEM

This system is designed for parents and children. Parent side will have an android smartphone and child will have the tracking system. SMS is a basic service which will be used but GPS can be found only new smartphones. Arduino will be used for interaction between the tracking device and web server. The application is used by parents to track their child's location.

The proposed work will monitor the child from any location and distance from the parent. With the use of an android phone and GPS tracking device. The android phone will be with the parents which includes the application and the tracking device will be put firm in the child's backpack. An alert button will be installed on the tracking device which when pressed will send an SMS to the parent indicating that the child is in danger.

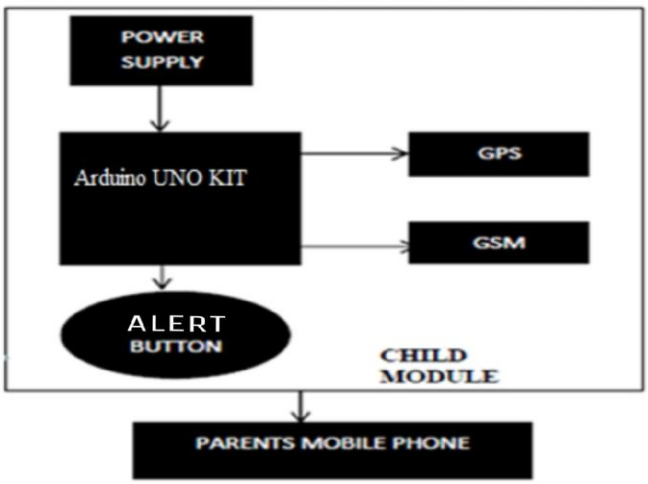

Figure 1: Block Diagram

IV. SYSTEM ARCHITECTURE

The system consists of GPS and GSM kit, Arduino microcontroller. An alert button will also be included in the system. Child module and parent module will be connected to web server. Thus, the web server will act as a middleware between the two modules.

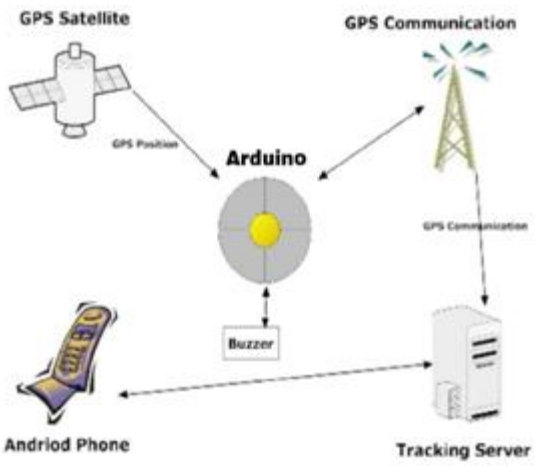

Figure 2: System Architecture

V. COMPARISONSTUDY

Features	Arduino	Raspberry Pi
Performance	Dedicated to single task	Not dedicated to single task
Cost	Cheap	Comparatively expensive
Operating System	No separate operating system. Hence, coding can be done in any environment.	Has its own operating system. Hence, there is a compulsion for coding in its own environment.

Table 1: Comparison of Raspberry Pi and Arduino

Features	Existing System	Proposed systems
Communication	Communication between mobile to mobile was used.	Communication between tracking device (Arduino, GPS, GSM) and android device.
Alert	No alert button	Alert button
Memory	Volatile memory	Non-volatile memory
Path	Shortest path cannot be discovered	Shortest path canbe discovered

Table 2: Comparison between Proposed and existing systems

VI. CONCLUSION

In conclusion, paper was aimed to locate missing or lost children and ensure the parents their child's safety. The solution proposed in this paper takes advantage of various features offered by Android smartphones. Studying various existing works and papers have helped us to develop this project. Hoping that this project helps the society to ensure their child's safety, we have proposed this paper. The proposed system will be implemented, continued, reviewed and improved in later work.

REFERENCES

[1] Ghaith Bader Al-Suwaidi, Mohamed Jamal Zemerly, “Locating friends and family using mobile phones with global positioning system (GPS)” IEEE/ACS InternationalConference on Computer Systems and Applications, 2009.

[2] Chandra, A., Jain, S., Qadeer, M.A., “GPS Locator: An Application for Location Tracking and Sharing Using GPS for Java Enabled Handhelds,” 2011 International Conference onComputational Intelligence and Communication Networks (CICN), pp.406-410, 7-9 Oct. 2011.

[3] A. Al-Mazloum, E. Omer, M. F. A. Abdullah:”GPS and SMS-Based Child Tracking System Using Smart Phone,” International Journal of Electrical,Robotics,Electronics and ommunications Engineering Vol:7 No:2, 2013.

[4] J.Saranya ,J.Selvakumar:”Implementation of Children Tracking System on Android Mobile Terminals,” International conference on Communication and Signal Processing, April 3- 5, 2013, India.

[5] Aditi Gupta, VibhorHarit,”Child Safety & tracking Management System by using GPS, Geofencing &Android Application” Computational Intelligence & Communication Technology (CICT), 2016 Second International Conference

[6] Almomani, I.M., Alkhalil, N.Y., Ahmad, E.M., Jodeh, R.M., “Ubiquitous GPS vehicle tracking and management system,” 2011 IEEE Jordan conference on Applied Electrical Engineering and Computing Technologies (AEECT), pp.1-6, 6- 8 Dec. 2011.