

Survey on Child Tracker

Nayan Dhawas¹ Mayur Kodhe² Naina Ghormare³ Piyush Jadhav⁴ Saurabh Bhojar⁵

^{1,2,3,4,5}Student

^{1,2,3,4,5}Department of Computer Science & Engineering

^{1,2,3,4,5}S. B Jain Institute of Technology, Management Research, Nagpur, India

Abstract— Nowadays, crime against child is increasing at very high rate and it is the need of the society to create such a capable system which monitors the child location as well as keep track of the movement with respect to the fence area. This system monitors the child with respect to the fence area. The GPS module is connected with a self – contained WI-FI networking module i.e ESP8266. Raspberry Pi act as a main controller to communicate with ESP8266. Raspberry Pi is connected to the web-server through which sends the latitude and longitude co-ordinates to the Android device.

Key words: GPS Module, ESP8266, Raspberry Pi, Web-Server, Android

I. INTRODUCTION

Child missing cases are increasing day by day. Child care is a serious issue in today's society. Various systems has been implemented to solve this issue Child tracking system helps parent to monitor child location. The overall system consists of a GPS module [1], ESP8266 [2], Raspberry pi, Android phone. The GPS module along with EPS8266 is embedded in wearable, which is connected to Raspberry pi that sends location to the server. Server is used to receive and transmit location co-ordinates. The implementation of the system requires programming of raspberry pi capable of sending location to server. Android phone is the user end module which will display the location of the child and notifies user whenever child gets out of the fence

II. LITERATURE SURVEY

“A Review on IOT Based Smart GPS Device for Child and Women Safety Applications”- This paper is based on IOT (Internet of Things). This paper proposes an Android based solution to aid parents to track their children in real time. Different devices are connected with a single device through channels of internet. The device is connected to the server through internet. The device can be used by parents to track their children in real time or for women safety. The proposed solution takes the advantage of the location services provided by GSM. It allows the parents to get their child's location on real time by SMS. Here, a prototype model (device) is created which is simulation based. The work comprises ARM-7 LPC2148 as microcontroller, along with GPS and GSM module. Embedded C core compile using Keil and virtual simulation check using Proteus 8.1 is done. A server is created which is responsible for collection of data generated by the system and send the same to server using internet. A Dummy server will be created by using Filezilla. This device will also have the facility of Emergency help key (SOS), if anyone presses the key, automatic help message will be sent to 3 registered mobile numbers on Server. This project is designed to be used by parents and aimed to help locating missing or lost children.

It takes advantage of the fact that many of today's children own smart phones which is convenient for this kind of situation. In this work, GPS is combined with one of the basic service of a smart phone which is GSM, more specifically SMS, in one system. An application at the parent's side will allow parents to send a location request to child side then retrieve the location from the request reply and display it on the map. The application at the child's helps to gather necessary information of the smart phone which in turn will locate the smart phone. Information such as GPS coordinates and time are gathered and sent to the parent smart phone that's preregistered on the application. Short message service (SMS) is used for communication between the child and the parent. It will allow the system to work without the need of internet connection thus allows the application to be implemented on smart phones that don't support GPRS, 2G or 3G internet connectivity. The system sends the location of child's smart device to parent's smart phone when the parent wishes to check on the child. [3]

“An Implementation of Raspberry Pi on Children Tracker Application.” - This system is used for guiding the user to detect the coordinate of their children. Raspberry Pi is one of the technologies that are used in this development for interface between Global Positioning System (GPS) module, web server and android application. Raspberry Pi also acts as the main controller to communicate with the GPS module. In system development part, the communication process is started from the system which is able to detect the child location (latitude and longitude) and send it to the user. Then, the system will produce the latitude and longitude result in real time by android application. Apart from this, the system is user friendly, easily installable and accessible for various other purposes. The new reliability and low cost project was been implement in this project. This tracking system informed the location of the child and the information can be observed from the android application. Implementing of smart phone application in control system provides guidance to have a system to handle. [4]

“Cloud Based Child Tracking System Using Raspberry pi.” -This system consist of 3 modules which are bus module, school module, android application. The Bus module will detect the presence of child in bus using RFID. The location and bus speed will be tracked by the GPS module. A unit consists of Alcohol sensor and tampering switch will provide secured transportation of child. Raspberry pi unit which act as slave controller to AVR in bus unit provides Cloud connectivity and live video streaming facility. The school unit checks the child location using RFID and updates the location on server. The Android Application is an user interface responsible for the fetching information of the child and the exact location of the bus. These 3 units are elaborated as:

A. School bus unit

This unit identifies entry and exit of the child in school bus and notify the parents and keep the track of school bus. To provide additional security to the child this unit is interfaced with camera through Raspberry pi which provides facility of live video streaming, alcohol sensor and tampering protection.

B. School unit

This unit tracks the entry and exit of child in school and generates the notification on android application through Wi-Fi module.

C. Android application

By this application parents and school staff will be able to keep track of children by locating their position and school bus position for the safety of children.

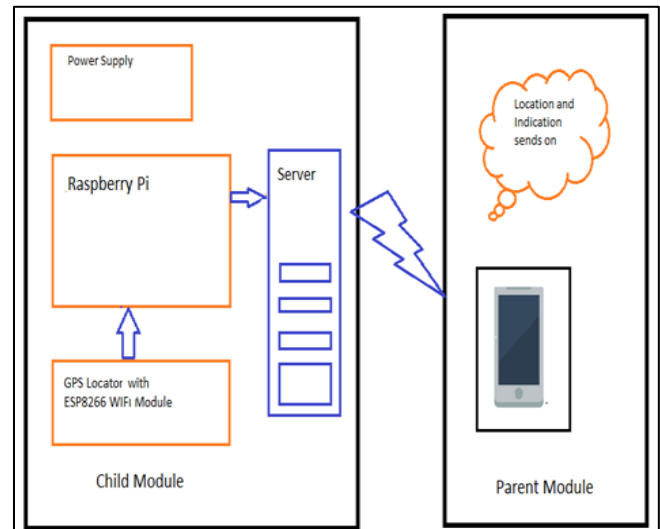
It is frequently observed that children's security is questionable in school buses and outside school premises. This proposed system uses smart features which ensure best possible safety of children. To provide additional security to the child this unit is interfaced with camera through Raspberry pi which provides facility of live video streaming, alcohol sensor and tampering protection.

Thus by using three different modules we try to track child at every position including home, school, etc. We added video streaming option which is very trustful option for child security along with constant tracking for maintaining reliable security. As compared to other module raspberry pi provide both internet connection and video processing capability in an efficient and cheap way. [5]

"Survey of Child Tracking System"- The conceptual design of child tracking system is consist of two modules, child module and parent module. The child module acts as transmitter whereas the parent module acts like receiver. The child module includes Micro-controller, GSM, and GPS modules. The parent module includes android phone. The position of the child is tracked by the GPS and sent to micro-controller. The micro-controller then forwards the latitude and longitude to the GSM board and it will forward the position of moving child to receivers. The safe route is set by parents. Initially, a test path is considered and samples points can be selected by parent using android app. These sample points are saved into database with their corresponding latitude and longitude. The Fig 3.2 shows the procedure of setting safe route. The point (x,y) is a sample point while (x1,y1) and (x2,y2) are considered by incrementing and decrementing the latitude and longitude of (x,y). The distance between (x1,y1) and (x2,y2) is considered as a safe route. If child goes beyond safe route then the notification will be sent to parent mobile phone.[6]

III. PROPOSED SYSTEM

The conceptual design of Child Tracking system consist of 3 modules, child module, data collection module and parent module. First module i.e child module consist of GPS module and ESP8266 which works as a transmitter whereas the second module i.e data collection module consist of Raspberry Pi which works as receiver and the third module consist of Android device.



The position of the child is tracked by the GPS module and transferred to the ESP8266 i.e WI-FI module. The ESP8266 is responsible for sending the location, latitude and longitude co-ordinates to the Raspberry Pi via Router which is placed within the range area i.e within the fence area. The co-ordinates are saved onto the server in the sequential manner. Parents as the user of third module fetches the location from the server in the android devices and monitors the child movement within the fence area. If child cross the fence area, a local notification is generated on the device with appropriate message.

IV. CONCLUSION

The main purpose of this project was to locate child. A new reliable system for child tracking has been implemented in this project. The tracking system helps parents to monitor child location with the use of an android phone.

REFERENCE

- [1] Cabal-Aragón, Jesús, et al. "Embedded microcontroller using GPS as a security resource for disable person." Instrumentation and Measurement Technology Conference (I2MTC)
- [2] International Journal of Applied Engineering Research ISSN 0973-4562 Volume 11, Number 6
- [3] International Journal of Engineering Research and General Science Volume 4, Issue 3, May- June, 2016 ISSN 2091-2730. A Review on IOT Based Smart GPS Device for Child and Women Safety Applications
- [4] International Journal of current Engineering and Technology "A REVIEW PAPER ON RASPBERRYPI Proceedings, 2014 IEEE International. IEEE, 2014
- [5] International Journal of Advanced Computer Technology (IJACT) Child tracking system using smart phones without expenditure of money
- [6] International Journal for Technological Research in Engineering Volume 3, Issue 3, SURVEY OF CHILD TRACKING SYSTEMS