

IMPLEMENTATION OF CHILD TRACKING SYSTEM USING IOT

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ABSTRACT

Now a days the chance of missing children is going important. In order to reduce this problem, we are presenting this project on Child Tracking System Using Arduino Uno and Google Map. This system is used for tracking the information of the lost child using Google Map along with the position and location of that child through GPS. This process operate simply by keeping the “tracking system device” into the bag of that particular child, who is going to school or outside world and now if in case that child is lost or missed then the parents of that particular child can simply track him/her by sending a message name “TRACK” to the particular operating device which has been kept inside that child bag. In this way parents get the real time location by receiving the exact position of the child along with the longitude and latitude of that place then it will be copied into the Google map and the location of that lost child can easily be accessed.

Keywords: Child, GPS module, Arduino Uno, Google map.

I. INTRODUCTION

Children's security has always been a priority problem whose solution must constantly be improved. Children safety is importance to their parents even if they have most excellent precautions, children, due to their lack of skills to protect themselves. School bus play an essential role in carrying most of children everyday all over the world. While there are several problems that might disturb the parents with respect to the travel of school going kids. This system is especially focused on children's movements from home to school entrance, trying to solve a little part of the school-age children's security problem and they might even get cheated or kidnapped by any of the strangers.

This project focused on how parents can keep track their children movement to avoid child missing, kidnapping and etc. By using GPS as a tracking tool where it allows to determine the exact location (longitude and latitude) of the children. Children tracking system is used to assure parents that their children are safe from suspicious actions or loss. In our project, we automatically monitor UGC CARE Group-1, Sr. No.-155 (Sciences)

the child in real time using Internet of Things, with the help of GPS, GSM.

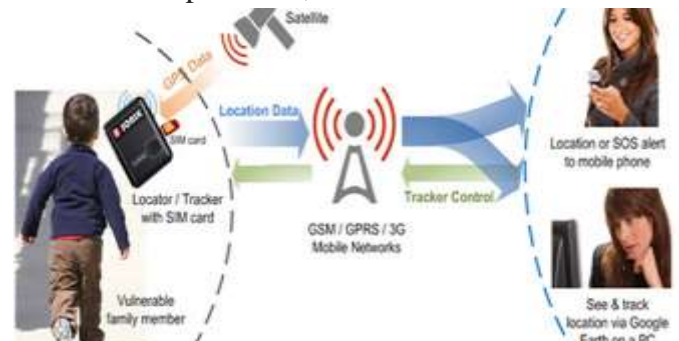


Fig 1. Children Tracking

This project requires network connectivity, satellite communication, and high-speed data connection when we use web camera and GPS to lively monitor.

The information related to the child location is sent to a database in the cloud in real time and this location is sent directly to an application which is set up in the parent's mobile and this location is shown on Google map and this location is sent directly to an application .

II. LITERATURE REVIEW

There are a large number of studies of the tracking system in the different areas. However, since the focus of this research is on the child tracking system, these will not be reviewed in detail and will only be referred to as appropriate. Studies are performed on three existing system which are FiLIP, TraxPlay and Pockey Finder.

A national work ship titled “Missing Child Alert(MCA) featured that 200,000 children missing cases are recorded in south Asia constantly and around 20,000 of that from Bangladesh. This purpose of child tracking system is to ensure security of the children.

Besides, studies are also performed on technologies involved and methodology applies in the proposed system that will act as a guidance in practicing the best approach for building the tracking system for child.

The major issue of child tracking system can be solved with the help of android application and the use of GPS and GSM technologies allows the system to track object and provides the most up to date information about children.

OBJECTIVE:

In our project, we automatically track the child in real time using Internet of Things, with the help of GPS and GSM. This system requires network connectivity, satellite communication, and high-speed data connection when we use web camera and GPS to lively monitor.

The main objective of this project to ensure security to every child by developing a simple cost-effective device. This tracking system can be good solution for decreasing the number of missing children .

User friendly, easily accessible tracking system. Literature review on microcontroller based tracking system. Design and implementation of a child tracking system. The tracking system for children will track and monitor the location of the children. The parent can monitor children location through a simple

SMS and can see the exact location.

III. PROPOSED SYSTEM

In this system we send the message name Track to the device and the GPS of that device send the longitude and latitude to the GSM module. GSM module receive the information about longitude and latitude of that child location, further this message will be sent to the user for tracking the location of that lost child. The Arduino is a small micro controller which is used for controlling whole process in this system.

3.1. Atmega 328U microcontroller

ATMEGA328U is high performance, low power controller from microchip. atmega328p is an 8-bit microcontroller based on AVR RISC architecture. it is the most popular of all AVR controllers as it is used in Arduino boards. with program memory of 32 Kbytes Atmega 328u applications are many. with various power saving modes, it can work on mobile embedded systems.

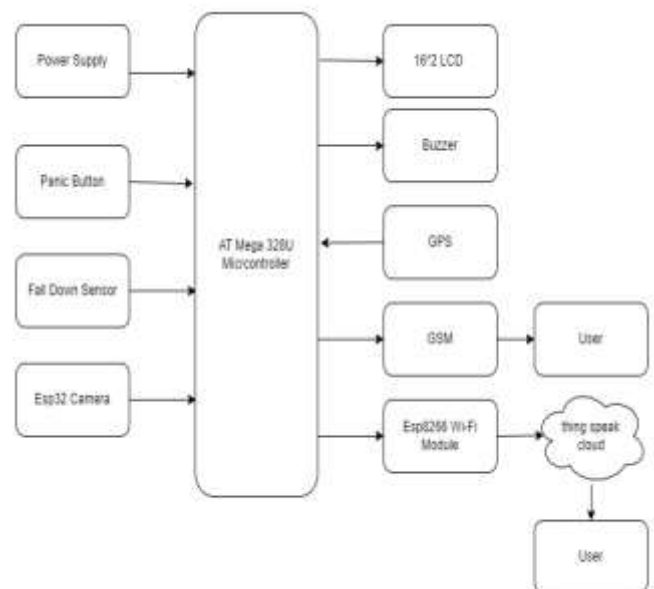


Fig 2. Block diagram of the Proposed System.

3.1.1. GPS MODULE

The Global Positioning System (GPS) is a U.S.-owned utility that provides users with positioning, navigation, and timing (PNT) services. The exact location of a moving object is detected by at least three of these GPS

satellites. The information is transmitted to a server via a wireless radio standard: The satellite broadcasts its position and time using coded radio signals.

3.1.2. GSM MODULE

GSM stands for Global System for Mobile Communications. It's a standard that specifies how 2G (second generation) cellular networks operate. GSM was a significant improvement over the first generation of cellular networks and represented a transition from analog to digital telecommunications.

If the device is located outside of the range of Wi-Fi or wired connectivity, the long range communication means are considered, Especially when IoT devices installed in remote locations need connectivity. But to overcome this issue, GSM and LTE technologies have been integrated with modern IoT devices.

3.1.3. LCD (Liquid Crystal Display)

A liquid crystal display (LCD) is a thin, flat display device made up of any number of color or monochrome pixels arrayed in front of a light source or reflector.

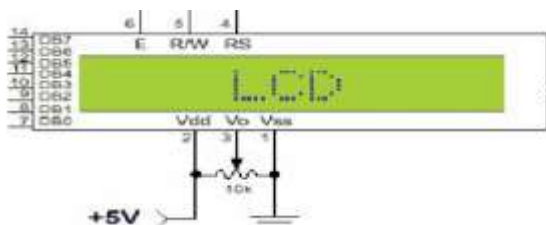


Fig 3.LCD Display

Each pixel consists of a column of liquid crystal molecules suspended between two transparent electrodes, and two polarizing filters, the axes of polarity of which are perpendicular to each other. Without the liquid crystals between them, light passing through one would be blocked by the other. The liquid crystal twists the polarization of light entering one filter to allow it to pass through the other.

3.1.4. BUZZER

A buzzer or beeper is a signalling device, usually electronic, typically used in automobiles, household appliances such as a microwave oven,

or game shows. It most commonly consists of a number of switches or sensors connected to a control unit that determines if and which button was pushed or a pre-set time has lapsed, and usually illuminates a light on the appropriate button or control panel, and sounds a warning in the form of a continuous or intermittent buzzing or beeping sound. Initially this device was based on an electromechanical system which was identical to an electric bell without the metal gong

3.1.6. THING SPEAK CLOUD



Fig 4. Think speak cloud

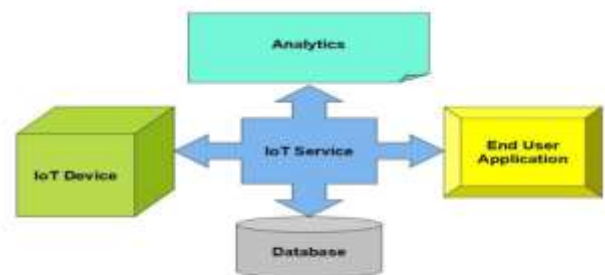


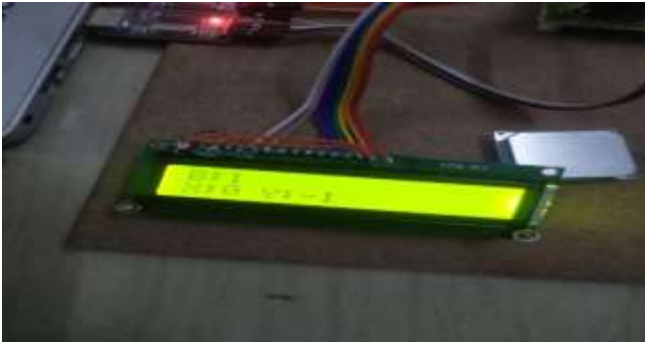
Fig 5. Think speak cloud

Thing speak platform providing various services exclusively targeted for building IoT applications. It offers the capabilities of real-time data collection, visualizing the collected data in the form of charts.

IV. EXPERIMENTAL RESULTS

GSM send a message to User (GPS Location)when panic button is pressed



Position:**ESP32 Camera visuals****V. CONCLUSION**

In this project, an IoT children tracking system is developed. The implementation originally focusses on tracking a child and sending its location to the database which forwards this information. This project shows that GSM/GPS tracking technology is a practical approach for monitoring and tracking children with the help of Google database service, Firebase. Except the Internet fee, there is no cost associated with the presented service. In our system, we automatically monitor the child in real time using Internet of Things, with the help of GPS, GSM. This system requires network connectivity, satellite communication, and high-speed data connection when we use web camera and GPS to lively monitor. We have designed and implemented user friendly child tracking device by using GPS and GSM. The proposed system is able to track and send the exact location of the children. This project provides the concept for developing a low cost, high accuracy and user friendly system by

using Google Map. Google Map can improve the accuracy of GPS.

A comparison between the proposed system and other system price discussed in literature section can be concluded with a low cost child tracking system can be produced.

FUTURE SCOPE

Making it compact by optimizing PCB design and converting it compatible to put inside child's bag-pack. The project can be upgraded for emergency alerts notification. We can set up a range of location for the GPS tracker. Whenever the device will out of its range, it will send SMS to the parent's number. We can use high sensitivity vibration sensor for accident detection, sound detector so that whenever it detects the sound of child's crying it will send SMS automatically, Fire detector for fire alarming notification.

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