Design and Implementation of Children Security and Monitoring System using IOT

Sucheta B.Yelmar, Prajakta P. Pathak, Prajkta K. Wakade, Sneha S. Kadam

Abstract: At this time, children security is a main problem that has to be reduced. Parents are facing problems while their child is travelling through school buses. The problems are like they sometimes can't identify the locations of school buses, they can't identify the accidents of buses etc. Our paper presents a solution over this. We tried to reduce some problems of parents. Our system is a tracking system that gives live location to parents mobile including longitude, latitude, date and time. Also gives alert when some problem occurs in bus like fire. This data is to be stored on ThingSpeak. The ThingSpeak is the Internet of Things application. This used to store and retrieve the data via local area network.

Key words: - : IOT Technology, security, sensor, school, arduino, ThingSpeak.

I. INTRODUCTION

In today's world, children security becomes major problem. And its solution is constantly improved by societies. The smart cities are constructing in the world they are taking care of this things like providing safety to children. They are providing favourable environment to the children for their living and learning. But with these facilities they are lacking in giving safety for children who are unaware of surroundings dangerous things and environment. Many children are going to school by the school buses. Sometimes we are unable to find them. One solution to this is that we have to track the location of school buses and next is to collect the information of locations. We built a system which gives the information of location of school buses to the children respective parents. This system also gives indicator to parents mobile or school administrations when there any accident or any fire is happen. This gives alert to the school administrations while children are travelling by school buses. This happens when children are coming to school or by leaving the school. This system also gives information to the parents about their children movements. In our paper we are building a tracking system with the help of sensor, GSM, GPS model etc. Due to this system the parents becomes a tension free.

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Also this system provides information about children's entering and exiting the school bus. We built this system by using an internet of this mechanism.
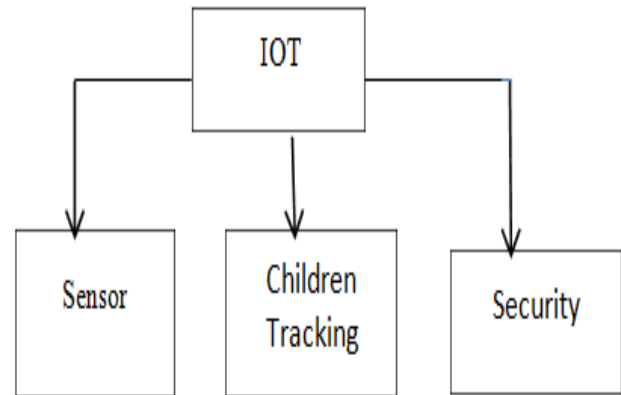

Fig 1. Basic Block Diagram

II. LITERATURE SURVEY

This paper gives information about implemented smart IOT devices which gives information of children movement from travelling to school and back to school. Also this system gives information about location of child. In this a RFID technology is used. It also helps to monitor the children. [1]

In this paper the school bus tracking system is implemented. In this the GSM, GPS are used. With the help of this we can track the school buses. This system gives arrival or departure timing of buses to the parents. Also in this system mobile phone are used to give images which are captured by the web camera. [2]

This paper demonstrates a system which will work as wireless method. This wireless system which will work as securely and communicate. This system captures the images through web camera and transfers it to the user whenever it needed. [3]

This paper gives information of system that works on a children and women security with the help of IOT. This system used a wireless technique using a embedded device like arduino. This will help to women for connecting to secure channels and alert. Also it captures the images with the help of electronic camera. [4]

This paper has proposed a smart tracking bus for the passengers. This helps to track the bus for the passengers. Due to this the time will reduces. In this the passengers that can track the bus with the help of QR (Quick Response) by scanning the QR. That QR is present at the bus stops. The passenger can track the bus arrival time of buses. They can also track the bus locations. [5]

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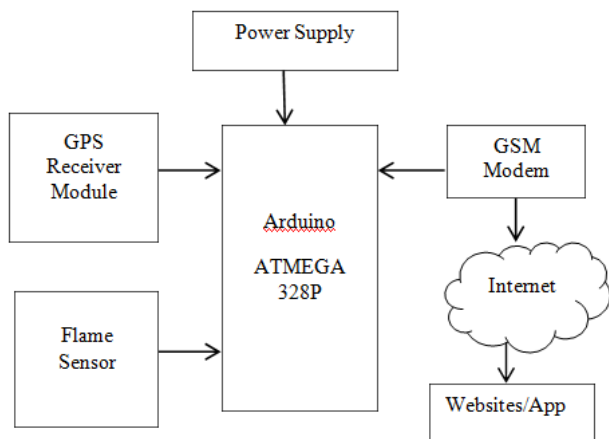
III. METHODOLOGY

Fig 2: Block Diagram of proposed system

Arduino Uno Atmega 328p:- This board is open source microcontroller. It is based on the Microchip ATMEGA 328P. This board has sets of digital and analog input/output pins. That pins are further used for interfacing.

Gps Receiver Model: - The GPS stands for Global Positioning System. The GPS gives positions of anything in the world, anyone can access the position. With the help of this receiver model we can access the position of buses, cars etc. It has three segments like Space segment (GPS satellites), Control segments (Ground control stations), User segments (GPS receivers).

Gsm Modem: - The GSM stands for Global System for Mobile. It is developed by European Telecommunications standards Institute. It is used to describe the protocols of second generation. This 2G cellular network is used by mobile phones or tablets. It gives a secure wireless system. It only authenticates the user to the network not vice versa.

Flame Sensor: - The flame sensor is more sensitive to the normal lights. Due to this it is used in fire alarms. Its function is to detect flame and responds to it. This sensor is easily damages so it can be used from a 100cm distance. And its detection angle is 600. The output of this sensor is an analog signal or digital also. The flame sensor is MQ9. This MQ9 sensor also uses a various gases like natural gas, propane etc.

Power Supply: - A power supply is an electric device which gives electric power to an electric board. The function of this is to convert electric current from a source to the correct voltage, current etc.

Websites/App: - It is a collection of network web resources. For e.g. Web pages. With the help of this websites we can get the information through internet. It is published on at least one web server. The App is an application through we can collect the information.

Internet: - The Internet is an abbreviation of interconnected network. It is the global system of interconnected computer networks. It uses internet protocol suite (TCP/IP) to link the devices. It is a networks which having private, public, business related networks.
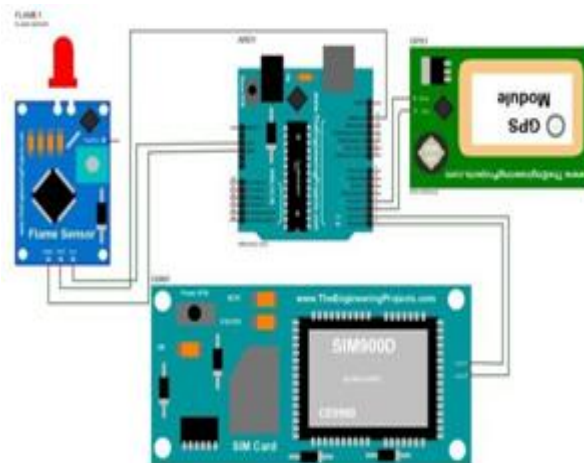
IV. RELATED WORK CIRCIUT DIAGRAM

Fig 3: circuit diagram of proposed system

1: Start

2: System initialize

3: GSM initialize

Algorithm

1: Start

2: System initialize

3: GSM initialize

If Components are available then go to next Step 4 else step 3.

4: GPS initialize

If coordinates are available then go to step 5 else 4.

5: Flame sensor initializes

6: Establish TCP/IP connection with server

7: Send data to user IP

If server responds then go to step 8 else step 6.

8: Close TCP/IP connection

9: Give delay

Again start with step 4

V. ADVANATGES

➢ Maintenance cost is less.
➢ Less Setup cost.
➢ Decent communication.
➢ Increases of chances of safety of the children.
➢ Effective Method.

VI. RESULT

This proposed system gives a solution to the security issue of children transportation especially traveling from and to school. Due to this system the parents can alert in case of fire or any accidents. With the help of GSM and GPS technology we can able to track the location of buses. With the help of ThingSpeak that information of locations is saved to cloud. In location the longitude, latitude, date and time we can see

VII. CONCLUSION

This system should give the location of buses to parents. This happens because of GSM and GPRS. With the help of flame sensor it gives alert message to the parents or school administrators. This system should track the school buses while travelling to school and from to school.

FUTURE SCOPE

In the future we can also implement a web camera through this we can capture the live images. Also we can provide RFID tags to the children to control access of school entrance monitoring.

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