Intelligent Child Safety System Using Machine Learning in IOT Devices

Jamuna, Laharika, Revanth Reddy, Nithin Reddy, Surendra
Electronics and communication Engineering, Teegala Krishna Reddy Engineering College, Hyderabad

***Abstract*: Children safety is very important for parents. Currently, more and more crimes occur against children, one that often happened is kidnapping. From year to year, the number of child abductions continues to increase. Parents should be aware of the safety and their children. In this study, we proposed a system to monitor the presence of children to anticipate the occurrence of crime against children. A person locator system that using GPS Module, GSM Shield, and Arduino can provide a solution for monitoring children. The test results showed that GPS Module, GSM Shield, and Arduino were able to work stable to detect the location of children and able to monitor the movement of children by limiting certain areas as the boundary of the allowed movement of children**

I. INTRODUCTION

Currently, the number of smartphone users in Indonesia reached 266 million people. Therefore, it is promising to develop a monitoring system that uses the smartphone as media for a parent in monitoring the presence of children. In 2010, research was conducted to monitor the presence of lecturers using RFID and serial buffer ATTINY 2313 as a temporary data storage and 4052 as a multiplexing IC as data selector on the system to be created. This research uses an identification tool using Radio Frequency Identification (RFID) for monitoring the presence of lecturers for the convenience of students and lecturers. Furthermore, a study conducted in 2011 proposed monitoring system of the location of children using mobile phones that use GPS. Mixed Methods were used to take advantage of Background Positioning Technology and Terrestrial-based Methods to improve the accuracy, timing, and availability of location information. Another study conducted research to track the location of sales marketing with remote GPS based android. This system was made as a tool to track the existence of sales marketing by utilizing GPS and SMS features. The results of the analysis were the location of the Android phone by determining the coordinates of latitude and longitude received through SMS service based on GPS output. The White Box Method is used in the test results using path-based testing. Other research tried to make monitoring system of children by utilizing SMS service and internet as data transmission media. This app can help parents to know the existence of a child with SMS service that was sent as a notification to parents. In this study, we proposed to build applications with the support of sensor technology and GPS, involving the coordinates of the child's location as input data and parents as users.

II. LITERATURE SURVEY

The global position system (GPS) based child care system using RSSI Technique. This paper proposed the GPS technology helps to determine the exact position of the child. A data from received signal strength indicator (RSSI) is extracted out from the Bluetooth connection Using which the distance between parent and child is found. An alert is triggered when the distance between the parent and child is far apart for a certain range. The Remote Video Monitoring System Based on Embedded Linux and GPRS. This video monitoring system based on embedded Linux and GPRS (General Packet Radio Service) network. lo hardware takes ARM9 S3C2410 processor for centralization, in virtue of SDRAM, USB, GPRS module etc. the main function realized by C programming to achieve real-time camera data acquisition, image compression and network transmission through GPRS module. Monitoring center receives image data and displays after connects with the terminal. It is easier to be used in windows system. Image data can be transmitted to the monitoring center in 3-6 seconds after JPEG compression. The Children Safety and School Bus Tracking Solution.

III. PROPOSED SYSTEM

In the existing system, manual intervention was required. But in the proposed system, we make every action autonomously. We can use both web application as well as mobile application or either one of it as the front-end user interface, cloud, and database as the back end for storing and retrieving information, and a device for monitoring. GPS is used to track the live location of the child who is wearing that device. With the help of GPS, we can easily perform Geo-fencing concept, in which we will be able to feed a particular boundary to that device. Fig.3: GSM If the child goes beyond that particular boundary specified, the respective guardians will receive an alert call using GSM

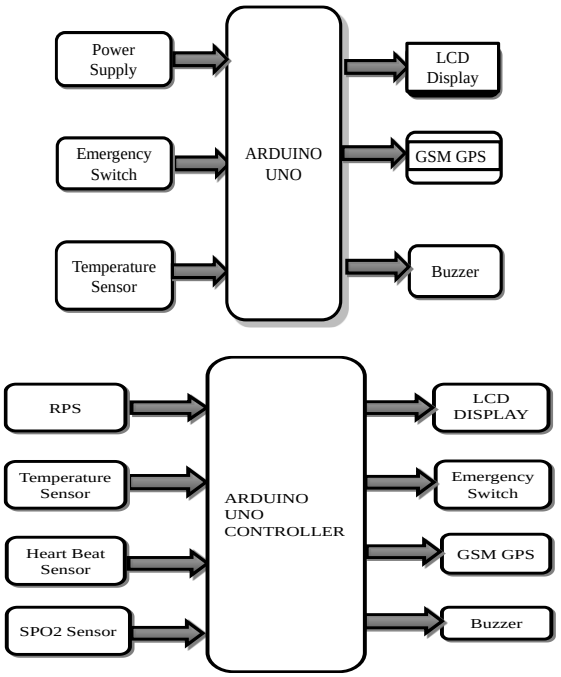


Fig 1.1 Block diagram (Phase-1 & Phase-2)

IV. HARDWARE & SOFTWARE TOOLS

A. Hardware Tools

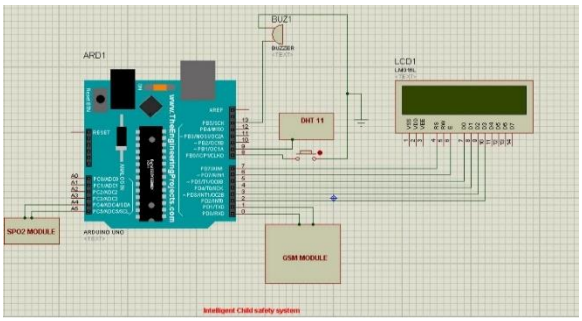
Arduino Uno
LCD Display
Buzzer
Power supply

B. Software Tools

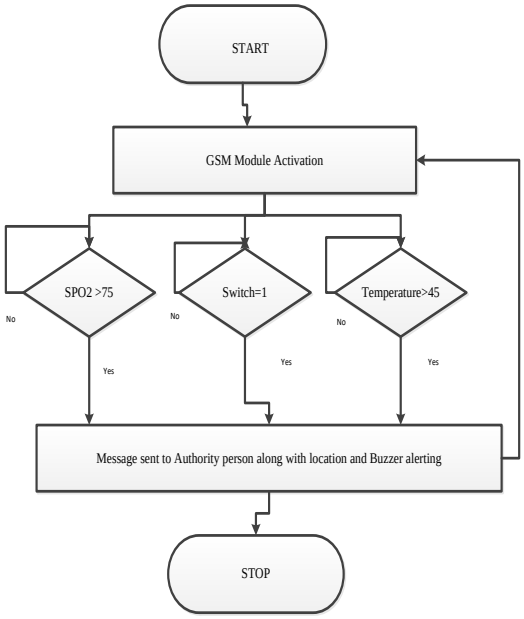
EAGLE used to create schematic diagram.
C for program

V. RESULT

A. Schematic diagram



B. Flowchart



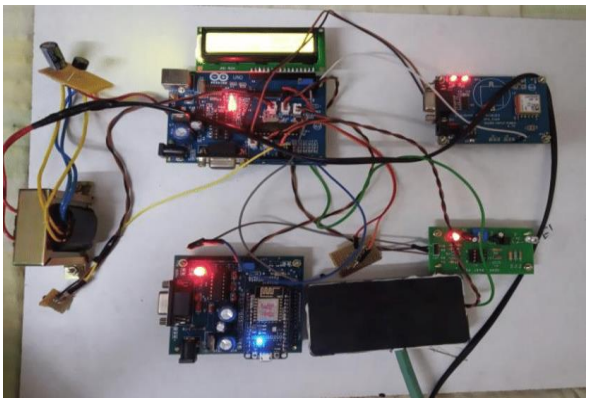
VI. APPLICATIONS

- It provides parents with real-time location, surrounding temperature of child.
- Tracks the child location when they reach school or arrive home from school.
- It can be used for women safety, mentally disabled persons.

VII. ADVANTAGES

- Authority will get information in flood occurring time.
- To easily identify Water level emergency indication.
- Long distance also gets information
- Buzzer alerting also available in emergency

VIII. RESULT



IX. CONCLUSION

Based on the results of research and testing conducted by the author, it can be concluded that Arduino Microcontroller can be used to detect the location of the child by utilizing coordinate data obtained from GPS module. GPS module, GSM shield and Arduino able to work stable to detect the location of children and able to monitor the movement of children by restricting certain areas as the limit of movement of children. At the time of online testing, internet connection plays an important role for the smooth use of the application. Similar application can be observed for several applications such as for environment monitoring, electrical appliances and asset management. Some suggestions that can be considered for further research is to utilize more effective sensor installation. In subsequent research can be developed with attention to the time in obtaining a fixed coordinate so that the accuracy of the detection location of the child's existence better. There is room for development on the notification feature; for example, if the child is at a very close distance to the outer border, then the notification should be sent to the user.

X. FUTURE SCOPE

In our system, we automatically monitor the child in real time using Internet of Things, with the help of GPS, GSM, and Raspberry Pi. This system requires network connectivity, satellite communication, and high-speed data connection when we use web camera and GPS to lively monitor. It is difficult to monitor when there occurs any hindrance to satellite communication or any network issue. There also occurs time delay in video streaming through the server.

REFERENCE

[1] W,Lo, J.H. Wu, F.P. Lin, and C. H. Hsu, “Cyber surveillance for flood disaster,” sensors (Switzerland),2015.

[2] H.A. Rahman, “Global climate change and its effects on natural habitat and environment in Malaysia,” Malaysian J. Environ. Manag., vol. 10, no. 2, pp.17-32,2009.

[3] H. Hamidon, “Flood level indicator and risk warning system for remote location monitoring flood observatory system”, SEAS Trans. Syst. Control, vol. 5, no.3, pp. 153- 163,2010

[4] M. Mathematic and R. Grace, “Flood alert management system using iota and microcontroller,” International journal of innovative research in computer and communication engineering, vol. 5, no. 4, April 2017.

[5] Sebin Sabu1 and Nora Elizabeth, “Kerela floods-A model of rescue and rehabilitation using information technology and social media-based crowdsourcing”, IEEE India info. Vol. 13 No. 3 Jul-Sep 2018.