

Article

A Study on Device for Child Safety and Tracking

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A B S T R A C T

Child safety and is a significant worry as the greater number of violations on kids are detailed these days. With this inspiration, a reasonable IoT gadget for kid security and following is created to help the oldsters to find and screen their youngsters.

The framework is created utilizing Link It ONE board modified in inserted C and interfaced with temperature, heartbeat, contact sensors and GPS, GSM and camera modules. The oddity of the work is that the framework automatically alerts the parent/caretaker by sending SMS when quick consideration is needed for the youngster during crisis.

The parameters like touch, temperature & heartbeat of the child are utilized for parametric examination and results are plotted for a same. The above framework guarantees the security and following of adolescents.

Keywords: Robots, Automation theory, Robotic laws, Artificial intelligence, Sensors, Controllers, Programming

Introduction

Internet of Things (IoT) plays a major role in every day to day life. The major difference between IoT and the embedded system is that a dedicated protocol/software is embedded in the chip in case of embedded system, whereas IoT devices are smart devices, which can take decisions by sensing the environment around the device. The development of sensors technology, availability of internet connected devices; data analysis algorithms make IoT devices to act smart in emergencies without human interventions. So, IoT devices are applied in several fields like agriculture, medical, industrial, security and communication applications.¹ IoT systems are useful within a system to try to deeper automation, analysis, and integration. IoT contributes to technology by advances in software, hardware, and modern tools. It even uses existing and upcoming technology within the fields of sensing, networking, and robotics. IoT brings global changes by its advanced elements in the social, economic, and political impact of the users.

Child and women safety are a challenging problem

nowadays by day increasing. Schools and workplaces need high surveillance for ensuring safety among children and women. Smartphones are playing a major role in ensuring security where some mobile-based applications provide alert, systems. During the emergency, mobile apps alert the control room of nearby police station or caretakers of children. The literature indicates that place tracing devices are accessible in the market, however, it doesn't give a total answer for the issue. The answer for the current issue is to style an IoT gadget, which detects the youngster's area and climate and through a crisis, it ought to send the mindful of the oldsters naturally.

Background

The review of literature for child safety and location tracking devices are discussed below. In², the parent can send a message to the GSM module, according to the message information the GSM module reply with details of the children. The location can be seen on the Google map. When a particular child is facing an emergency, the device button should be pressed so that the device captures the

image along with the user information to the enrolled mobile numbers. The life of the child can be saved within no time. In³, for the children point of view GPS, GPRS and GSM are used to monitor the speed and location tracking purpose. The system is fixed on the bus or car or in any vehicle so that the vehicle is going on routine route or not can be identified by the GPS tracker, the speed of the bus can also be extracted.

These days computerized innovation assumes a significant part in interfacing people by means of the web. Web is the one that will associate various segments through a solitary gadget and is associated with a worker. Guardians track their youngsters continuously of the area tracker by GSM and⁴ the microcontroller utilized is ARM-7 LPC2148. In everyday situation, missing youngster cases are expanding steadily.

Child caring is a major issue. Different types of methods are introduced to find good solutions. There have been many methods and systems implemented to solve them. In⁵ to solve child caring problem global position system (GPS) based solution with two nodes was proposed. In these two nodes, one node is the child node which contains a Bluetooth module and a GPS receiver. wearable IoT device for the security and shielding of women and girl children was designed. The parent hub comprises of a portable that underpins Bluetooth. The area of the youngster can be followed by the GPS map in the cell phone, through the Bluetooth association the distance between the kid and parent can be determined. Kids under six years can't disclose in words straightforwardly to their folks about the issues, thus a wearable gadget is created in This gadget gets data, for example, developments, area of their kids and send it to the guardians progressively.⁶

The internal heat level and galvanic skin opposition of the body are changed in unusual conditions. This was utilized as info data and the alarm signal is delivered while it passes the boundary esteem. This work manages internal heat level and stress, skin obstruction and the connection between them.⁷

Block Diagram and Its Description of Proposed System

The block diagram of the proposed child safety device is shown in Figure 1. The LinkIt ONE board is an open source platform. It consists of inbuilt Wi-Fi, GSM, GPS and Bluetooth modules. The link it one board is like the arduino board and it is termed as all-in-one prototyping board for wearable's and IoT devices. The board consists of ARM7 EJ-S and the clock speed is 260MHz. A SIM and SD card slots are provided on the board itself. For the audio purpose a headset slot is also provided. The link it one is a robust development board for the hardware and used for industrial applications.⁸

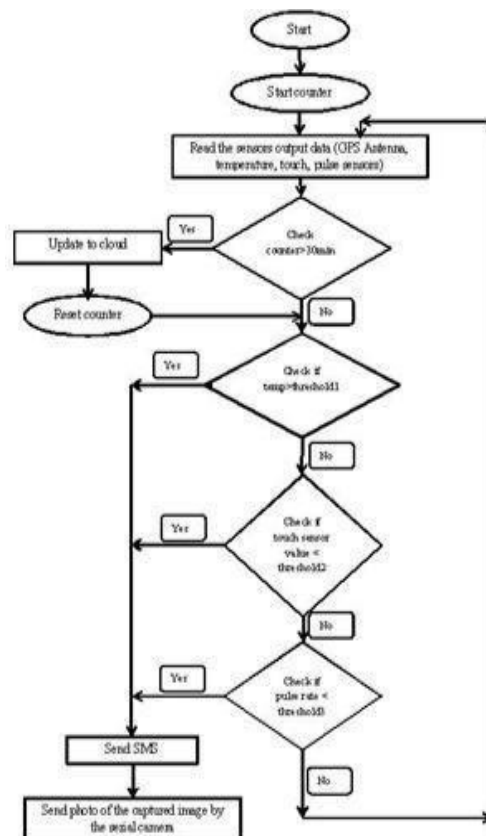


Figure 1. Flow Chart of the Proposed System

Different components such as Temperature sensor, Touch sensor, heartbeat sensor, GSM, GPS modules and serial camera are connected to the LinkIt ONE Board along with builtin GSM, GPS modules. Lithium ion battery is used as DC supply required to energize it. A rechargeable battery can also be used for the above purpose. Temperature sensor block is shown in figure 1; temperature is one of the most measured variables and is therefore there are many ways of sensing temperature.⁹

The counter should be begun for tallying time. The sensors o utput information should be perused from the kid security gadget. The 3 0 minutes. For each 30 minutes except for the sequential camera, the information from GPS, temperature, contact, beat rate information is driven into the cloud. The checking boundaries are shown on the website page. The counter is reset to restart the clock. To post the information into the cloud for each 30 minutes. The sensors information is consistently perused by the regulator. At the point when the estimation of temperature read from the sensor crosses the threshold 1, warning messages are sent. The limit estimation of the temperature is considered here is 38°C. Essentially, when the touch sensor value is measure Threshold 2, notice messages are sent.

The Pulse rate interval is the analogue value from the sensor, it is converted into the Beats Per Minute (BPM) by formulae.

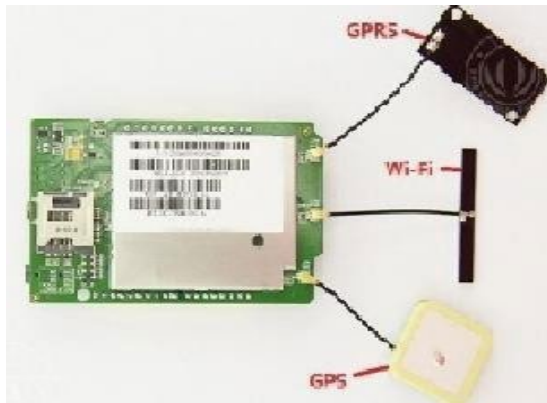


Figure 2.Link It ONE board with inbuilt GPS, GPRS and WIFI

Conclusion

This exploration shows Smart IoT gadget for kid security and following assisting the guardians with finding and screen their youngsters. On the off chance that any anomalous qualities are perused by the sensor, at that point a SMS is shipped off the guardians versatile and a MMS showing a picture caught by the sequential camera is additionally sent. The future extent of the work is to actualize the IoT gadget which guarantees the total answer for youngster security issues.

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