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Child Tracking System

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ABSTRACT: Violence towards children has recently risen at unprecedented rates all over the world, and it is beyond time for schools to provide a safe support system for pupils. This paper aims to discuss the introduction of a children's trailing scheme for each child who attends faculty. Present programs, however, are unable to deter child abuse since they only provide knowledge about the children, the youngster, and the kids' cluster, rather than an actual child, leaving parents with a poor sense of trust in their child's well-being. They frequently neglect to realize the value of detecting a child's cry and telling its parents daily. The suggested system would include a kid toddler, a baby module, and one receiver module for periodically gathering data on the missing boy. The international positioning system of the nodemcu controller is included in the child module. GPS was used to calculate the children's position, which was then sent to the local host server method. The microcontroller is linked to a parent hand-held Wi-Fi device. In this project, we will create an IP address. When the parent scans, the IP address of the child's location is shown on the webpage. If the address is not shown on the tab, it means the child was not at home. We attached another future to the kid's panic button in this experiment: if the kid pushes the panic button twice, the buzzer circuit would begin to blast until the panic button is activated.

KEYWORDS: Child Tracking System, Global Positioning System(GPS), Wifi

I. INTRODUCTION

Children have suffered untold plights because of the dehumanizing growth of kidnapping due to widening scale of insecurity. Many children had been abducted while going or coming from school making the abductees and their families trauma-tised by the ordeal of the kidnapping. The lives of children have become vulnerable these days. Security of their lives is one of the burning questions. Everywhere they have to face unwanted incidents. Child tracking system is widely used all over in the world and it gives the assurance to the parents that their child is safe from suspicious action but they are not affordable for people in the lower economic class. Also increase in missing, kidnapping cases is the major problem. There is much sensational news about child safety in day-to-day life. When emergency situation occurs then a child cannot protect and operate the smart phones, also she cannot set the emergency alert function, when they are in risk situation immediately they cannot pass send their location to the police family members. Nowadays there are many applications developed for the child security but main drawback of these application is it required initial interaction of child and that situation it is not possible. Considering all we have developed a system to track child in emergency.

II. THE RESEARCH METHOD

Child Tracking System Using Zigbee Network. Karthika, M.S.J., 2021.

The suggested system would include a kid toddler, a baby module, and one receiver module for periodically gathering data on the missing boy. Use of Panic Button Mentioned.

III. THE REFLECTIVE PROCESS

In this project, we are mainly using GPS, Temperature Sensor, Pulse Sensor and Node MCU microcontroller. Node MCU will collect the input from the switch and monitor the temperature and pulse position. Women's getting any troubles with the help of a panic switch sent the alert message to the authorized person with location and buzzer ringing.

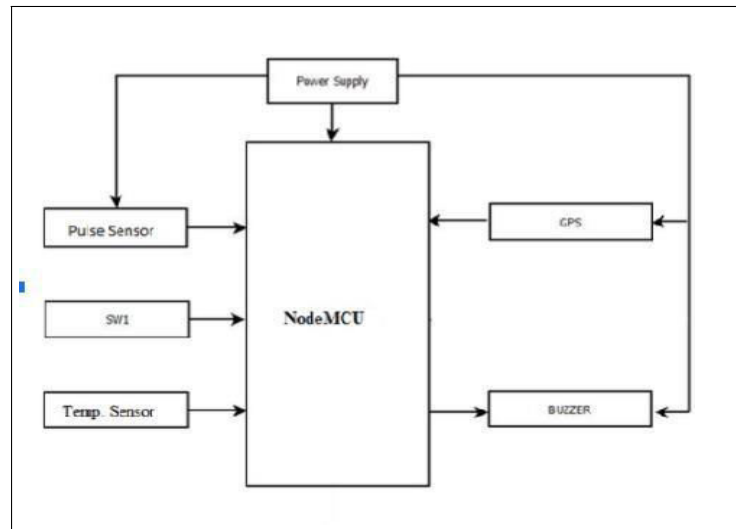


Figure: Block Diagram

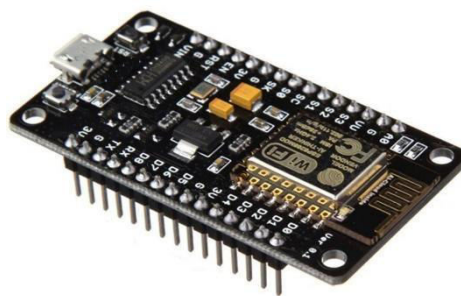
The system we have presented here has mainly four parts. They are

1. Location Tracking (GPS module)
Global positioning system (GPS) is able to determine the latitude and longitude of a receiver on Earth by calculating the time difference for signals from various satellites to reach the receiver.
2. Measuring Temperature (Temp. sensor)
Human body temperature is of vital importance to maintain the health and therefore it is necessary to monitor it regularly. We can measure the body temperature using various temperature sensors. For instance, LM35 series are precision integrated circuit sensors whose output voltage is linearly proportional to the Celsius temperature. It operates linearly +10.0mV/°C scale factor with 0.5°C accuracy. In emergency case body temperature varies drastically which can trigger module for rescue.
3. Measuring heart beats (Pulse sensor)
Heart beat sensor gives digital output of heart beat. When heart beat detector is working the led flashes for every heart beat. This digital output will be connected to microcontroller directly to calculate the beats per minute (BPM) rate.
4. Admin:
Admin of a system can add women details such as relative information health details to system. Admin can add Hospital and police station records to the system along with latitude and longitude (i.e location details). Admin have rights to add and delete record. Added data will be stored in MySQL server.

IV. SYSTEM DEVELOPEMENT

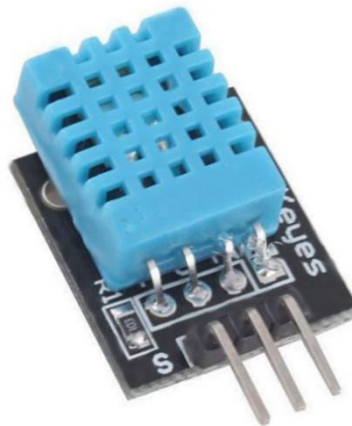
1. **HARDWARE DESCRIPTION**
2. **1.ESP8266 WI-FI MODULE**

The ESP8266 is a low-cost Wi-Fi microchip module, with full control in a TCP/IP stack and microcontroller capability. ESP8266 module allows microcontrollers to connect to a Wi-Fi network and make simple TCP/IP connections using commands. The ESP8266 with 1 MiB of built-in flash, allowing the building of single-chip devices capable of connecting to Wi-Fi. The ESP8266 development board comes with the ESP-12E module containing the ESP8266 chip having a Tensilica Xtensa 32-bit LX106 RISC microprocessor. This microprocessor supports RTOS and operates at 80MHz to 160 MHz adjustable clock frequency. It has 128 KB RAM and 4MB of Flash memory to store data and programs. Its high processing power with in-built Wi-Fi / Bluetooth and Deep Sleep Operating features make it ideal for IoT projects. The ESP8266 can be powered using a Micro USB jack and VIN pin (External Supply Pin). It supports UART, SPI, and I2C interface.



2. Temperature Sensor

A temperature sensor is an electronic device that measures the temperature of its environment and converts the input data into electronic data to record, monitor, or signal temperature changes. There are many different types of temperature sensors. Some temperature sensors require direct contact with the physical object that is being monitored (contact temperature sensors), while others indirectly measure the temperature of an object (non-contact temperature sensors).



- **Heart Rate Sensor**

An optical heart rate sensor measures pulse waves, which are changes in the volume of a blood vessel that occur when the heart pumps blood. Pulse waves are detected by measuring the change in volume using an optical sensor and green LED.



Figure: Heart Rate Sensor

GPS Module

Global positioning system is navigation and precise positioning tool, which tracks the location in the form of longitude and latitude, based on earth by calculating the time difference for signals various satellites to reach the receiver. In six different orbits approximately 12500 miles above the earth, 24 MEO (medium earth orbit) satellites revolve around the earth 24 hours and transmit location every second. It receives the data of location and transmits it to the arduino. The arduino thereby receives the signal from GPS and hence it performs further operations.

SOFTWARE DEVELOPMENT

1. OPERATING SYSTEM : Microsoft Windows 7 and Above

Microsoft Windows, also called Windows and Windows OS, computer operating system (OS) developed by Microsoft Corporation to run personal computers (PCs). Featuring the first graphical user interface (GUI) for IBM-compatible PCs, the Windows OS soon dominated the PC market. Approximately 90 percent of PCs run some version of Windows.

3. 2 JDK

(Java Development Kit) A Java software development environment from Oracle. It includes the JVM, compiler, debugger and other tools for developing Java applets and applications. Each new version of the JDK adds features and enhancements to the language. The JDK includes tools useful for developing and testing programs written in the Java programming language and running on the Java platform.



4. 3 IDE : ARDUINO

The Arduino Integrated Development Environment (IDE) is a cross-platform application (for Windows, macOS, Linux) that is written in functions from C and C++. It is used to write and upload programs to Arduino compatible boards, but also, with the help of third-party cores, other vendor development boards. User-written code only requires two basic functions, for starting the sketch and the main program loop, that are compiled and linked with a program stub main() into an executable cyclic executive program with the GNU toolchain, also included with the IDE distribution. The Arduino IDE employs the program avrdude to convert the executable code into a text file in hexadecimal encoding that is loaded into the Arduino board by a loader program in the board's firmware.

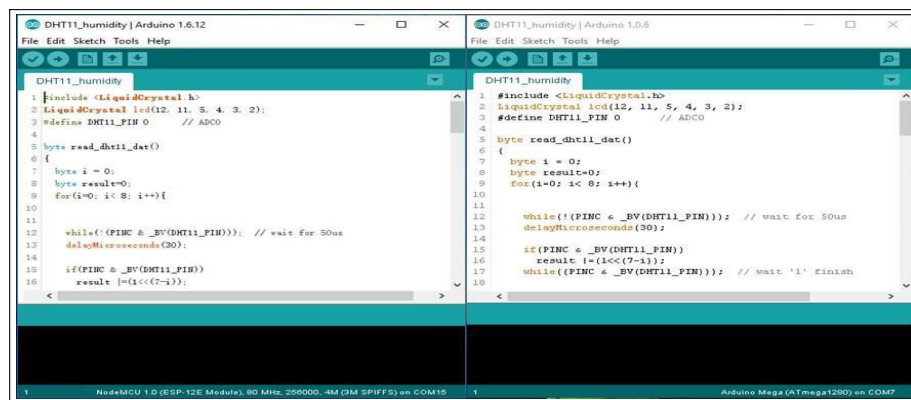


Figure: Arduino IDE

OPERATIONAL DETAILS

Algorithm

- Step-1: Select the number K of the neighbors
- Step-2: Calculate the Euclidean distance of K number of neighbors
- Step-3: Take the K nearest neighbors as per the calculated Euclidean distance.
- Step-4: Among these k neighbors, count the number of the Data points in each category.
- Step-5: Assign the new data points to that category for Which the number of the neighbor is maximum.
- Step-6: Our model is ready.

Flowchart

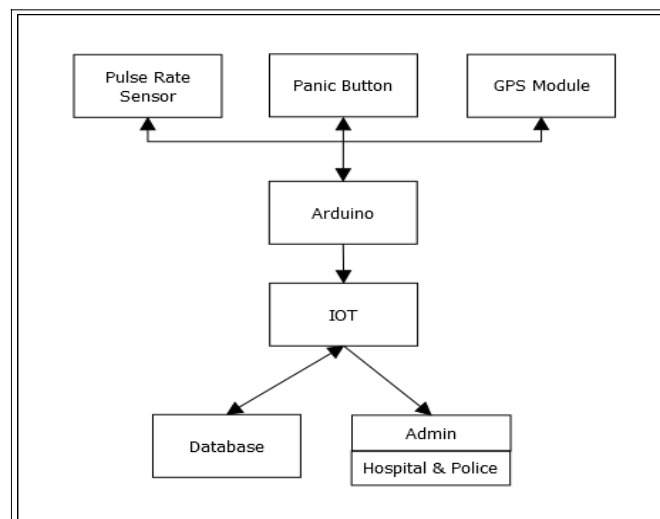


Figure: Flowchart



V. CONCLUSIONS

The propose system is user-friendly which is used in day to day life. We can make use of number of sensors to precisely detect the real time situation of the child in critical abusive situations. The heartbeat of a person in such situations is normally higher which helps make decisions along with other sensors like motion sensors to detect the abnormal motion of the child while he/she is victimized.

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