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# CHILD TRACKER SYSTEM WITH EMERGENCY NOTIFIER(IOT)

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**ABSTRACT**

**These Days parents are worried about their children's so they want a complete track of them and monitor them all the time, This is physically not possible so we introduce Safety Monitoring system which is helpful for health monitoring or tracking the child and their activities from anywhere in the world. The major issue of child missing can be solved with the help of child tracking system as well as parents who need to keep a track of their every steps, this system plays a vital role. ESP8266 Wi-Fi module gets the coordinates from GPS modem and then it sends this information to user in text SMS. Heart beat and Accelerometer Sensor is used to send health related and position related values send via Wi-Fi network to the parent. The latest like GPS are highly useful now days, this system enables the parent to observe and track his location and find out child movement and its past activities.**

**Keywords: GPS, Heartbeat Sensor, Location, IoT, Accelerometer Sensor, Microcode Applications.**

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## I. INTRODUCTION

All over the world, crime against children is increasing at higher rates and it is high time to offer safety support system for the children because children are active and sensitive. It is always difficult to effectively analyze the natural behavior of children.

Today, technology is growing rapidly and providing all essential and effective solutions for every requirement. Children tracking system is also developed based on GPS networks. System developed in GPS system and tag based system, the system provides safety and monitoring for the parents so that they can easily track their children according to their requirement.


Fig 1. Simple Structure

Problem Statement:
The incidence of missing children is no longer a weird thing. Children require special attention from parents to control their movements. Parents need to be aware of their children to avoid the incidence of missing children.
This is because of leave a child alone can increasing the risk of losing it or lead to kidnapping. it becomes the tremendous problem around the children and their parents.

## II. PROPOSED SYSTEM

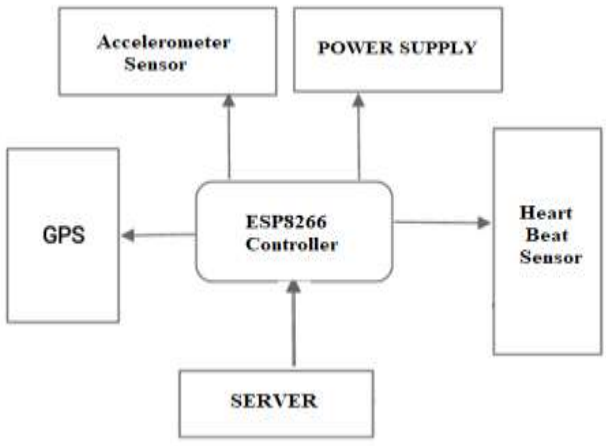


Fig 2. System Architecture

 

### *A. Description*:

In order to get the precise location details, an ESP8266 controller is used. The arduino software is uploaded to the ESP8266 microcontroller using USB cable. All components are interfaced onto the Wi-Fi microcontroller. Design of the system is categorized into two parts, one is hardware and another is software. The designing is developed in order to make the child tracking system remotely active and health monitor using health sensors. Heart beat sensor used for the child heath monitor. Display is used in order to notify the changes in x,y and z coordinates created by the movement of the accelerometer sensor. The sensor is supplied by the power from the ESP8266. GPS module is externally connected through the ESP8266. With the help of the interfacing, these two modules can transfer and exchange information. An IoT web page is designed using IoT technology in order to monitor the whole working process and location details. This proposed design is a far better version of the already existing systems which are technically restricted in some areas.

### *B. Mathematical Model*

System Description:

S={L,G,S,H,P,Si,Fi}
Input:

Tracking ()
L : Tracking location of child.
G : GPS for tracking the current location
S : SMS send for updating location to parents.
H : Heart beat sensor values.
P: Child Position detection.

Output:
Tracking current location of child and health values.

Si: Success Condition
When the controller send the values to the server for detection the current location.

Fi: Failure Condition
When GPS not detect the location and health values not send the values to the server.

## III. HARDWARE DESCRIPTION

ESP8266 Wi-Fi Controller:

The ESP-12e NodeMCU WIFI Dev Board is an all-in-one microcontroller + WiFi platform that makes it very easy to build and test WiFi and IoT projects.
Our NodeMCU Board uses the new ESP-12E module similar to ESP-12 module but with 6 extra GPIOs.
The ESP8266 NodeMCU development board is a true plug-and-play solution for IoT projects using WiFi.
Our NodeMCU uses the CP2102 Serial / USB Chip, Open-source, Interactive, Programmable USB: Micro USB port for power, programming and debugging Easy access to the GPIO pins.

Fig 3. ESP8266 Controller

GPS:
The Global Positioning System is a space-based satellite navigation system. GPS provides location and time of object in information in all weather conditions. It is a network of 30 satellites orbiting the earth at an altitude of 20,000km whenever you are on the planet. The GPS (Global Positioning system) receiver continuously receives the latitude and longitude values for every position of the object or system.

Fig 4.GPS Module

Accelometer Sensor:
It is 3 axis accelerometer with on board voltage regulator IC and signal conditioned Analog voltage output. The module is made us of ADXL335 from Analog Devices. The product measures acceleration with a minimum full-scale range of ±3 g. It can measure the static acceleration of gravity in tilt-sensing applications, as well as dynamic acceleration resulting from motion, shock, or vibration.

Fig 5. Accelometer Sensor:

Heartbeat Sensor:
The KY-039 heartbeat sensor is designed to detect a pulse while a human finger is place between the infrared diode and the photo transistor a red LED flashes with each pulse.. The pulse will be represented on the signal output pin.
This sensor works by using a photo transistor to detect the presence of light, in this case how much light is passing through a finger. When blood moves, the amount of light changes and that change can be detected as a pulse.

 

Fig 6. Heartbeat Sensor:

## IV. RESULTS

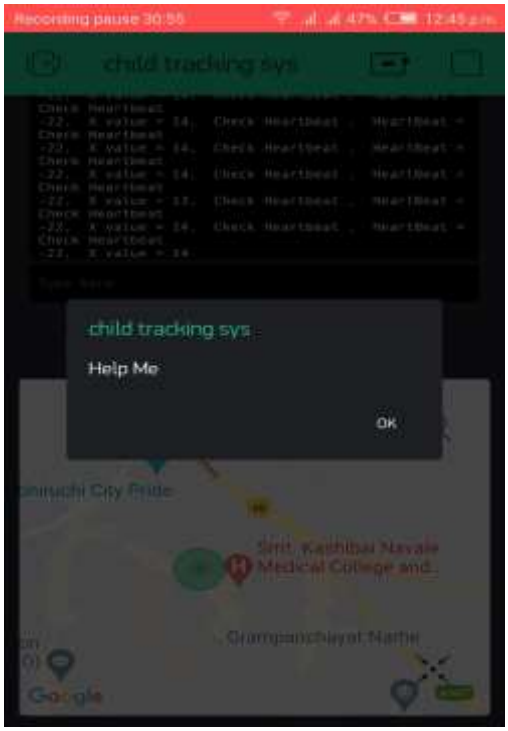


Fig 7. Emergency Notifier Output


Fig 8. Heartbeat Output

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I wish to express my profound thanks to all who helped us directly or indirectly in making this paper. Finally, I wish to thank to all our friends and well- wishers who supported us in completing this paper successfully I am heartily thankful to my project guide for his valuable guidance and inspiration. In spite of their busy schedules they devoted their self and took keen and personal interest in giving us constant encouragement and timely suggestion. Without the full support and cheerful encouragement of my guide, the paper would not have been completed on time.

## VI. CONCLUSION

This project implementation primarily focuses on tracking a child's position and its location is sent to its parent and control room. It can be extended to perform the same for all children in the school by reducing the size of the child module.

This project of children security and tracking system using ESP8266 Wi-Fi model and GPS technology has been successfully developed. The result and analysis of the data obtained from the project testing have been carried out that this project has achieved the objective and the purpose of this project being developed.

This device can help parents to track the location of their missing children.

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