

# IoT Based Security System for Supporting Parentalship

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**Abstract** - The proposed system "IoT Based Security System for Supporting Parentalship" aims to provide security to the women and child by using modern, reliable techniques. It can be used to locating missing or lost children and also tracking the child movements outside from the home. The system can also be used to locate women who are in danger. We have combined GPS with one of the basic service of a smart phone which is GSM more specifically SMS in a system. Our proposed model contains pulse sensor which measures the heart beat rate and temperature sensor which measure the body temperature in a regular basis. This system includes panic button. In case of emergency the person will press the panic button, the emergency message will send to the parent number. The sensed values are sent to cloud, the parent can access it using a link provided. The complete system is implemented using Arduino nano, node mcu and arduino pro mini. I used c programming for interface all the sensor and other hardware devices. This device is portable, hence it is easy to carry from one place to other.

**Key Words:** SMS, Emergency, GPS, GSM, Pulse Rate, Body Temperature, Cloud

## I INTRODUCTION

Children and women are considered backbone to any community in the world. They are the precious resources as they primarily shape the future and economy of any Nation. There are various teething troubles from with these both are to be protected. Apart from natural and unnatural accidents, Children are also to be protected from various risks of trafficking, exploitation and all forms of abuse. Their dependence on parents/care takers, lacking awareness on self-protection and dangers around and weaker defence, they are vulnerable to major risks.

Women safety, also comes hand in hand with children. Earlier, when they majorly attended their domestic duties, there were incidents of domestic violence against them. Now, in recent times, where they are participating in the process of economic development on an equal footing with men, the risks of protecting their dignity and morale are also gone high. Even though the government organisations and private firms provide various facilities to ensure the safety of women, we are still observing miserable incidents occurring against women all over the world.

In security system also IoT given its foot print. So we wish to solve the common problem that every child and women and their guardian facing now a days. It is batter if we can provide a safety gadget that is portable to women and children, we can monitor them properly. With this advanced technology if can provide a solid system that keeps all these risk away we can ensure the safety and security of our belongings. This project is focuses on providing a IoT based smart gadget that ensures the real time tracking of victim, and to get to know the emergency level by taking the value of body temperature .so that we can rush to the location before any harassment.

## II LITERATURE SURVEY

The paper[1] is an IoT based wearable device to ensure the safety of children. They used GSM module for communication and GPS module for locate the child movement. They used sensors like Temperature Sensor for measuring the outside world temperature of child, UV sensor for measure the uv radiation of the atmosphere to know whether that radiation is suitable for the child or not. They used SOS light and Alarm buzzer for to get the attention of the people in outside world. The entire system is operated by parent using keywords like temperature, uv, sos, alarm. The system will replay back to the parent using text messages of the sensed results.

The paper[2] is an IoT based security system for women and child. In this system they used wifi to communication between the women or child to their care taker. They used LPC2148 microcontroller, there will be a switch provided in the system and GPS for tracking the live location of the person. There will be a LCD display will be provided for displaying purpose. There will be voice playback for alerting the surrounding people. When the victim presses the emergency button, the live location will be captured. It will be displayed on the LCD display. And it will be send to the parents and police station as a emergency message. The location link will be provided, when the parent or police click the link the location of the victim will be traced using google map.

In paper[3] they used Raspberry Pi as a microcontroller, GPS modem for location gathering, GSM modem for sending messages, sensors like pulse and Temperature Sensor for getting real time sensed information, and emergency switch for emergency purpose. When the

victim presses the emergency button, PS will gather the live location that mean longitude and latitude of the victims location, the Temperature Sensor will sense the temperature of the outside world of the victim, the Pulse Sensor forget the pulse rate of the victim to recognize the victims situation . All these information will be send to the parent using GSM modem.

### III PROPOSED METHOD

“IoT based security system for support parentalship” is a project that helps to over the problems faced by the women’s childs and their parents now a days. We developed this project using three microcontrollers namely Arduino Nano, Arduino Promini, Node MCU. And we used temperature and Pulse Sensor to get the temperature and pulse rate of the victim. GPS and GSM modems for location gathering and SMS notification purpose.

When the women feel insecure, when she need emergency help she will going to press the panic button that is given in the board. The commend will send to the Arduino Nano, then GPS will start grabbing the location of the victim. GSM modem will send the emergency message to the registered number, that text message includes location of the device. The Pulse Sensor and Temperature Sensor will start sensing the pulse and temperature value. That will send to the promini and from promini data is send to the Node MCU for storing in cloud. The Node MCU will get the location, pulse and temperature values and send that to the cloud. When ever the pulse or temperature rate is low or high intermediately the emergency text message with that sensor and location value will send to the registered phone number. The parents are given a Ubidots link, using that link parents will access the value that are stored in cloud.

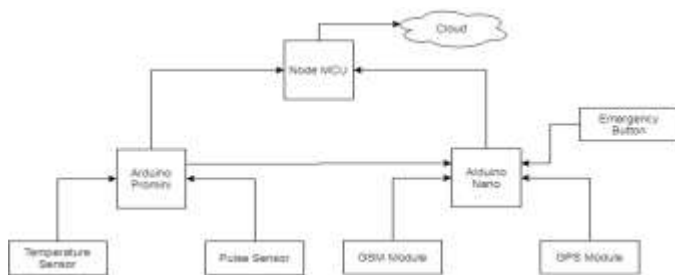


Fig -1: System Architecture Diagram

#### A. Arduino Nano V3.1

It is an widely used micro controller. It comes with the Atmega328p processor. It has fourteen digital pins in it and eight analog pins. Two reset pins, six power pins. Arduino Nano is alike Arduino uno with small size. Arduino Nano has Frequesncy 16Mhz crystal oscillator. Arduino Nano comes with mini usb port, in which we connect computer with nano. It comes with the 32kb flash

memory, that is used to store code in nano. We used to code Arduino Nano using Arduino IDE. Writing code for Arduino Nano in Arduino IDE is called sketch.

#### B. Arduino Promini

It is a microcontroller. The main advantage of using Promini is it more flexible, budget friendly, and it is small in size compared with other microcontroller. As it comes with minimum components its cost will be low. We can code Arduino Promini as like Arduino Nano that mean using Arduino IDE. Arduino Promini comes with the Atmega328p processor and same as Arduino Nano it also have 14 digital pins and 8 analog pins with it. Same as Arduino Nano it also have 32kb flash memory but in that it uses 0.5kb for bootloader.

#### C. Node MCU ESP8266

It is an micro controller. In this project we used it for wifi connection to the system. Node MCU is a wifi transceiver. This will not only act as a wifi network, it also interact with the internet, it also setups its own network that connects other devices directly to it.

#### D. NEO 6M GPS

It is for gathering the location. It has a external antenna, it act as a GPS receiver. It need 2.7 to 3.6v to operate.It consumes low power. It minimum engineering work, lower power consumption and good memory choice make it to perfect choice for battery operating Systems. NEO 6 GPS is flexible and cost effective .Its ceramic active antenna provides good satellite search capability.

#### E. A6 GSM

It works alike a normal mobile phone. We can call, we sent text messages through it. It can be operated with 5V. A6 GSM is cheaper then SIM900. One antenna will be provided, There will be a sim slot where we places the sim card in it. A6 GSM module is very simple to connect to the microcontroller. In sim slot we can place only micro sim.

#### F. Pulse Sensor Easy Version 1.1

It works on the principle of photoplethysmography. It has a infrared light on one side of finger and photo detector on another side of finger. It measures the heart beat rate by the small variation in the light transmission through the finger. The values given by the Pulse Sensor is in analog form, Arduino have to convert it to digital form. It is used to detect the cardio-vascular pulse wave. It can be operated in 5v.

G. DS18B20 Temperature Sensor

It is a water proof and pre-wired Temperature Sensor. It used to communicate over 1 wire bus, that mean it require only one data line for communicate with the central microprocessor. This type of Temperature Sensor uses parasite power, so there is no need of external power supply. This sensor will operates in 3.0V to 5.5V. It can take readings from -55C to +125C or -67F to +257F. It is an digital Temperature Sensor.

IV RESULT

Whenever the victim presses the panic button the message will be sent to the parent mobile number.

“SOS is received, Please rush to the location” with location.

Whenever the pulseor temperature is abnormal the message will be sent to the parent.

“Person’s Pulse (Body Temperature) is abnormal, please rush to the location” with location.

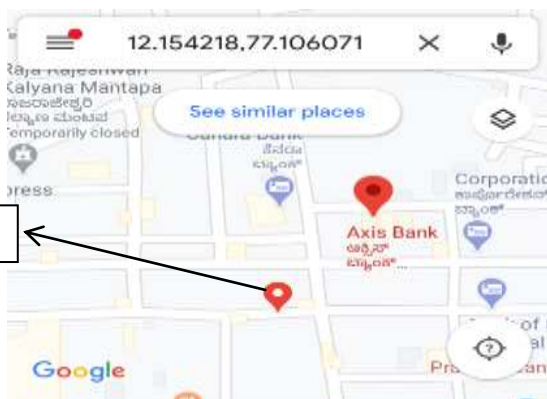


Fig -2 Location



Fig -3 Proposed System

CONCLUSION

Security is the major issue faced by the weaker section of the society in current trends. Our system provides the security to overcome these problems with modern techniques with reliable equipment. This project is an smart IoT based security system as it acquire data in a real time and sends to the cloud and parents in a real time. As it is smaller and portable from one place to another we can carry easily in our bag. Major advantage of this system is it can not identified by a common man who not have the knowledge about this system, it is not identified easily. Using this system we can trace the location of the child or women easily as we are using google api for locating the victim. Finally this system helps to overcome the problem that every women or child and their parent facing in daily life that is fear of safety and security.

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