

A PROJECT REPORT
ON
Child Safety wearable Device
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Project Guide:

Ms Anisha

Submitted By:

Afzal Hussain

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Introduction

- Internet of Things (IOT) is the latest technology that connects entire world. It establishes connectivity (through internet) among the various devices or services or systems in order to little by little make automation development in all areas.
- Safety is the most wanted power for everyone in today's world. Rape is the one of the major crime in India practiced against Child and Women. The crime rate is growing steadily since last few decades. According to latest National Crime Records Bureau (NCRB) 2013 annual report, 33,707 rape cases are reported across only India. The number of reported rape cases has been steadily increasing over the past decade.
- Technology is the best way to solve this problem. That's the reason to develop this project that can act as a rescue device and protect at the time of danger. The motivation behind this project is an attempt to focus on a security system that is designed merely to serve the purpose of providing security to women so that they never feel helpless while facing such social challenges. An advanced system can be built that can detect the location and health condition of person that will enable us to take action accordingly based on electronic gadgets like GPS receiver, GSM, pulse rate sensor, flex sensor, MEMS accelerometer, body temperature sensor. We can make use of number of sensors to precisely detect the real time situation of the women in critical abusive situations. The heartbeat of a person in such situations is normally higher which helps make decisions to detect the abnormal motion of the women while she is victimized.

Literary Survey

- In today's world women are less secure and have many issues regarding their security purpose. This paper describes about safe and secured electronic system for women which comprises of an Arduino controller and sensors such as temperature LM35, flex sensor, MEMS accelerometer, pulse rate sensor, sound sensor. A buzzer, LCD, GSM and GPS are used in this project. When the woman is in threat, the device senses the body

parameters like heartbeat rate, change in temperature, the movement of victim by flex sensor, MEMS accelerometer and the voice of the victim is sensed by sound sensor. When the sensor crosses the threshold limit the device gets activated and traces the location of the victim using the GPS module. By using the GSM module, the victim's location is sent to the registered contact number.

Embedded Child Safety wearable Device:-

- The concentration of this paper is to have an SMS Content empowered Correspondence medium between the Children wearable and the parent as nature for GSM portable that correspondance is practically present all over the pear.The parent can send a content with particular catch phrase.For example: Area, temperature,UV,Alarm Buzz will ensure back with a content containing the continuous exact area of the youngster which after will gives applications.

Smart Girl Security System

- This survey Reviewed that,the status of women India has gone through many great changes over the past few millennia.This paper focus on security to women so that they never feel helpless while facing such social changes.The System consists of various modules such as GSM Shield,Arduiono ATMega 328 board,GPS,a set of pressure sensors for activation and power supply unit.

Research and Development of Application

- This application that incorporates all the unique features such as real-time location tracking and integrate all the features offers by the existing system such as GPS Tracking, Sos. The application requires an initial registration along with emergency contact of user and they asked to update time to time.Whenever user is travelling from one place to another,the dynamic GPS Tracking PubNUb's channel is turned on to view the user's location on map.When the Sos button is pressed then an alert message which contains the name of the user's location and a help message is sent via SMS.The user has access to first-aid information and toll free helpline phone Number.

Working of System

- This Project describes about safety and security to Children through various IOT technologies which consists of an Arduino Controller , and sensors such as temperature DHT11, Flex Sensor, pulse rate sensor. Alarm Buzzer when child presses the Sos Button, GPS and GSM are used in this project. The device is mainly built to save a child when they are in panic. we are also placing the touch sensor near the waist because in case of Kidnapping, Criminal generally carry the child through waist. If any touch on waist sensor is detected, the device sensor senses the body temperature, heartbeat rate, and the movement of victim is done by flex sensor. When the sensor crosses the threshold limit the device gets activated and traces the location of Victim using the GSM Module. By using the GSM Module, the location of Child and victim is sent to the registered Contact Number of parent. A small Hidden camera is also fixed along with the child dress, when the device gets activated , the camera send the live scenarios to the registered number, so that they can easily find what is happening there.

Design and Architecture

Components:

A . Temperature Sensor:-At the time of incident, the temperature sensor are tested several times under distinct temperature. The sensor performed exponentially well to the test performed. The response time to receive a response back was only upto 40 to 60 seconds.

B. GPS Location Sensor:-After testing the device multiple with repeated SMS texts. The GPS location sensor was able to respond back with precise geographical coordinates to the user's cellphone, when the user clicked the received Google Map URL, which would in result gives the desired location of Victim and offender in goggle map.

- **C.SOS Light and Alarm Buzzer:**-upon sending an sms 'SOS' or 'Buzz', this would trigger or alarm to perform an output function instead of providing measurements back to the user's mobile such as Scenarios of other like GPS, GSM OR SENSORS etc.
- **D.GSM Module:**-GSM is a standard developed by ETSI to describe protocols for Second Generation digital cellular network used by phone. GSM can accept any GSM network operator SIM Card and act just like a mobile phone with its unique phone Number.

Block Diagram

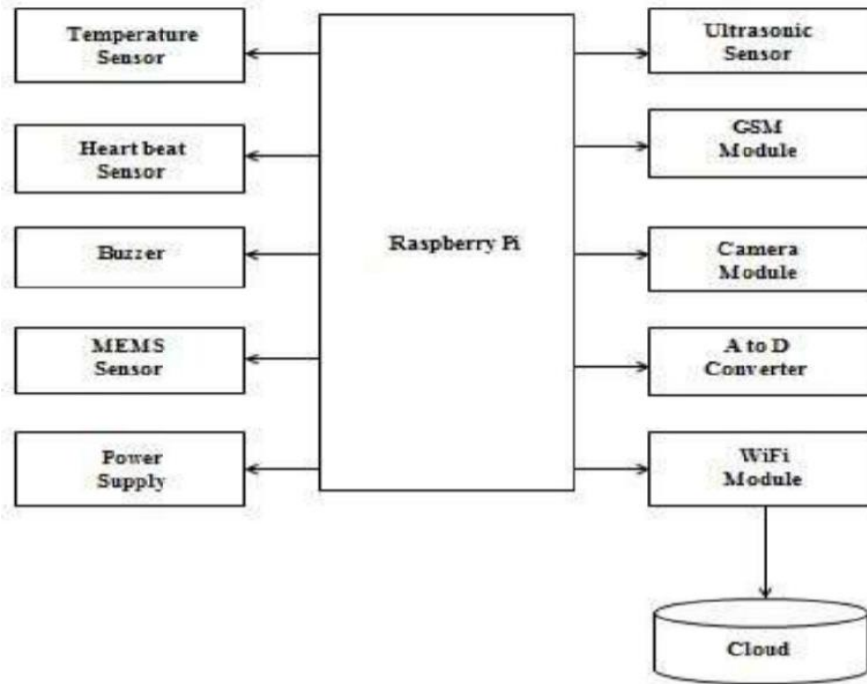


Fig.1 Block Diagram

System Implementation

- **Methodology**

This System discusses the concept of a wearable Device for Children or any disabled Child. This System focuses on sending an SMS text, enabling Communication medium between the Child and Parent through Safety Device. For monitoring the Child, temperature sensor and heartbeat sensor is used. The DHT11 temperature Sensor is used and heartbeat sensor to track the heartbeat of the Child. MEMS Sensor or accelerometer is used to detect if there is 90 to 180 degree change in position of the Child's body. Ultrasonic sensor is used to detect the obstacles if any found. If it found, accelerometer senses the change in the position then camera will start recording the real time Video. The video recording will be sent as a mail to stored mail account. All the sensor use 5v supply voltage and connected to Raspberry pi 3B. This IC microcontroller controls the system with a Raspberry pi boot-loader. In case of emergency Alarm Buzzer comes into an effect and get activated. The child's parameter that are recorded by the sensors is incorporated within the device is uploaded to the cloud by certain users who are authorized via username and password. It enables the Data analysis of the Child using cloud based on requirements.

Flow Chart

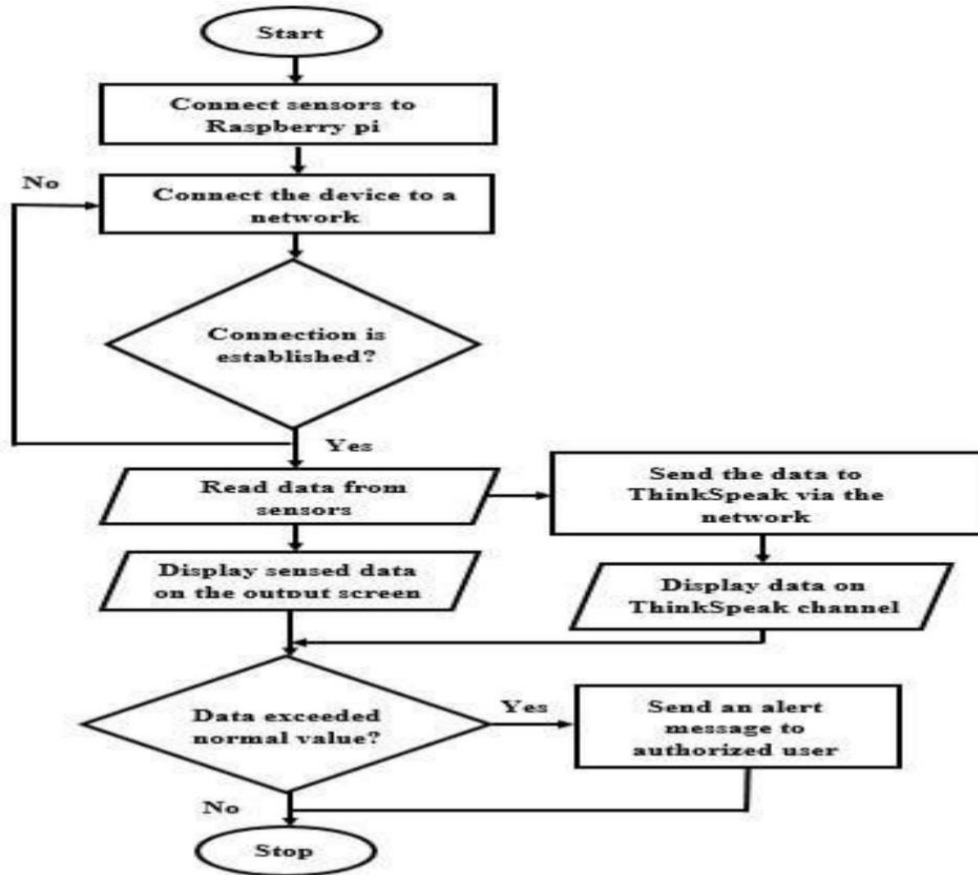


Fig.2 Flowchart for sensor data analysis

Experimental Result

- The Child Safety wearable device that is implemented is tested to meet the objectives of the System. The interaction between all the modules are tested after integration. The results obtained are tested and verified. Hence the System is Complete along with the user interface

Conclusion

The Child Safety device is capable of acting as a top IOT Smart device. It is a reliable to use anybody. But it is mainly for parents who are insecure about their child. It Provides the real time location to them by using various Iot technologies like GSM, GPS Sensor, Alarm Buzzer etc. These device are enhanced much more Arduino module such as LilyPad Arduino which can be sewed into fabrics.

Future Scope:-

Following are few different issues that need to be improved the system developed in this project

1. At the time of Crime, the identification of offender and real time location should be sent to the nearest police station.
2. Device can be made further Compact in size.
3. Developing the ability to work in any environmental situation.

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