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**PARISUTHAM INSTITUTE OF TECHNOLOGY AND SCIENCE ,THANJAVUR**

**LITERATURE SURVEY**

**IOT BASED SAFETY GADGETS FOR CHILD SAFETY MONITORING AND NOTIFICATION**

**TEAM MEMBERS:**

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**Child Monitoring and Safety System Using Wsn and Iot Technology**

**Authors:** Aarthi R , Yaazhini V M , Yuvashri S

**Year:** 2021

**Abstract:**

This paper presents the design and implementation of a portable IOT-based safety and health monitoring system for children through **a sensor embedded** health monitoring device for safety and emergency service and monitoring. In this project we are introducing the IOT based embedded system is used. Here the system is used to continuously monitor the parameter of the child and their location for safety purpose. Here **the important components used such as: Internet of things (Iot); Sensors; Wi-fi module; GPS location tracker; Face recognitions; Health Monitoring.** By adding GPS (Global Positioning System) it provides tracking facility with smart phones**. The ARM7 microcontroller and GPS with Android smart phone features are used to track voice signals for tracing children’s locations**, The **system is built on Arduino and uses a commercial GPS receiver** to compute the position of the child continuously. The child's position information is periodically sent through GSM to the parent's smart phone. **LM35 is generally employed to record the body temperature of the child,** All the recorded digital values from the biomedical PCB and respective sensors are fed as inputs to the PIC16F877.A microcontroller on the embedded PCB. These digital values reach the computers as serial input data and are displayed graphically. The parameter is represented and recorded in a digital input manner to facilitate detailed analysis of the child‟s safety ,security history by entering the attendance in face recognition using MATLAB. This paper is to provide better and efficient health services and security to the school children **by implementing a networked information cloud through IoT** so that the experts and doctors could make use of this data and provide a fast and an efficient solution.

**Merits:**

* Component object model (COM) is stimulation software reduces the excessive space and wastage of cost.
* The LM35 device does not require any external calibration or trimming to provide typical accuracies.
* This system helps to monitor children easier and faster.

**Demerits:**

* Platinum thermistors are generally not preferred due to their fluctuating characteristics.
* Most of the parents are not aware about the advancement of technology for child security

**Child safety wearable device**

**Authors:** Harris K R , Nida Sayedi, Asghar Pasha

**Year:** 2019

**Abstract:**

In Today's world, the wearable gadgets comprise an increase in market provisioning, wider openings for higher authority over security issues for kids in day care and schools. **Pi-camera** is used to capture the image in case of emergency . The **SMS** (short message service ) is used as a medium between guardian and wearable device , **GSM** used for tracking purpose. To send mail to child’s parents we are using **SMTP (Short Message Transfer Protocol)**. All these processes are controlled by **micro controller and raspberry pi** through internet of things. This system used the components like **sensors, buzzer**, pi-camera, GSM (global system for mobile), SMS (Short message service). RPI3(Raspberry Pi 3) is used to connect to internet of things, sounds, buzzer, mail, SMS, emergency switch, mode switch. All these things are connected to battery to supply the power**. The different sensors used are Temperature sensor, Heartbeat sensor, Accelerometer, and sound sensor.** Raspberry Pi 3 is neither a microchip nor a microcontroller, really it is a solitary board PC which contains a SOC (System On Chip). The PIC microcontroller PIC16F877, this controller is exceptionally helpful to utilize, the coding or programming of this controller is additionally simpler. The Pi camera module is a versatile light weight camera that underpins Raspberry Pi. It communicates with Pi utilizing the MIPI camera serial interface convention. **The software required are Raspbian stretch, Thing speak, Twilio, VNC(virtual network computing) viewer**. The platform on which this project will be implemented is the PIC16F77A microcontroller board that performs the conversion of analog signals to digital values. Thus, the **controller acts as an analog to digital converter (ADC).** The digital values are fed to raspberry pi and the functions of transmitting and receiving SMS, is provided by GSM Module using GSM network . The present work reduces the human effort and particularly mother’s stresses in working times about child.

**Merits:**

* SMS can be sent to more than one individual.
* The size of components used in the project can be decreased by a process called micro fabrication, so that it can be transformed into a wristwatch.

**Demerits:**

* Emergency calling feature can be incorporated wherein women or child under panic circumstances can contact police for assistance.
* Usage of sound server, sound file requires more memory size.
* Raspberry Pi does not have any internal storage , so it requires a micro SD card to work as internal storage.

**An Integrated Child Safety using Geo-fencing Information on Mobile**

**Devices**

**Authors**: Dinda Destarini, Sarifah

**Year:** 2019

**Abstract:**

In this paper , the **geo-fencing** technique is used for monitoring approach of geography areas with virtual fence which automatically detects the object moves into the fence or out the fence. In this paper, the geo-fencing technique is used to set up the areas of child”s activities. The application is also supported **motion sensor module and voice recorder module** to automatically send the emergency alert to server, parents. Moreover, it also enables the system to detect and **identify the movement by using red box. Geo-fencing is known as virtual fence around conditional location.** It refers to approach that set the limit for mobile users to a specific geographic location by tracking their location via GPS. Child protection application implements **G-sensor to measure acceleration of the device.** **The G sensor stands for gravity sensor or accelerometer sensor** which is used to detect the position of screen, landscape, or portrait. The **voice recording module** aims to record the voice around the child during the emergency. The **communication module** transfers the alert to family and institution in charge using 3G/MMS. The uses of MMS to ensure the message will be received by family even though the family members have not installed the system. Child protection application is implemented and tested **on android operating system, ,** the registered family members will register the children who will be monitored. By engaging the geo-fencing technique, the children can be monitored by parents even though the parents are in work duties. Meanwhile, the sensor module enables the system to send alert when emergency occurs automatically.

**Merits:**

* Voice messages will be sent continuously every 3 minutes until the child is save.
* The alarm is used to alert the parents about potential crime that can happen to the child.
* The device motion, system will know when the child in danger and it will trigger alarm and voice recorder.

**Demerits:**

* When the GPS was off, the application was not able to send any notifications. This result is caused by the application cannot track the user movement around the fences.
* Time is more consumed by this mode of system.
* Manual operation is highly needed.

**Arduino Lilypad Best Fit Microcontroller for wearable devices**

**Authors:** Mohamed FEZARI

**Year:** 2018

**Abstract:**

In this paper it is discussed about the usage of **Arduino .** The Arduino revolution has made the microcontrollers easier to use, and at the same time, much more hardware and software has been created. **Arduino Lilypad is an Arduino Main Board that is mainly designed for e-textiles and wearables projects** and is based on **ATmega168 or ATmega328**. It is nothing but an Arduino-programmed microcontroller and works like other Arduino boards available, It’s in round shape in which they have **22 pin holes** in that **one is reserved for +5V and another for ground.** Both ATmega328 and Arduino bootloader are incorporated on the board, that help you get rid of the external burner required to burn the code inside the Pad. The board contains 14 digital pins that can be employed as input or output. Like other boards in the Arduino, **this Pad is programmed by Arduino IDE** – an official software mainly used for programming the Arduino Boards, that is developed by Arduino.cc. **Arduino Lilypad increase the safety of patient by collecting, analyzing, and transmitting data in healthcare system**. And Arduino Lilypad are easy to fit in dress, watches, shoes etc. Why because it doesn’t want to carry anywhere with special care. It is with us and monitor us 24/7. The sensors were capable of monitoring very important variables such as blood glucose, body weight, blood oxygenation, pulse, and blood pressure, among others, However, these were not integrated with the base unit and mobile devices in every case.

**Merits:**

* Arduino Lilypad are easy to fit in dress, watches, shoes etc.
* Lilypad is ready very handy for e-textile and wearable products.

**Demerits:**

* To keep the Pad compact, small and packed in place, the minimum number of external components are required to help design the required operation.
* Equipment’s are costly .

**CHILD SAFETY WEARABLE DEVICE USING RASPBERRY PI**

Author: Janani I, Kavya S, Pavithra R

Year:2020

**Abstract**

To overcome the drawbacks of the existing system. We implement the project using **Raspberry Pi.** Using Raspberry Pi and Pi camera the child abduction is found. The image processing is done to capture the image of the person who is in opposite direction of child. The pulse sensor differentiates the pulse rate of child and find whether child is in emergency condition. **The sound sensor used to predict the voice of child and to help the child to recover from the circumstances**. Raspberry Pi3 collects data of various kinds from various mod ules that relate to it. The **GSM shield** which is used to send the data and it is collected by the Raspberry Pi3 via SMS to the smart phone. GPS Location sensor decides the child’s current location. The image is captured using pi camera and it will be sent as a mail to be stored mail account. All the sensors use 5v power supply and connected to the Raspberry Pi 3B. If the pulse rate exceeds the reference value, the condition of the child is predicted. .GSM compresses the data and then transfers it via a channel of two completely different user data sources, each in its own time frame. **GPS interface with Raspberry Pi via USB cable,** Sound sensor module provides a visual sound and usually is used in the intensity of the sound of the police investigation. The objective behind the project is to design and manufacture a functionality that is also lightweight, providing the advantage the private security system as an emergency response device that is useful to children in crime incidents.

**Merits:**

* By this device we can avoid violence against their children.
* The secondary measure used in this project is the individuals present in the child's surroundings who could respond immediately to the safety of the child until the parents arrive at the place

**Demerits:**

* Wearable increasing the complexion for young’s children.