Child Security System

D. Bhargavi[1], A. Balachandra Reddy[2]

[1]M.Tech Student, Department of ECE, Sree Rama Engineering College, Tirupathi, Andhra Pradesh, India

[2]Assistant Professor Department of ECE, Sree Rama Engineering College, Tirupathi, Andhra Pradesh, India

ABSTRACT

In this paper we are introducing Child safety wearable device where we are using following modules: GSM, GPS, UV Sensor, Switch, LCD and Temperature Sensor. We have designed a system to locate and save the child from external temperature and UV radiation. To know the location we are sending a message "w r u" to the system then it reply with message containing longitude and latitudes with the help GPS and GSM. The UV Sensor and temperature Sensor monitors parameters. If the parameters crosses threshold value it gives buzzer alarm. When Switch is closed it gives location of the child through GSM.

Keywords: GPS, GSM, UV Sensor, LCD, Temperature sensor.

I. INTRODUCTION

This project portrays around child security utilizing GSM and GPS. The system comprises of an Arduino microcontroller, GSM module, GPS modules, UV sensor, and temperature sensor and switch. The framework looks like a typical watch in the real time which when initiated, tracks the place of the child utilizing GPS (Global Positioning System) and sends crisis messages utilizing GSM (Global System for Mobile correspondence), to the police control room or to the parents. The principle preferred standpoint of this framework is that the client does not require a Smartphone not at all like different applications that have been produced before. The utilization of modern parts guarantees precision and makes it dependable. The watch gives every one of the elements which will investigate every possibility to help the trick in any sort of crisis circumstances.

A. EXISTING SYSTEM:

In this system, we have used GSM and GPS for knowing location of the child. But we need to know safety of the child. So we are proposing a system with sensors.

B.PROPOSED SYSTEM:

In the proposed system when we want know the child location we know by sending "w r u" to the system we will get latitude and longitude values .when temperature and UV values crosses threshold value it will give buzzer.

BLOCK DIAGRAM:
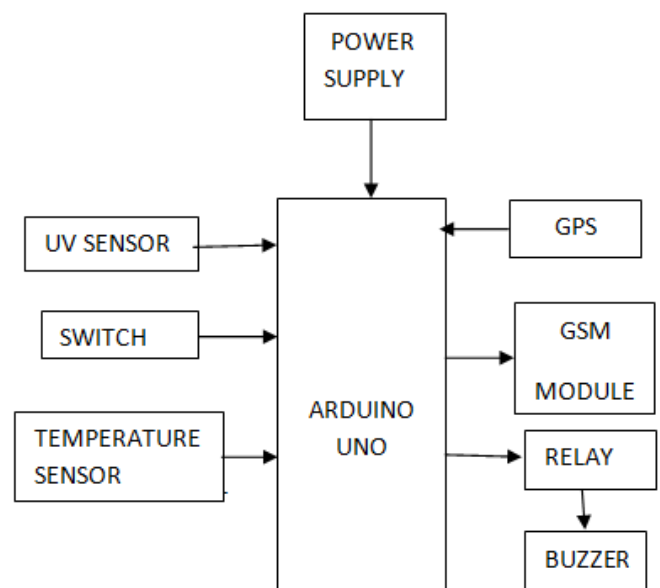
II. HARDWARE REQUIREMENTS:

A. ARDUINO:

The Arduino Micro Controller is a open source platform which has 6 analog pins, 14 digital pins, one serial port, one power jack and one USB jack for code dumping. Fig 3 shows the microcontroller.
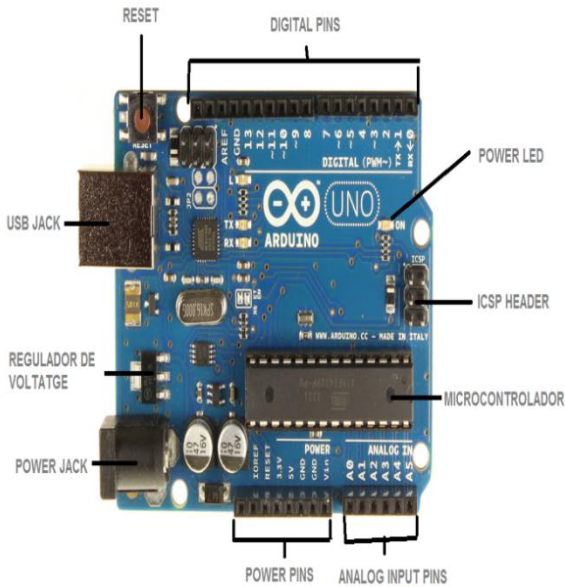

Figure 1. Arduino microcontroller.

B. LCD:

Here we are using LCD(liquid crystal display) with size 16*2 which means 16 columns and 2 rows. We can use LCD in two modes: 1. 4-bit mode and 2. 8-Bit mode.
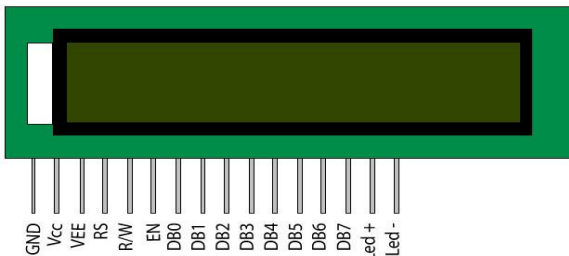
Pin Diagram:

Figure 2. LCD Display unit.

C. POWER SUPPLY:

The power supply board consists of mainly three stages:

1. Rectifier 2.filter and 3.regulator

Rectifier:

It is an active device which has four unidirectional devices (i.e., diode) when we give input signal as AC it generates pulsating AC.
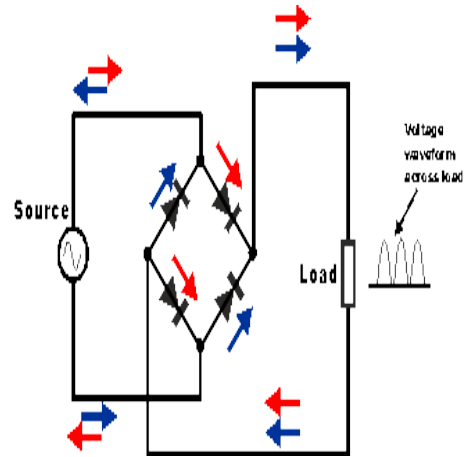

Figure 3

Figure 4

Filter:

It is an electronic component which is used to convert pulsating DC to pure DC. Here we are using capacitor as filter. Since it allows AC and blocks DC

Figure 5

Regulator:

It is an electronic component which is used to reduce DC voltage. For positive DC voltage we use 78XX

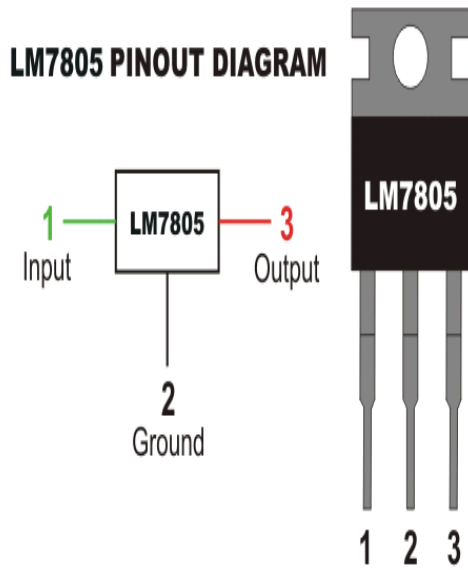series and For negative DC voltage we use 79XX series.

Figure 6

D. TRANSFORMER:

As per Indian standard we get 230 V,50 HZ for all loads. We cannot use high AC voltage we have to reduce the voltage levels.

So we prefer Step down transformer for reducing voltage levels.

Figure 7

E. TEMPERATURE SENSOR:

We are using LM35 as temperature sensor which as three terminals 1.Vcc 2. OUTPUT 3.GND.

Figure 8

F. UV SENSOR:

In order to measure the ultraviolet radiation intensity present around the surroundings of the child, a seeed studio grove UV sensor was used. The UV sensor is built on the GUVA-SI2D sensor (spectral range of 200nm-400nm).
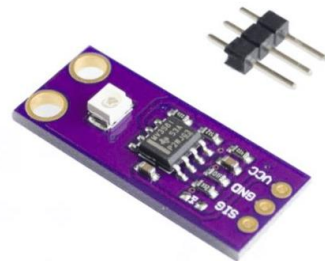

Figure 9

G. RELAY:

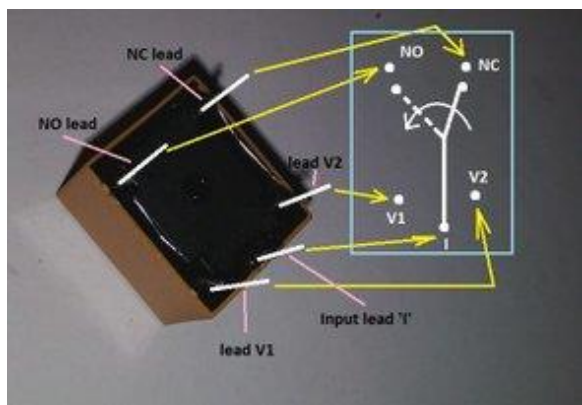Here we are using SPST relay to switching on/off the buzzer

Figure 10

H. GSM MODULE:

Worldwide framework for versatile correspondence (GSM) is an internationally acknowledged standard for advanced cell correspondence. GSM is the name of an institutionalization assemble built up in 1982 to make a typical European cell phone standard that would define details for a dish European portable cell radio framework working at 900 MHz. It is evaluated that numerous nations outside of Europe will join the GSM association.3G (UMTS) or 4G (LTE) empowers you to accomplish higher information speeds than when utilizing 2G (GSM). In the event that you select LTE/GSM/WCDMA (Auto mode), your cell phone consequently switches between the two system modes gave you're inside scope of a 3G or 4G arrange.

Figure 11. GSM module

I. GPS Module:

GPS is used as a piece of motors for each checking and course. Following systems enable a base station to keep up tune of the cars without the mediation of the central purpose wherein, as course contraption causes the fundamental impulse to accomplish the objective. Notwithstanding course gadget or watching machine, the structure is extra or extensively less for all intents and purposes indistinguishable. Exactly when an occurrence gone off in any zone then GPS contraption tracks the position of the auto and sends the information to the specific character through GSM by alerting the character through SMS or through a call.

Figure 12. GPS module

1. SOFTWARE REQUIREMENTS

Arduino IDE:

The Arduino IDE writing Arduino micro controller programs is an open source programming, where we can have the case codes for the understudies. In the Present version in the Arduino IDE is in which present usage is 1.8.5. It is very easy to connect the PC with Arduino Board.

2. WORKING:

By using GSM and GPS, we know location by just sending the message. When UV and temperature crosses threshold value it gives buzzer alarm.

A. APPLICATIONS:

- Child safety system
- Woman safety system

B. ADAVANTAGES:
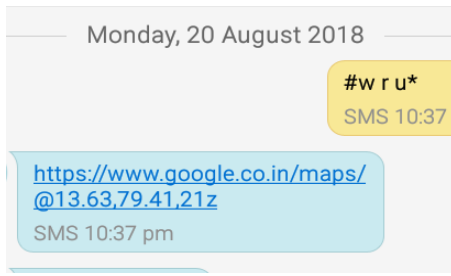
- Portable device
- Simple and smart

3. RESULTS

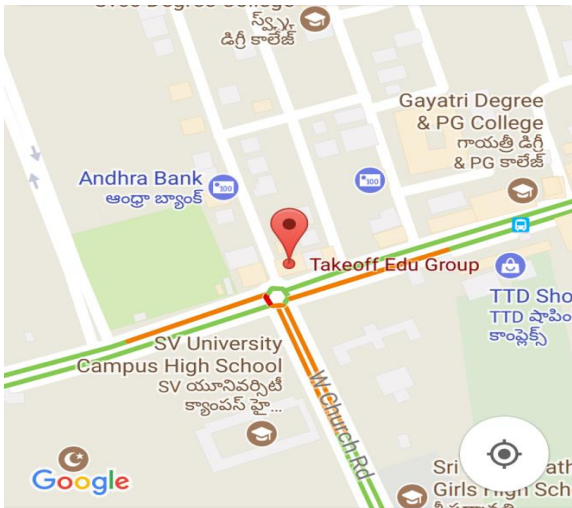**Figure 13.** Cellphone SMS app for location sensor.

Figure 14. Google map with latitude & longitude coordinates displayed.

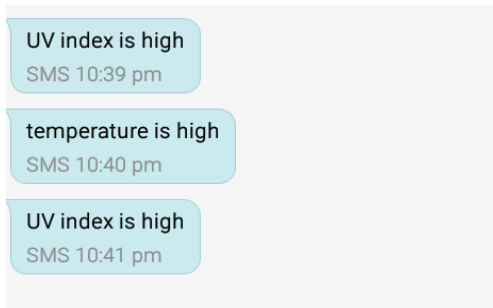When UV and temperature crosses threshold value it sends message to the phone.

Figure 15. SMS app screen for UV & Temperature sensor.

III. CONCLUSION

The child safety wearable device is capable of acting as a smart loT device. It provides parents with the real-time location, surrounding temperature, UV radiation index and SOS light along with Distress alarm buzzer for their child's surroundings and the ability to locate their child or alert bystanders in acting to rescue or comfort the child. The smart child safety wearable can be enhanced much more in the future by using highly compact Arduino modules such as the LilyPad Arduino which can be sewed into fabrics. Also a more power efficient model will have to be created which will be capable of holding the battery for a longer time.

IV. REFERENCES

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