Child Safety Wearable Device using Android Application

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Abstract— In today's world child are less secure and have many issues regarding their security purpose. They are to undergo among various difficult situations .Although there is many existing systems for security purpose need to advanced smart security system is increased. To overcome such problems smart security system for child is implemented. This paper describes about safe and secured electronic system for child, which comprises of an Arduino uno controller and sensors such as temperature sensor, a buzzer, GSM and GPS are used in this project. When the child is in not safe, the device senses the body parameters like , change in temperature, When the sensor will crosses the there hold limit the device will gets activated and traces the location of the victim using the GPS module. By using the GSM of module, the victim's location is sent to the registered contact number.

Keywords: Buzzer, Child, GPS, GSM, IOT, Sensors, Security, Smart phone application

I. INTRODUCTION

Internet of Things (IOT) is the latest technology of that connects entire world. It is establishes connectivity (through internet)among the various devices or a services or a systems in order to little by little make automation of development in all areas .child missing and their safety is major issues in the society. Technology is best way to solve this problem. The motivation behind this project is an attempt to focus the security system that is designed merely to a serve the purpose of providing security to child so that they never feel helpless. An advanced system is can be built that can detect a location and health condition of person that l enable us to take action accordingly based on electronic gadgets like a GPS receiver, GSM, pulse rate sensor,, body temperature sensor. We can make use of number of sensors to precisely detect the real time situation of the child. In a abnormal motion of the child and protect at the time of danger. The motivation behind this project is an attempt to focus on a security of system that is designed merely a serve the purpose of providing security to child.

II. RELATED WORK

A novel approach to provide protection for women by using smart security device Paper[1] says that 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, and 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.

An intelligent safety system for individual's security Paper[2] says that, in today's world, security is the major issue for an individual. In this project the system consists of a monitoring device, which gets activated when the device is tapped upon then a text message along with voice alert message is received by the respective emergency contacts. Further the person who receives the notifications can find and track the location without the interaction of the victim's application at each and every function.

Smart shield for women safety Paper[3] made an attempt to solve the problems of women safety. The scope of their system is to develop a smart device which can help women in some emergency situations. The system is a smart wearable device which resembles a jacket. The device contains different modules such as GPS (Global Positioning System), GSM (Global System for Mobile communication), Camera, Buzzer, Shock Mechanism Circuit. The main objective of the system is to provide a reliable security system for a woman when they are alone or feel unsafe.Bluetooth connectivity .Once a parking event has been detected, an adaptive strategy allows disseminating the information over the target scenario, using a combination of Internet connection to connections over Wi-Fi Direct links.

III. PROBLEM DEFINITION

The concept for this wearable device comes from the increasing need for safety for little children who getting lost in the major crowded areas in current times.

IV. EXISTING SYSTEM

Most of the wearable devices available today are focused on providing the location, activity, etc. of the child to the parents via Wi-Fi and Bluetooth. But Wi- Fi and Bluetooth seem a very unreliable source to transfer information. In Existing system Cellphone SMS app interface is used. An Arduino GSM Shield is used as it transfers the information over to the user via SMS by using General Packet Radio Service(GPRS) which can provide data rates around 56-114 Kbit/sec. Arduino provides various libraries such as Ethernet, Wi-Fi for the different Arduino shields. Similarly, they provide GSM libraries for their official GSM shield as well which allows the

GSM shield to make/receive a call, send/receive SMS and act as a client/server.

V. PROPOSED SYSTEM ARCHITECTURE

In this System there are two modules, Child safety app and Wearable Device. In Wearable hardware device body temperature sensor, UV sensor, GPS location sensor and buzzer is used.

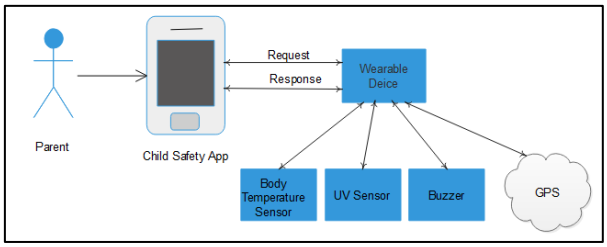

Fig. 1: System Architecture

The system architecture of child safety wearable device, which depicts various technologies and standards that are used. The Arduino uno that collects the data from different modules interfaced to it, in such the gps module upon being triggered by the arduino uno by the receiving sms from gsm module .The GSM module used as an interfaced to send data from its various modules connected to it.

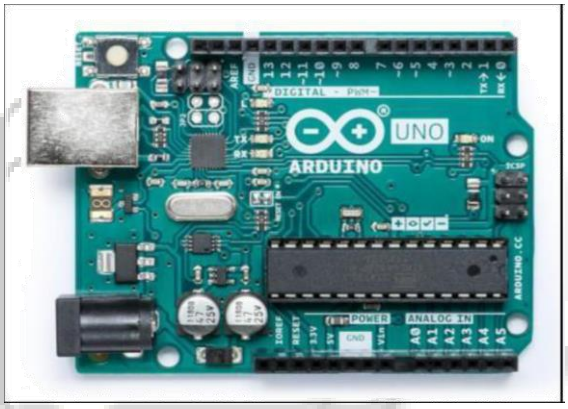

Fig. 2: Arduino UNO

Arduino Unois a microcontroller board mostly used because of following advantages. It has 14 digital input/output pins (of which 6 can be used as outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, and a reset button. It contains everything needed to support the microcontroller.

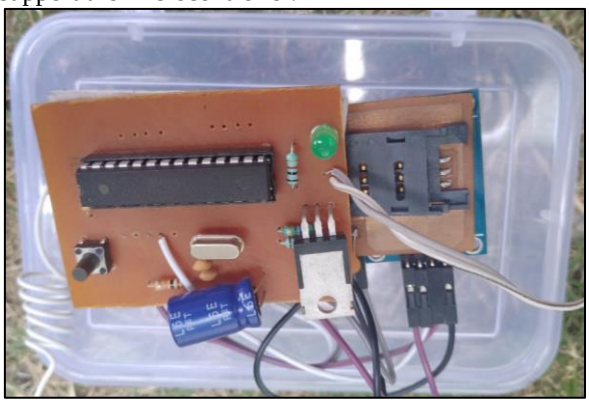

Fig. 3: GSM Module

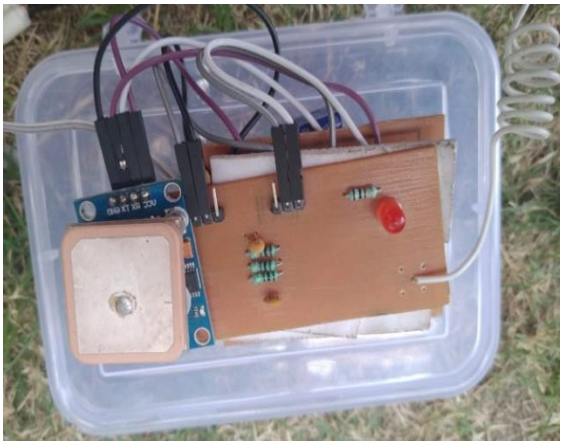

Fig. 4: GPS Module

GSM module is a stand for Global System for Mobile communication. The GSM module is a chip or circuit used for establish communication between mobile device or computing machine.

GPS module is a stand for Global Positioning System. They can provide location and time information to a GPS receiver at any time.

VI. IMPLEMENTATION DETAILS

Parents play very important role in this system. The parents have full of control in this module. Parents have android application from which they can check location, temperature, and give an alert to their child.

A. Android App:

An Android Application Development for child safety System is an Android App, which will be helpful for parents to find child activity. In the current system, activities are performed by parents side on a Mobile app and Wearable Device System helps parents to find their child location quickly and provide necessary guidelines to make child secure

Fig. 5: Android App

Fig. 6: Child Safety Menu

B. GPS Location Window:

When testing the wearable device multiple times with SMS texts. The GPS location sensor was able to respond back with latitude and longitude values of the wearable device to the user's mobile phones, when the user would click on the received Google maps URL then open the Google maps app and display the pinpoint location. In all the scenarios the GPS module was tested, it would respond back to the user's mobile phones within a minute. As shown in the image below, the GPS module show the current location of the wearable with pinpoint accuracy. Whereas for the android app blue dot is showing the wearable to be present on the area red bubble was able to show the current location.

Fig. 7: Current Location

VII. CONCLUSION

An efficient way using find the child using recent technology. This app allows parents easily find location of children and restrict the child. Usage of this application at large scale would beneficial to parents. Even if a user is in new place this app is user friendly so that people of all age groups can use it easily.

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