CHILD SAFETY WEARABLE DEVICE

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I. ABSTRACT

This paper discusses the concept of a smart child wearable device for little children. The major advantage of this wearable over other wearable is that it can be used in any cell phone and doesn't necessarily require an expensive smart phone and not a very tech savvy individual to operate. The purpose of this device is to help parents locate their children with ease. At the moment there are many wearable in the market which help track the daily activity of children and also help find the child using GPS and GSM services present on the device. Therefore, the focus of this paper is to have an SMS text enabled communication medium between the child's wearable and the parent as the environment for GSM mobile communication is almost present everywhere. The parent can send a text with specific keywords such as "LOCATION" "TEMPERATURE" "ULTRA SONIC" "BUZZ", etc., the wearable device will reply back with a text containing the real time accurate location of the child which upon tapping will provide directions to the child's location on google maps app and will also provide the surrounding temperature, UV radiation index so that the parents can keep track if the temperature or UV radiation is not suitable for the child. is in our lives but it can sometimes can't be trusted, and we always need to have a Hence this paper aims at providing parents with a sense of security for their child in today's time.

Keywords: *microcontroller, temperature sensor, ldr sensor, GPS, GSM, buzzer, led*

II. INTRODUCTION

The motivation for this wearable comes from the increasing need for safety for little children in current times as there could be scenarios of the child getting lost in the major crowded areas. This paper focuses on the key aspect that lost child can be helped by the people around the child and can play a significant role in the child's safety until reunited with the parents. Most of the wearable devices available today are focused on providing the location, activity, etc. of the child to the parents via GPS and GSM .Therefore it is intended to use SMS as the mode of communication between the parent and child's wearable device. The platform on which this project will be running on is the microcontroller

board and the functions of sending and receiving SMS, calls and connecting to the internet which is provided by the microcontroller. GSM shield using the GSM network Also, additional modules employed which will provide the current location of the child to the parents via SMS. The second measure added is led Light indicator device. Therefore, the wearable device proposed will be communicating with the parent via SMS which would ensure that there is a secure communication link. Also, customization of the wearable is possible as per our needs by reprogramming the microcontroller system.

III. EXISTING SYSTEM

Safety device with wearable which help track the daily activity of children and also help find the child using wi-fi and bluetooth services present on the devices. Disadvantage of wi-fi and Bluetooth appear to be unreliable medium of communication between the parent and child.

IV. BLOCK DIAGRAM

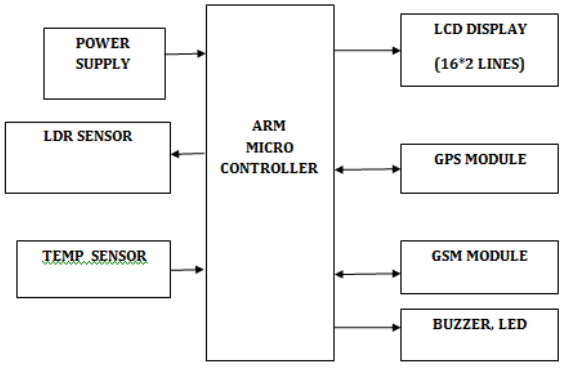

Fig . System block diagram

System Overview

Power Supply: This section is meant for supplying Power to all the sections mentioned above. It basically consists of a Transformer to step down the 230V ac to 9V ac followed by diodes. Here diodes are used to rectify the ac to dc. After rectification the obtained rippled dc is filtered using a capacitor Filter. A positive voltage regulator is used to regulate the obtained dc voltage.

Microcontroller: This section forms the control unit of the whole project. This section basically consists of a Microcontroller with its associated circuitry like Crystal with capacitors, Reset circuitry, Pull up resistors (if needed) and so on. The Microcontroller forms the heart of the project because it controls the devices being interfaced and communicates with the devices according to the program being written.

Temperature sensor: Thermistors are a temperature sensing devise. It is used to sense the temperature. In this project by depends on the value of temperature the exhaust fan will run.

LCD Display: This section is basically meant to show up the status of the project. This project makes use of Liquid Crystal Display to display / prompt for necessary information.

LED: A light-emitting diode (LED) is a semiconductor light source. LEDs are used as indicator lamps in many devices, and are

increasingly used for lightning. Introduced as a practical electronic component in 1962, early LEDs emitted low-intensity red light, but modern versions are available across the visible, ultraviolet and infrared wavelengths, with very high brightness.

GPS modem: A GPS modem is used to get the signals and receive the signals from the satellites. In this project, GPS modem get the signals from the satellites and those are given to the microcontroller. The signals may be in the form of the coordinates; these are represented in form of the latitudes, longitudes and altitudes.

GSM modem Section: This section consists of a GSM modem. The modem will communicate with microcontroller using serial communication. The modem is interfaced to microcontroller using MAX 232, a serial driver. The Global System for Mobile Communications is a TDMA based digital wireless network technology that is used for communication between the cellular devices. GSM phones make use of a SIM card to identify the user's account.

LDR: The LDR is used to measure the light intensity.

Buzzer Section: This section consists of a Buzzer. The buzzer is used to alert / indicate the completion of process. It is sometimes used to indicate the start of the embedded system by alerting during start-up.

V. CONCLUSION

The child safety wearable device is capable of acting as a smart device. It provides parents with the real-time location, surrounding temperature, Ultrasonic radiation index and led light along with Distress alarm buzzer for their child's surroundings and the ability to locate their child or alert by standers 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 controller modules such. Also a more power efficient model will have to be created which will be capable of holding the battery for a longer time.

VI. REFERENCES

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