



Localization of Oppressed People by Using GPS

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Abstract: For every parent, security of the child is very important, and they are unable to feel comfortable until child resumed back to home safely. Present systems are not omnipotent enough to track the incomprehensible child quickly. However the existing system gives the information pertaining to incomprehensible kid, when he/she present in only school campus and but not beyond the school campus. Since to supervise the child's location by the parents manually is not feasible all the time. If has to do, it postulates a so much of time which ultimately consequences in the devastation of valuable functional time. Here I proposed a GPS based system that will render current location of child/person to their concerned parents, when he faces any contends of anti social elements like kidnapping, preterm ting the route and causing illness in anywhere in the mid-way of journey, then it insinuates to the parents. This system is a two unit system and has characteristics of high reliability, fast response time and high accuracy. In This system direct interaction between child module and parent receiver. Here transmitter is nothing but child module which is having GPS, GSM and temperature sensor and pulse sensor. The module consists RFID tag having information about child and it gives the presence of child automatically. By using this system, the guardians of children can view children's position, which helps to ensure the safety of children in daily life.

Keywords: ARDUINO microcontroller, Temperature sensor, Heart rate sensor, GSM and GPS.

I. INTRODUCTION

As a human being, everyone wants to lead a secure life and wish to offered a secure life for their family members too, especially for their kids (tiddlers) so every parent wish to afford security for their kids .we oftenly observe the situation like” when the kids in our family, not reach home by the periodic time from the school, our parents get tensed until their arrival. Now-a-days, kidnapping of small kids in the mid –way of their schools is progressing highly mainly in

Metropolitan cities like Delhi, Mumbai, and Bangalore etc hence to overcome this issue we need to built an flexible technology. But current systems are not child quickly. However the existing system gives the information pertaining to incomprehensible kid, when kid is present in school campus only but not beyond the school campus. Since to supervise the child's location by the parents manually is not feasible all the time. If, has to do, it postulates a so much of time which ultimately consequences in the devastation of valuable functional time.

The proposed system is a GPS based system that will render current location of kid/person to their concerned guardian/parent, when he/she faces any contends of anti social element like kidnapping , pre termittig the route ,illness stimulation at anywhere in the mid-way of journey , then it insinuates to the kids parents.

II. EXISTING SYSTEM

In this we discuss about problems which are present in previous systems to enhance the safety for children's[7], System that is providing security for school children using GSM, in this GSM will sent an alert message to parents if the kid was not present in school .But it didn't give the child location if he is in any dangered position is the major drawback .Tracking system which uses android terminals [1],[2]those are communicate through Bluetooth [3] in this development cost is high is one disadvantage. Biometric application[4] has been used for the purpose of providing safety for the children. In this child should have to place his palm across the reader when entering into school/bus. It will cross check the child palm with already pre- registered pattern .Based on this the management can will track the information about child. But the major drawback in this it is not automatic and young children feel difficult to place their palm on scanner correctly, this may cause an in correct data , the scanner could not detect the child's palm. There are some commercial systems to track the child information; those are Bluetooth based devices, which are developed to be worn by child as necklace or a bracelet. In this system devices are connected via mobile and can alert a message to parents by their specified range, if child went outside beyond this range. One disadvantage of this is, system will work only in limited range. A system is used to track the children by using child module and two receiver's .child module will transmit the information about child to database and parents receiver. It is time consuming, and

didn't provide current location of child to parents, if there are any sudden attacks on child is drawback on this system.

III. PROPOSED SYSTEM:

The Proposed system mainly having two parts, one is child module which is nothing but transmitter section and another is parent module (receiver).child module having temperature sensor, pulse sensor, GSM, GPS [8]. This module is fixed to each and every child body and it is responsible to track the current location of child, if he is in any dangered position. Its essential role is to sporadically receive signals and in response send messages to the parent module and alert them if the child is in danger. Then automatically parent can more easily locate the trouble child. The sensors that used with this module are described below.

Parent module is nothing but Smart phone is a mobile phone with an advanced mobile operating system which combines features of a personal computer operating system with other features useful for mobile or handheld use. They typically combine the features of a cell phone with those of other popular mobile devices, such as personal digital assistant (PDA), media player and GPS navigation unit.

Architecture:

Figure 2 shows the block diagram of the peripherals with the microcontroller.

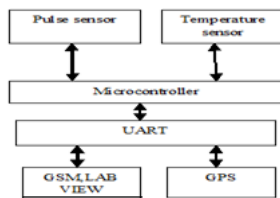


Figure 1: Block Diagram Of Interfacing Peripherals

In the block diagram, the UART are used to establish serial communication between the GSM , LABVIEW and GPS.

Block diagram:

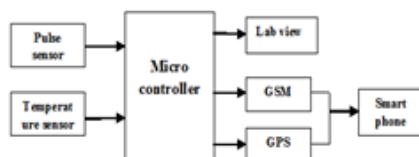


Fig 2: Block diagram

ATMEGA:

Prototype is implemented on arduino board using atmega 328 micro controller. controller will play the major role. Atmega is used to process the acquired signals from sensors which are connected to controller. This processed data given to pc and LCD for monitoring. Temperature and pulse rate of human is monitored by atmega weather these values are in normal range or not. If these are exceeds or decreased the controller will transmits emergency message to the mobile through GSM.

GSM:

GSM networks operate in a number of different frequency ranges.GSM networks operate in the 900 MHz or 1800 MHz bands. GSM-900 uses 890–915 MHz to send information. Gsm will work based on AT commands.It is responsible to send child information to related persons mobile if the child is health condition is critical.GSM interfaced with controller through UART.GSM will send msg as heart rate(H),temperature rate(T),Latitude & longitude.

Single lead heart rate sensor(AD8232):

AD8232 single lead heart rate monitor acts as an op amp to help obtain a clear signal from the PR & QT intervals easily. It contains 3 electrodes .When blood will move inside the body electrodes will measure the voltage value it is nothing but ADC value given to controller for further processing. human resting heart rate chart is shown in below table.

AGE	HEART RATE
0-3 Months	100-150
3-6 Months	90-120
6-12 Months	100-160
1-10 Yrs	70-130
Adults	60-100
Well conditioned athletes	40-60

Table 1:Resting heart rate

CONDITION	HEART RATE
Normal	72-80
Short ness of breath	Below 50
Tense	75-90
Stress	Above 90

Table 2: pulse rate in different conditions



Fig 3: heart rate sensor

Body Temperature sensor(MLX90614):

The MLX90614 is an infrared thermometer for non contact temperature measurements. It works based on I²C protocol. It is 4 pin IC (VCC, SCL, SDA,

GND).Sensing range(-40 to +125).This sensor will sense and gives the human body temperature values to controller. human body temperature values are described in below table.

CONDITION	TEMPERATURE RATE
Hypothermia(low body temp)	35°C
Normal	37.0°C
Hyperthermia(fever)	38°C
Hyperpyrexia(high body temp)	40°C

Table 3:temperature rate indifferent conditions

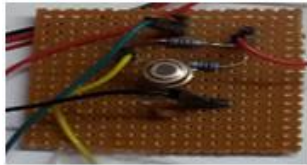


Fig 4: body temperature sensor

GPS:

The global positioning system (GPS) is a space-based navigation system that provides location and time information in all weather conditions. It uses the GPGGA commands to communicate satellite.GPS will provide latitude ,longitude values to controller ,it interfaces through UART to controller.

LCD:

Liquid crystal displays (LCD's) is a flat panel display. It is interfaced with micro controller. Data pins are (DB4-DB7) connected to atmega.LCD used to display the values of sensors and GPS.

LABVIEW:

Lab view is nothing but “Laboratory virtual instrument engineering work bench”, popularly known as lab view. It is a system design platform and development environment for a virtual programming language from national instruments (NI).Lab view works on the principle of data flow. It is basically a graphical programming language. Labview communicated with controller through MAX232 ,it provides human pulse and temperature wave forms in pc when he is in normal condition, if he is in critical condition wave forms will disappear.

Prototype results:

The block is implemented in hardware where ARDUINO ATmega is used as the main processor. When compared to other processors this type uses low power. In this proto type Sensor modules will check the human health condition i.e,temperature and pulse rate these data given to controller for further processing. controller will check condition based on below values.

HEALTH CONDITION	HEART RATE	TEMPERATURE RATE
1.Normal condition	72-80	37-37.5°C
2.Ill health		
a. Fever	75-90	38.3°C
b.Heart stroke	Above 90	39.4°C
3.Critical condition	100	41.5°C

Table 4: heart rate, temperature rate in different conditions

These health conditions are represented in graph.

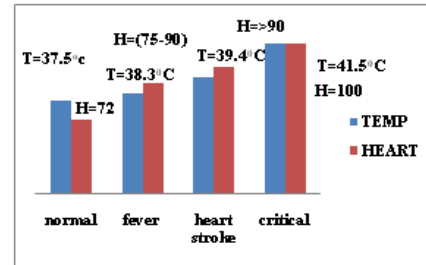


Fig 5: health conditions of human

controller will have only one UART used to interface GSM,GPS,LABVIEW.TX for GSM and lab view, RX for GPS. Max232 will provide communication in between pc and controller. lab view will display heart, pulse rate the wave forms of human in

normal condition only. Lab view block diagram and front panel shown in below.



Fig 6: block diagram of labview to monitor oppressed people

In block diagram visa terminal used to get input to pc from board, temperature and pulse sensors are interfaced to represent data character form to graphical form.

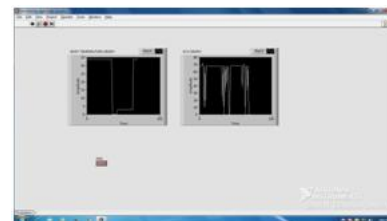


Fig 7: front panel of lab view to monitor oppressed people

In front panel we can observe the waveforms by clicking on run button.

The person health condition is in critical at the time waveforms in pc are disappear ,GSM will send

alert message to parents mobile phone. based on longitude and latitude values we can easily locate the person position through gps..Parallel interface is done between LCD's four data pins and Atmega port b pins. Two control pins of LCD are separately connected to the controller. AC supply is given to the system where a bridge rectifier is used to convert AC to DC and then given to Voltage regulator. The output of bridge rectifier is 9v hence; a voltage regulator is used to convert the voltage according to the needed voltage for processor, sensors and all other devices. The atmega controller with LCD display, GPS, GSM, temperature sensor and pulse sensor is shown in the hardware implementation in the figure 4.Total system operation will be described in below flowchart.

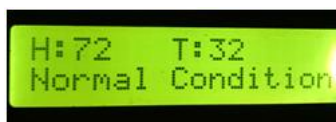


Fig 8: flow chart



Fig 9: Hardware implementation

1.Normalcondition



In normal condition both heart rate and pulse rate of human beings will be normal.

2.critical condition

In critical condition heart rate and pulse rate of human beings will be not in normal condition both values will exceed than the threshold values. at that time message will send to belonging persons [9]. In that message longitude and latitude values are provided through GSM to smart phone of related persons. Message is shown below.



Alert message

Output in Lab View:

On Execution of the evaluation model a set of waveform are displayed in LabVIEW. This happens due to the communication process from setup to Personal Computer. . In Lab VIEW after activating the RUN button the front panel produces the following outputs.

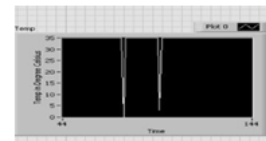


Fig 10:Output Waveform of Body Temperature Sensor.

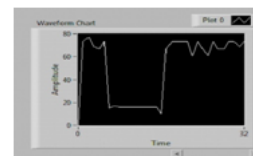


Fig 11:Output Waveform of ECG Sensor

IV. CONCLUSION

Here we have designed and implemented microcontroller based safety and security system for persons by using arduino atmega328 controller, if he/she face any struggles in any where. so by this we can know the location of person, where if he/she is in any dangered position and the location can be informed to the relatives through GPS and GSM.

V. REFERENCES

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