Wearable Device for Child Safety using Arduino Uno and Tracking System

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Abstract - **This task depends on GSM based innovation to give wellbeing to kid, which would be controlled from anyplace else. The target of this task is to give a security to kid utilizing remote innovation. The fundamental target of this venture is screen the youngster utilizing RF remote correspondence. We can likewise observing a wellbeing level of kid utilizing Heart beat sensor. Area of youngster is found by GPS if there should be an occurrence of crisis. If there should be an occurrence of crisis the SMS sent by means of GSM to kid guardians and family members portable, GPS gives just the longitude and scope esteems yet by utilizing GSM modem to versatile we can without much of a stretch get the area name from where the message has been sent. The controller accepts the sensors as its info for example at the point when some risk has happened one have to changes in sensor esteem and the controller makes the GSM modem to warning to the pre-put away in server. Right now concerned individual will know the area and they will have the option to spare the competitor. With a wide scope of sequential interchanges interfaces, they are additionally very appropriate for correspondence doors, convention converters and installed delicate modems. Expansion to this reason framework sensors is additionally their at whatever point the youngster cross certain separation over his folks region and somebody hijacked a kid around then we get the area to safe them.**

Keywords: Child safety, Wearable device, Tracking System, Arduino Uno, Embedded, GSM, Kids.

I. INRODUCTION

The status of ladies in India is having an enormous history. There is a dad ruling framework in India. In more seasoned days ladies used to remain in home for the family work. Wellbeing alert on human particularly youngsters is turning into a concerned issues these days. Cases on hijacking kid are as often as possible happened particularly in an open territory. A study has introduced numerous framework alarms are created model utilizing mobile phone, android and Global Positioning System (GPS) using these innovation we are

planning a Wearable wellbeing gadget for kid and security .To screen a kid remotely utilizing RF (radio recurrence) correspondence.

II. SYSTEM DESIGN

Arduino Uno R3 based microcontroller board is used as the central controlling unit for the interfacing of sensors, GPS and GSM communication modules. Here a Heart beat sensor is used for monitoring the pulse rate of the baby. The heart beat sensor converts the detected pulse into equivalent electrical pulses and given to the microcontroller through a signal amplifier.
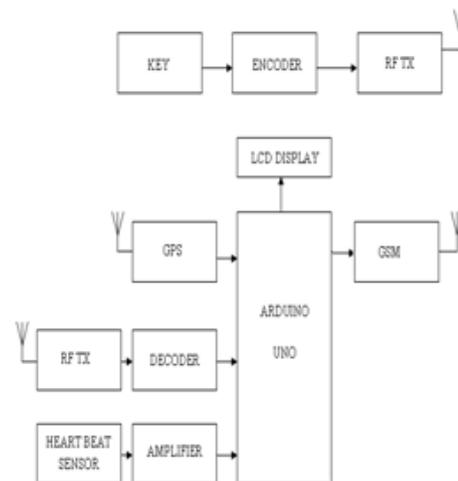

Figure 1: Block diagram of proposed system

A keypad unit is interfaced to the arduino for producing panic alert using a RF transmitter and RF receiver. If any emergency is detected then the arduino sends message through the GSM modem to the monitoring system.

2.1 Arduino Uno

Arduino/Genuino Uno could even be a microcontroller board enthusiastic to the ATmega328P. It's 14 computerized input/yield pins (of which 6 are often utilized as PWM yields), 6 simple sources of data, a 16 MHz quartz gem, a USB association, a force jack, an ICSP header and a push.

Figure 2: Arduino microcontroller

It contains everything expected to help the microcontroller; essentially interface it to a PC with a USB link or force it with an AC-to-DC connector or battery to start UNO without stressing tons over accomplishing something incorrectly, most dire outcome imaginable you'll swap the chip for a couple of dollars and begin once more.

2.2 Heart Beat Sensor

A gadget for holding a heartbeat sensor in a generally fixed relationship concerning the finish of an's at the tip of client's finger. All the more especially, a gadget is uncovered wherein a solitary sheet of flexible material is shaped into a base bit for holding the heartbeat sensor and three versatile groups that expand upwardly there from. The groups are adjusted to grasp the's at the tip of client's finger. In one encapsulation of the creation, the groups and base part characterize a U-formed channel of steady cross-sectional territory.

2.3 Signal Conditioning Unit

The signal conditioning unit accepts the input signals from analog sensors and provides a conditioned output from 0 to 5 V DC which corresponds to the entire range of each parameter. This device also accepts the inputs and outputs of the 10-bit binary digital sensor with a positive logic level of +5 V. The calibration voltages * (0, 2.5 and 5 V) and the integrity bits are also generated in this device.

2.4 Global Positioning System

A significant number of GPS, vehicle tracking and navigation frames have translated this innovation into the daily lives of essential people. Today GPS fitted autos; ambulances, armadas and police vehicles are regular sights on the streets of created nations. Mentioned by numerous names, for instance, Automatic Vehicle Locating System (AVLS), Vehicle Tracking and knowledge System (VTIS), Mobile Asset Management System (MAMS), these frameworks offer

a viable apparatus for improving the operational productivity and usage of vehicles.

2.5 GSM Modem

A GSM modem is a particular sort of modem which acknowledges a SIM card, and works over a membership to a portable administrator, much the same as a cell phone. From the versatile administrator point of view, a GSM modem looks simply like a cell phone. With the end goal of this archive, the term GSM modem is utilized as a nonexclusive term to allude to any modem that bolsters at least one of the conventions in the GSM developmental family, including the 2.5G advancements GPRS and EDGE, just as the 3G innovations WCDMA, UMTS, HSDPA and HSUPA.

Figure 3: GSM modem

2.6 LCD Display

A fluid gem show (LCD) may be a dainty, level electronic visual presentation that utilizes the sunshine regulating properties of fluid gems (LCs). LCs doesn't emanate light straightforwardly. They're utilized during a wide scope of uses including: PC screens, TV, instrument boards, airplane cockpit shows, signage, then forth. They're regular in purchaser gadgets, for instance, video players, gaming gadgets, tickers, watches, adding machines, and phones. LCDs have dislodged cathode beam tube (CRT) shows in many applications.

Figure 4: LCD display

2.7 RF Transmitter Receiver

Radio recurrence (RF) radiation is a subset of electromagnetic radiation with a frequency of 100km to 1mm, which is a recurrence of 3 KHz to 300 GHz, [1] separately. This scope of electromagnetic radiation comprises the radio

range and compares to the recurrence of substituting flow electrical signs used to deliver and distinguish radio waves. RF can allude to electromagnetic motions in either electrical circuits or radiation through air and space. Like different subsets of electromagnetic radiation, RF goes at the speed of light.

III. RESULT AND DISCUSSIONS

The data send from the transmitter unit is received at the software GUI interface in the monitoring unit. The heart beat rate and status of the person is monitored continuously and an alert is produced in case of any emergency conditions.
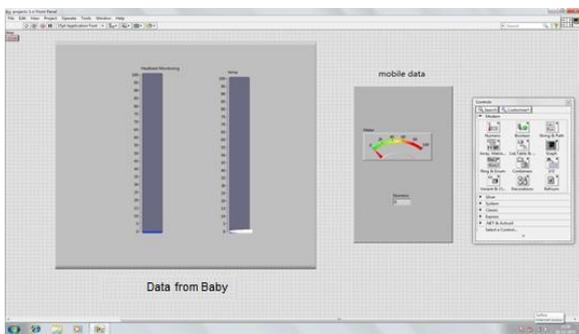
Figure 5: Simulation Output

Sample of the simulated output is shown in the figure 5.

IV. CONCLUSION

Right now we are planning a Wearable security gadget for youngster and Women. Wearable gadget with keen framework has been utilized to banter whenever assaulted. There are most noteworthy opportunities to diminished wrongdoing by this framework. Stun preventive devices are utilized for expectation of occasion; alert utilized for informing will be steady techniques to caution the threatening vibe. Message through GPS and GSM innovation is the extra part to help the individual the fundamental component of this undertaking is we can screen a kid and ladies utilizing remote innovation.

The wellbeing of ladies and kid is must to abstain from seizing kid and ladies. We can likewise include a component in our venture is to screen kid and ladies wellbeing level utilizing heart beat sensor.

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