Emergency Tracking system for women using body Sensors via Wrist watches using Internet of Things (IOT)

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Abstract - *Women is the inside society part and her security is the essential and to a great degree critical for the strong society, in the present years we are seeing the various women incitements reports, shockingly women being centered around and irritated conventionally in the pubic zone and moreover in the day time, After the NIRBHAYA case in Delhi, various real changes are recognized by the Indian vote based framework and besides various real walks have taken to ensure the women prosperity. In this wander we are delineating an astute smart or an IOT search for the women which encourages her to secure herself in the emergency condition by enumerating about the administrators or nearest police base camp by means of actually initiating Messages, in this structure we are using Arduino Mini or Nano as the inside controller, we choosed the NANO in perspective of its little size and which is interfaced with the sensors sort out, GSM and GSM Systems*

Keywords: Smart Watch, Sensors, Women Safety, GSM, GPS, Arduino, Wearable Devices

I. INTRODUCTION

India which searches for itself as a promising super power and a money related focus can ful fill its target if and just if a far reaching amounts of women get themselves included and appreciate the change strategy. These days, women prosperity has transformed into a critical issue as they can't wander out of their home at any given time due to physical/sexual abuse and a fear of viciousness. Surely, even in the 21st century where the advancement is rapidly creating and new contraptions were made yet in the meantime women and young women are going up against issues.

To be sure, even today in India, women can't move around night time in many places and even at day time swarmed places countless of physical/sexual maul happens to women reliably. Among various wrongdoings, attack is the fastest creating wrongdoing in the country today.

Problem statement

- To design an embedded system for women protection with capabilities to sense pulse rate, body temperature and to track their motion in case of emergencies and take required actions.
- To be a wearable device worn on the wrist.

Objectives

The main objective of this project is to design an IOT Product called Smart watch, this smart watch belongs to wearable devices family, Smart Watch consists of the sensor layer which is able to measure the biological parameters of the women at tensed situation and triggers the messages to care takers, Objective of the project is to design small wearable watch to enhance the women safety.

II.LITERATURE SURVEY

[1] Dongare Uma, Vyavahare Vishakha and Raut Ravina proposed a voice keyword recognizing app to recognize the user and activate the app functionality even when the mobile keypad locked. The GPS module tracks the longitude and latitude to trace an exact location of a user and sends the pre-stored emergency message including location to the registered contact numbers. The Audio Recording module starts the recording of the conversation for five minutes and stored as evidences. The message goes in queue if network problem and send when network gets

available. A notification is generated for successful deliver message. Also user can select contact through voice based contact list and make a call. Note: The spoken keyword converted into a text to compare with the registered keyword.

[2] Bhaskar Kamal Baishya proposed an android app to provide security different situations as follows. The module provide security to Women at Emergency Situations propose a Save Our Souls (SOS) app to provides the security on a single click of SOS button for the women travelling at night or alone. No need to unlock the screen, instead by just pressing the power button it directly

triggers the application to run at the background, to send the emergency message including the location in the form of latitude and longitude to the registered contacts.

[3] Archana Naik et al. proposed an app, in which a single click of SOS sends a message containing the location and/ or audio- video call to the guardian number. At receiver touch the location URL in the message to view it in the Google Map. It also provides different help tools like First-Aid help, Fake Call Help and video call. The First-Aid help tool provides the help on various health issue problems occurred at an accidental or emergency situation during the night time.

First aid help for various problems are as: unconscious and not breathing, choking, bleeding heavily, burns, heart attack, diabetes etc. The Fake call help to escape from the meetings- parties at a time when women start feeling uncomfortable and think that, if someone calls me then I can leave this place‖. Fake call rings tone same as that of normal incoming call ring and once call accepted it stop ringing. It also supports Fake Hang Up option. The guardian contacts are by-default for this app, but it able to search the cops, firemen, hospitals contacts nearby to your location. It also sends the audio-video recording via Email-Gmail of emergency situation taken by the user where user unable to speak or tell the circumstances.

III. METHODOLOGY

Embedded Device associated with a Smart Band through wired associations. The gadget speaks with worked in gadget which includes with GPS and GSM.
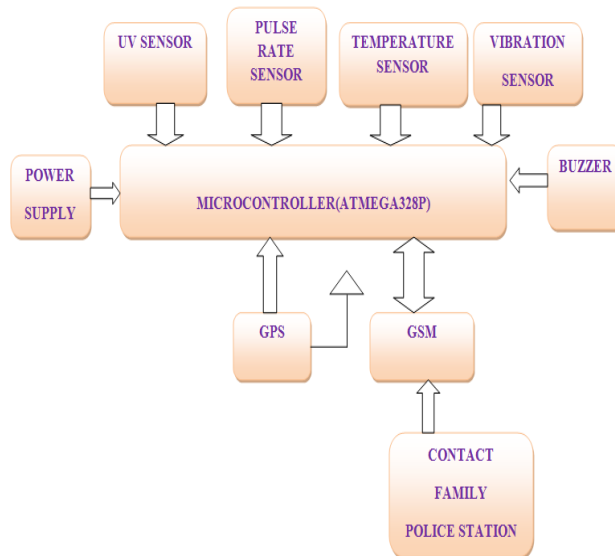

Figure 1: Block diagram of Smart band module

The information coordinated by the savvy band, for example, the beat rate, Vibrations of the Hand and body, temperature of the body alongside the movement of the body is consistently checked by the shrewd band which is pre-associated with the implanted gadget
• Sends message to the family members along with the co-ordinates.
• Co-ordinates are sent to nearest police station requesting immediate action.
• Also sends information to people in near vicinity requesting public attention.
The LM35 series are precision integrated-circuit temperature devices with an output voltage linearly proportional to the Centigrade temperature. The LM35 device has an advantage over linear temperature sensors calibrated in Kelvin, as the user is not required to subtract a large constant voltage from the output to obtain convenient Centigrade scaling. The LM35 device does not require any external calibration or trimming to provide typical accuracies of ±¼°C at room temperature and ±¾°C over a full −55°C to 150°C temperature range. Lower cost is assured by trimming and calibration at the wafer level. The low-output impedance, linear output, and precise inherent calibration of the LM35 device makes interfacing to readout or control circuitry especially easy. The device is used with single power supplies, or with plus and minus supplies.

As the LM35 device draws only 60 μA from the supply, it has very low self-heating of less than 0.1°C in still air.
Pulse Sensor is a well-designed plug-and-play heart-rate sensor for Arduino. It can be used by students, artists, athletes, makers, and game & mobile developers who want to easily incorporate live heart rate data into their projects. The sensor clips onto a fingertip or earlobe and plugs right into Arduino. It also includes an open-source monitoring app that graphs your pulse in real time.

The UV Sensor measures the sun consuming fragment of the UV go. Its loathsome response arranges about the Erythema Action Spectrum (EAS), described by McKinlay and Diffey (1987) and grasped by the Commission Internationale de l'Eclairage (C.I.E.) as the standard depiction of the human skin's affectability to UV radiation. The sensor measures overall sun situated UV irradiance, the aggregate of the fragments of sun controlled UV transmitted particularly and those scattered in the atmosphere. Scattered UV is an imperative portion of overall irradiance. The transducer is a semiconductor photodiode that responds just to radiation in the area of interest.

MICROCONTROLLER

The Arduino Uno is a microcontroller board based on the ATmega328. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.
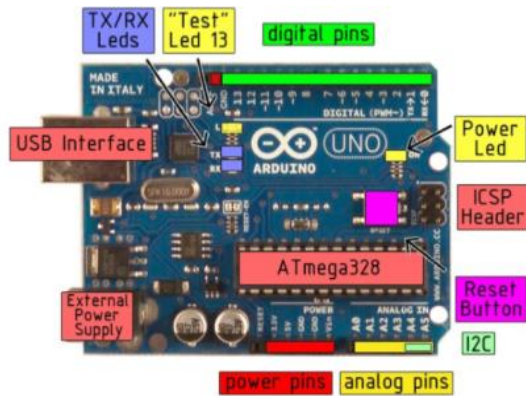

Fig 2: Arduino atmega328p

GLOBAL POSITIONING SYSTEM (GPS)

GPS tracking system. It is the receiver that collects data from the satellites and computes its location anywhere in the world based on information it gets from the satellites.

It receiver reports its location on Earth. The longitudinal and lateral coordinates can be used for applications like navigating vehicles, coordinating search and rescue efforts and mapping trails and exploring new terrains. A more affordable option is to purchase and design around a handheld GPS receiver, leveraging its serial interface port.

Fig 3: tracking location on Google map

GLOBAL SYSTEM FOR MOBILE COMMUNICATION (GSM)

The GSM net used by cell phones provides a low cost, long range, wireless communication channel for applications that need connectivity rather than high data rates. Machinery such as industrial refrigerators and Freezers, HVAC, vending machines, vehicle service etc. could benefit from being connected to a GSM system.
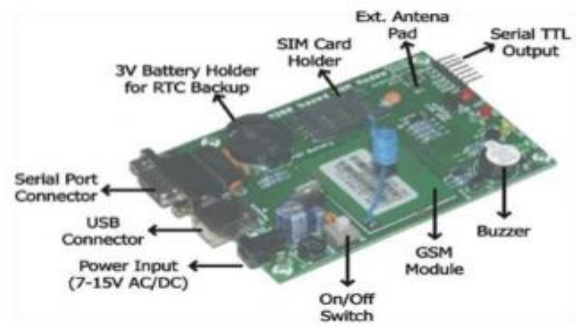

Fig 4: GSM Module

IV.   CONCLUSION

This sort of a thought being the first of its kind assumes an essential part towards guaranteeing Women Safety in the quickest way that is available naturally. The proposed configuration will manage basic issues confronted by ladies in the current past and will help illuminate them through innovatively stable devices. With additionally research and development, this venture can be actualized in various regions of security and reconnaissance. The framework can play out the constant checking of coveted region and recognize the brutality with a decent exactness.

ACKNOWLEDGEMENT

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