

Women's Security with Health Monitoring System

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Abstract— Now a days we can see that the women are not at all safe in all the aspects. The crime against women is increasing day-by-day. We can see that the women who are working in shift are not at all safe due to the increasing crime. This paper proposes a quick responding mechanism that helps women when she has any problem. Whenever the situation occurs such as she is not comfortable or she is getting panic, she can just press the button and then immediately her information about the location is sent as an SMS alert to few pre-defined numbers in terms of latitude and longitude. We can also track her location so that we can provide the required facility with the help of the GPS tracker. Not only the security but we can also monitor the health using different types of sensors like the thermistor, heartbeats sensor and the panic sensor to get the details about the health of the women.

Keywords: Health Monitoring System, Women's Security

I. INTRODUCTION

In today's world women safety is the most important issue in every country. Women are not secure today; they can be victim at any time and sometimes women will have some device so that people can help, its necessary that we are all aware of importance of women safety, but we must analyze that they should be properly protected.

So here we introduce one touch women safety system that can be used by women especially the women who are working in shift i.e. late night in call centre or the software companies. The women just have to press the button for help that it. The system resembles a normal watch which gets activated when the button is pressed, as soon as the sensors get activated the location of the women or the user can be tracked easily and the SMS will be generated & that SMS will be send to the five contacts which are already saved in the system i.e. the database.

In addition to this, the health monitoring is also performed here. We can calculate the body temperature of the women using the thermistor sensor, the heartbeats can be sensed by using the heartbeat sensor, the panic switch is used to sense whether the women are panic or not.

The safety of women as well as the health of the women is also very important. This device will provide us both the safety of women as well as the health of the women. This device will be helpful not only for women's but also for small children and the aged people.

II. OVERALL DESCRIPTION

A. Project Scope

Design a safety and health Monitoring system with thermistor to detect the temperature of the body, heartbeat sensor to detect the heartbeats and the panic sensor to get the details of the user. It is helpful for police to find the lost

person or the person who is in trouble. Also, can be used by the aged one and the children.

B. User Classes and Characteristics

This monitoring system has sensors. First one is a thermistor, second is heartbeat sensor and the third one is a panic device. This project is very useful since the user can monitor the location as well as the health using the device. So now the doctors, police or family members can monitor system, you need internet connection here. The micro-controller or the Arduino board connects to the network module. This Project will not work without a working network. The Arduino UNO board continuously reads input from these 3 sensors. Then it sends this data to the cloud.

C. Operating Environment

Our Project is based on IoT platform. The Software Development Kit (SDK) is an open source python micro-controller software platform relied upon by tens of thousands of developers to build project fast. The embed compiler is a power online IDE that is free for use with Hardware Implementing the embed HDK, and tightly integrated with the embed SDK.

D. Design and Implementation Constraints

A Remote health monitoring system is an extension of a hospital medical system where a patient's vital body state can be monitored remotely. Traditionally the detection systems were only found in hospitals and were characterized by huge and complex circuitry which required high power consumption. Continuous advances in the semiconductor technology industry have led to sensors and micro controllers that are smaller in size, faster in operation, low in power consumption and adorable in cost. This has further seen development in the remote monitoring of vital life signs of patients especially the elderly. The remote health monitoring system can be applied in the following scenarios: 1.A patient is known to have a medical condition with unstable regulatory body system. This is in cases where a new drug is being introduced to a patient. 2.A patient is prone to heart attacks or may have sure done before. The vitals may be monitored to predict and alert in advance any indication of the body status. 3.Critical body organ situation. 4.The situation leading to the development of is life-threatening condition. This is for people at an advanced age and maybe having failing health conditions. 5.Athletes during training.

To know which training regimes will produce better results.

In recent times, several systems have come up to address the issue of remote health monitoring. The systems have a wireless detection system that sends the sensor information wirelessly to a remote server. Some even adopted a service model that requires one to pay a subscription fee. In developing countries, this is a hindrance

as some people cannot use them due to cost issue involved. There is also the issue of internet connectivity where some systems to operate, good quality internet for a real-time remote connection is required. Internet penetration is still a problem in developing countries.

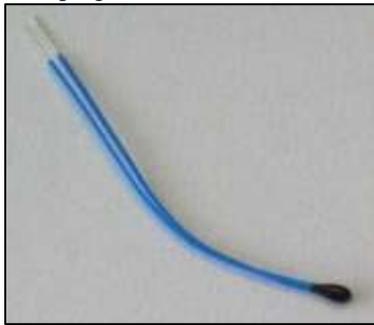


Fig. 1: Temperature sensor.

1) Heartbeat Sensor

Heartbeat sensor is designed to give digital output of heartbeat while calculating the pulse rate. This digital output can be connected to Arduino directly to measure the Beats per Minute (BPM) rate. It works on the principle of blood flow through pulse. ICLM358 is used for this sensor. Its dual power operational amplifier consists of a super bright red LED and light detector. One will act as amplifiers and another will be used as comparator. LED needs to be super bright as the light must pass through finger and detected at another end. When heart pumps a pulse of blood through blood vessels, finger becomes slightly opaquer so less light reach at the detector.

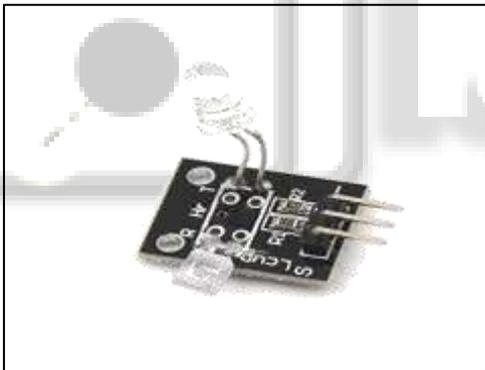


Fig. 2: Heartbeat sensor

2) ECG Sensor

The panic switch is used for the safety purpose of the user. If the user gets panic due to certain circumstances then he or she can press the panic button. So that the precautions will be taken regarding the situation going on there.



Fig. 3: ECG

III. EXTERNAL INTERFACE REQUIREMENTS

A. User Interfaces

For GUI purpose we are using IoT Gecko platform for displaying information on device and taking inputs from android Smartphone.

B. Hardware Interfaces

We are using Arduino Uno Micro-controller which works as a central controller in our system.

C. Software Interfaces

We are using open-source Arduino IDE for development purpose.

D. Communication Interfaces

The communication between the different parts of the system is important since they depend on each other. We usually use network to interface with the device.

IV. SYSTEM DESIGN AND MODELLING

A. System Architecture

The system architecture shows the block schematic of the system. It shows the various levels of the system and their individual functionalities. The system architecture is an ancient way of representing the working of a system.

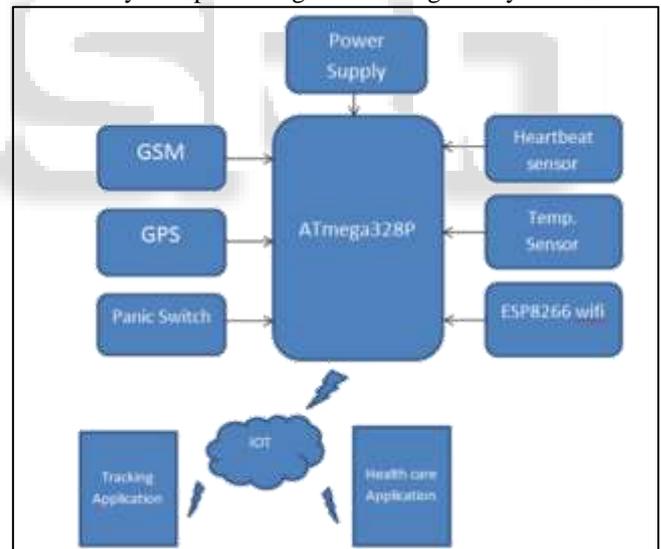


Fig. 4: System Architecture

B. Prototype Model

User Login Form

The image shows this is how login page of healthcare monitoring system looks to user for accessing the application.

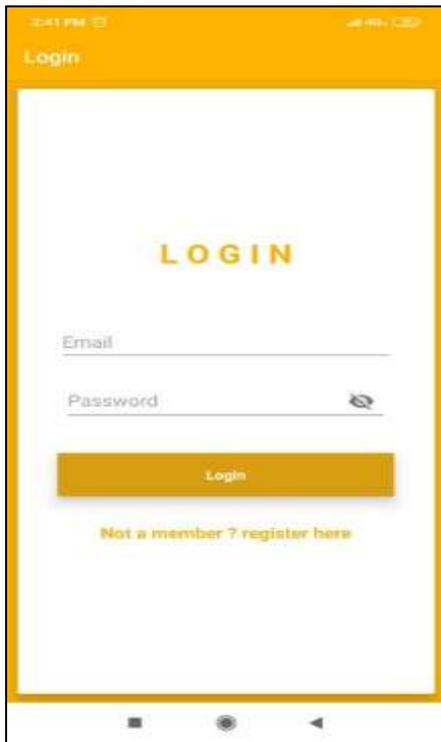


Fig. 5: Login Page of Application

V. CONCLUSIONS

From this model we can conclude that with the help of this model we can reduce the security risk about the women. The security risk will reduce at higher level, the crime rate will be reduced from all the aspects. Women will be more secure. There is no need for doctors and care givers to be present there, they can interact with patient without their physical present. The system is able to automatically generate the graph of body changes as emergency doctor receive SMS.

REFERENCES

- [1] "iMedLife". <<http://www.cse.msu.edu/cse435/Projects/F09/PMR-iphone/web/>>.
- [2] ShaikMazharHussain and ShaikJhaniBhasha \Design of women safety system using RFID, 8051 microcontroller and GSM based technology prototype" <https://ijarcce.com/wp-content/uploads/2012/03/IJARCCCE1H-s-shaik-Design-of-women.pdf>
- [3] B. MahaLakshmi, V. Mounika, D. Thriveni, SK. Apsarunnisa, A. Praveena and P. Manasa "Electronic Security through Pattern Generation Using Android and GSM Technology" <https://ijarcce.com/wp-content/uploads/2012/03/IJARCCCE-100.pdf>
- [4] D. G. Monisha, M. Monisha, PavithraGunasekaran and SubhashiniRadhakrishnan "Women safety device and application-FEMME" <https://www.researchgate.net/publication/299404936Womensafetydeviceandapplication>