

IOT BASED HEALTH MONITORING AND WOMEN SAFETY DEVICE

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ABSTRACT: Women's safety is a very important issue due to rising crimes against women these days. To help resolve this issue we propose a Gps based women's safety system that has dual security feature. This device consists of a system that ensures dual alerts in case a woman is harassed or she thinks she is in trouble. This system can be turned on by a woman in case she even thinks she would be in trouble. Nowadays Healthcare environment has developed science technology oriented Patients are facing a problematic situation fun for seen demise due to specific reason of Infection. This system used to track the patient. Microprocessor is interfaced to LCD display to send the data on webserver. We take symptoms from user and predict the disease. If patient's situation is complicated then immediately send message to doctor. Then the doctor is prepared for treatment and waiting for patient or directly visit home. The Internet of Things (IoT) concepts have been widely used to interconnect the available medical resources and offer smart, reliable, and effective health care service to the patients. Health monitoring for active and assisted living is one of the paradigms that can use the IoT advantages to improve the patient's lifestyle.

Keywords: -- Health Monitoring, Symptoms Identification, Woman safety, IOT, Raspberry Pi, etc.

I. INTRODUCTION

As women, it is necessary to protect herself from kidnappers and from any other emergency, for that in this system the message and live location was sent to family members on their mobile phone. For best and fast treatment for disease is very important to fast recovery. For this problem in our project there is a virtual adviser who will guide the patient. Also reduce efforts to go for hospitals. The aim of this project is to create a women safety and health monitoring system using Raspberry pi.

Women's safety is a big concern which has been the most important topic till date. Women safety matters a lot whether at home, outside the home or working place. Few crimes against ladies particularly rape cases were terribly dread and fearful. Most of the women are of various ages, till this day is being subjected to violence, domestic abuse, and rape.

Life expectancy has increased dramatically, especially in the more affluent nations, which is set to be celebrated and should be viewed as an opportunity for people to live longer and better. However, this requires substantial improvement in both the healthcare service and the living environment, as older people generally require more healthcare than their younger counterparts. Additionally, older people are more likely to suffer from chronic disease as part of the natural ageing process. In parallel to this demographic time bomb, the cost of healthcare provision is increasing rapidly in all the nations across the world. For example, China spent over 50 million Yuan on healthcare infrastructure in 2001, which was 4.58% of its total GDP, whilst the figure increased up to over 400 million Yuan in 2015, which account for approximately 6.05% of the total GDP.

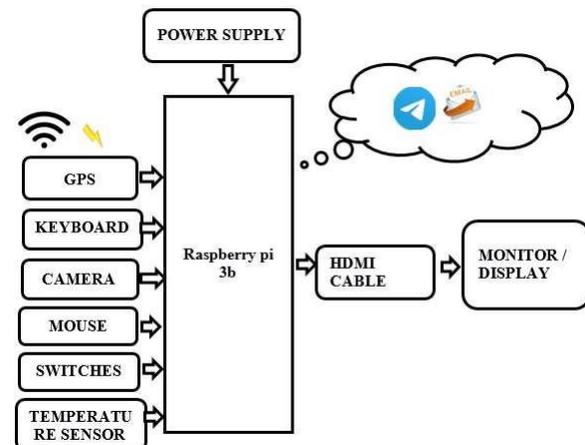
As the age profile of many societies continues to increase, in addition to the increasing population of people affected by chronic diseases, including diabetes, cardiovascular disease, obesity, and so on, supporting health, both mentally

and physically, is of increasing importance if independent living is to be maintained. Sensing, remote health monitoring, and, ultimately, recognizing activities of daily living have been an promising solution. From a technical perspective, the Internet of Things (IoT) is gaining a rapidly growing attention in many disciplines, especially in personalized healthcare.

II. MOTIVATION

In our country there so many crimes like kidnapping, acid attack, ragging, etc. But for women it is very difficult to handle this type of situation. The existing system technologies manage the health monitoring in so many ways. But in this system we combine two different area problems. It is mainly used for security purpose for people. Patient may easily understand their own health condition without doctor. Also doctor observes the patient health condition through sensor.

III. BLOCK DIAGRAM



1.1 Proposed System

In this project ‘IoT Based Health Monitoring and Women Safety Device’ design is done **based on two requirements**

- (1) Hardware Requirements
- (2) Software Requirements

Hardware requirements:

- a. Raspberry Pi3 B+ model:
Raspberry Pi is a series of small single-board computers developed in the United Kingdom by the Raspberry Pi Foundation in association with Broadcom. The original model became more popular than anticipated, selling outside its target market for uses such as robotics. In 2018, the final version of the Raspberry pi 3 Model was launched known as Raspberry pi 3 Model B+.
- b. GPS Sensor
The NEO-6M GPS module is a well-performing complete GPS receiver with a built-in 25 x 25 x 4mm ceramic antenna, which provides a strong satellite search capability. With the power and signal indicators, you can monitor the status of the module. Thanks to the data backup battery, the module can save the data when the main power is shut down accidentally.
- c. Pi Camera
This 5 megapixels sensor with OV5647 camera module is capable of 1080p video and still images that connect directly to your Raspberry Pi. This is the plug-and-play-compatible latest version of the Raspbian operating system, making it perfect for time-lapse photography, recording video, motion detection and security applications.
- d. D18B20 Temperature sensor
Programmable Digital Temperature Sensor
Communicates using 1-Wire method
Operating voltage: 3V to 5V
Temperature Range: -55°C to +125°C
Accuracy: ±0.5°C
Output Resolution: 9-bit to 12-bit (programmable)
Unique 64-bit address enables multiplexing
Conversion time: 750ms at 12-bit
Available as To-92, SOP and even as a waterproof sensor

Software requirements of system are developed by using:

- a. Raspbian Operating System
Raspberry Pi OS (formerly Raspbian) is a Debian-based operating system for Raspberry Pi. Since 2015, it has been officially provided by the Raspberry Pi Foundation as the primary operating system for the Raspberry Pi family of compact single-board computers. The first version of Raspbian was created by Mike Thompson and Peter Green as an independent project. The initial build was completed in June 2012.
- b. Thingspeak Cloud:
"ThingSpeak "is an open-source Internet of Things (IoT) application and API to store and retrieve data from things using the HTTP and MQTT protocol over the Internet or via a Local Area Network. ThingSpeak enables the creation of sensor logging applications, location tracking applications, and a social network of things with status updates".

- c. Zoom Meet
Zoom Video Communications, Inc. (stylized as zoom or simply Zoom) is an American communications technology company headquartered in San Jose, California. It provides video telephony and online chat services through a cloud-based peer-to-peer software platform and is used for teleconferencing, telecommuting, distance education, and social relations.
- d. Telegram Application
Telegram application provides messaging facility over an internet. Telegram bot will able to send any message and data from any IoT device using internet. In this system telegram is used to send our required food material and gas booking orders.
- e. Bots
Bots have no online status and no last seen timestamps, the interface shows the label 'bot' instead. Bots have limited cloud storage — older messages may be removed by the server shortly after they have been processed. Bots can't initiate conversations with users. A user must either add them to a group or send them a message first. People can use t.me/<bot_username> links or username search to find your bot. Bot usernames always end in 'bot' (e.g. @TriviaBot, @GitHub_bot).

1.2 Working

The working of devices consisting of two works one is for health monitoring and the other is for the Women safety. Firstly in health monitoring we have to select the temperature of body with the symptoms that we are suffering from as given from user those inputs our system gives them predicted diseases which we are already designed in programming part. In the second feature women safety we giving the live location with live video call facility to be safe and caught the crime easily. As we also can get consultant by the doctors which are available at that time so remotely we can monitor the health.

1.3 Flow Chart

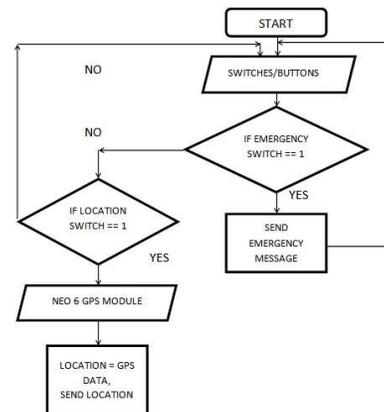


Fig 4: Flowchart of women safety

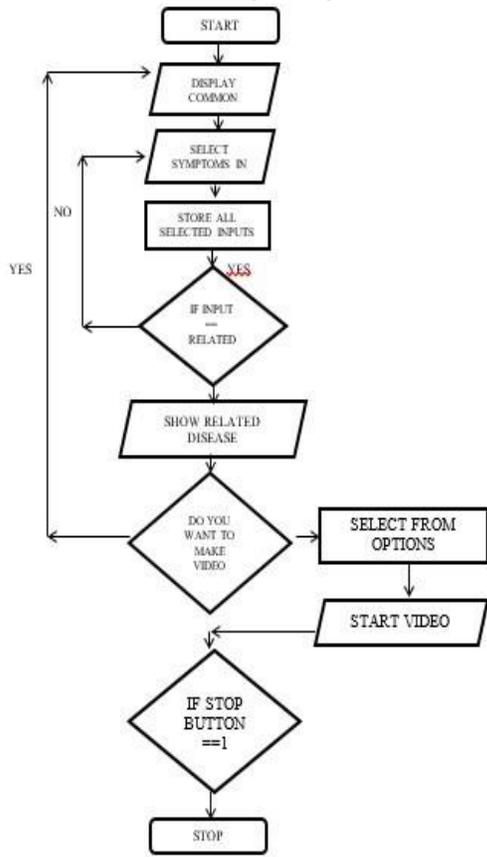


Fig 5: Flowchart of Health Monitoring

IV. ADVANTAGES

1. Health monitoring done on home by concerned with specialist doctors.
2. Also video call system provided so they can contact to their doctor easily and if so much emergency then they can do their operations easily through video call.
3. Women safety is provided with the locations so that easy to understand the location.
4. The system is very easy to handle and having low cost.
5. Automatically controlled system.

V. APPLICATIONS

1. We can use this system for making Smart Hospitals.
2. Finding the missing person we can use this system.
3. Also for Smart medicals we can implement this system.
4. To Prevent the day to day crimes

VI. RESULTS



Fig 6. GUI Health monitoring system

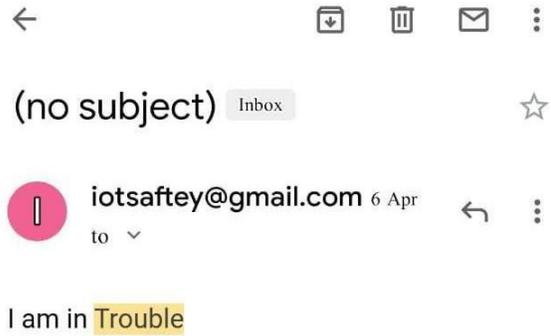


Fig 7. Mail is sent to our Family Members



Fig 8. Snapshot of Location.

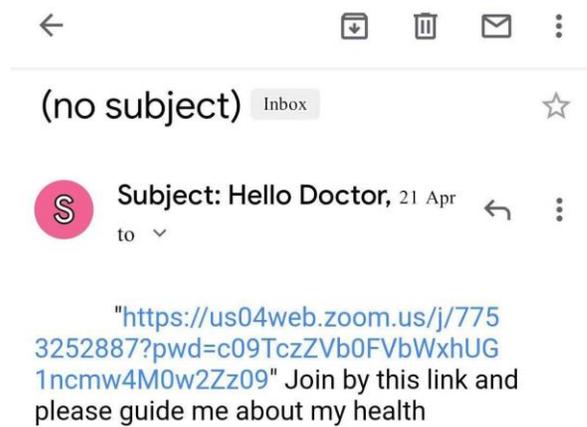


Fig 9. Mail of joining video call on ZOOM

According to the values of temperature of body and the symptoms selected by user the disease is predicted as output.

Table no. 1: Readings of predicted disease

Sr. No.	Temperature In °C	Symptoms	Predicted Disease
1	30	Chills	pneumonia
2	35	Sweating	Hypothermia
3	32	Hypertension	High Blood Pressure
4	33	Diarrhea	Diarrhea
5	34	Joint pain	RA(Rheumatoid Arthritis)
6	31	Chest Pain	Asthma
7	40	Fever	Hyperthermia
8	38	Dry cough	Pneumonia
9	39	Vomiting	Food poisoning
10	32	Breathless	Chronic renal disease

VII. CONCLUSION

A need for real-time health is a prerequisite for assistive paradigms. This project presents a brief overview of existing health monitoring and disease prediction approaches based IoT technologies. Secondly, it illustrates a women safety system, which enables the real-time monitoring of their location and elderly users allows the information to be transmitted / accessed over the cloud.

VIII. ACKNOWLEDGEMENT

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