VIGNAN'S
Foundation for Science, Technology & Research
(Deemed to be University)
-Estd. u/s 3 of UGC Act 1956

DEPARTMENT OF ECE

Design and Implementation of IoT Based Smart Guard Watch for Womens Intact

Under the guidance of
Dr. N.Usha Rani
Department of ECE
VFSTR University

By
Batch 15
K.Yaswanth Pavan Kalyan (161FA05311)
K.Roopchand Sai (161FA05165)
Md.Abbas Hussain (161FA05037)

INTRODUCTION

The main objective of our project is to design the Voice Automated Smart Watch for Women's Safety using IOT Technology and Python.

Motivation

- Ramp Growth regarding Women's Harassment cases.
- In India, the average about 32000 cases has been filed regarding women harassment.
- In India
  - → Uttar Pradesh – 1st place
  - → West Bengal – 2nd place
  - → Maharashtra – 3rd place
- The Indian capital Delhi is the latest safe state with a highest cognizable crime rate of about 160.4.
- To limit such problems we are proposing the Smart Guard Watch for Women's Intact was developed.

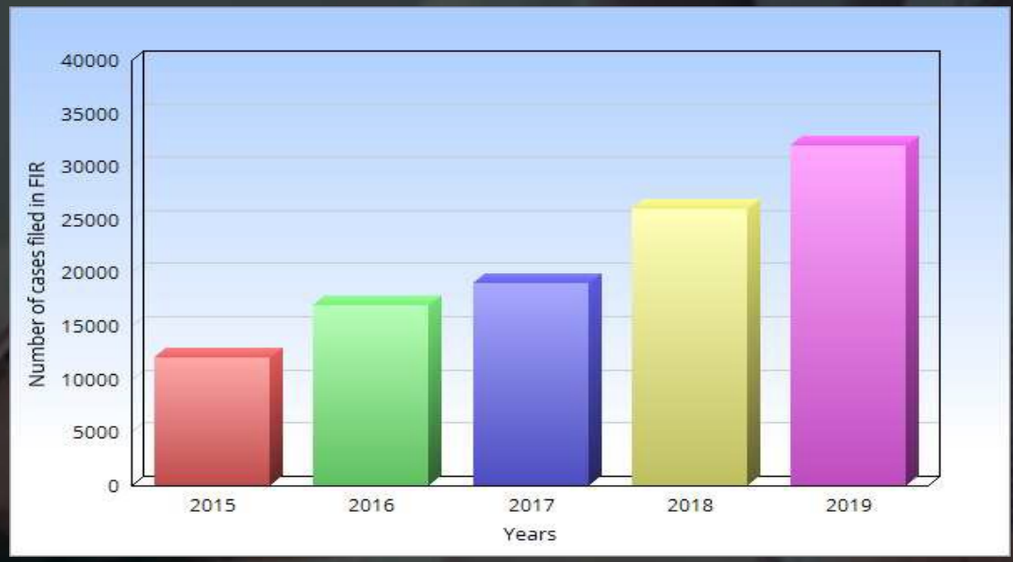


Fig.1. Year wise cases filed on women harassment

OBJECTIVES

1. Video Streaming

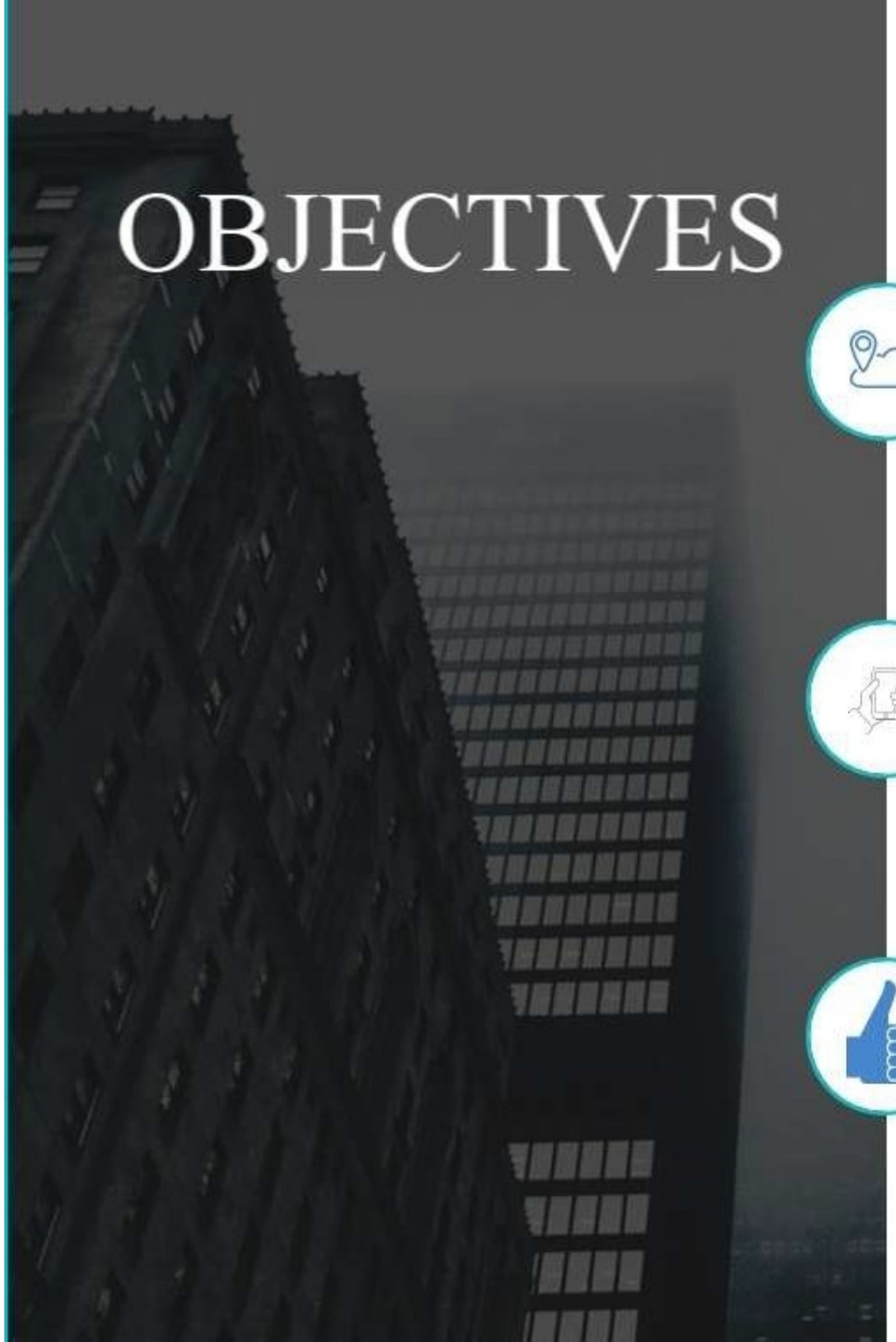
Using Pi camera and raspbeny pi IP Address

2. Voice Automation

Using Speech Recognition 1nodule and GTTS Module

3. Sensors Interfacing

Sensors like pulse sensor and IR body temperature sensors are interfaced with raspbeny pi and display their outputs in oled Display



4. Live Location Tracking with Alert Messeging System

Tracking of Location of Watch using GPS module and the message alert with the help of GSM 111odule.

5. Calls,Messages and Notifications Alert

With the help of Bluetooth the notification alerts are displayed in the OLED Display along with the icons.

6. Security for Smart Watch

We are using Fingerprint Sensor for providing securityfor our s1nart watch.

Contents

Introduction to IoT

- The term “Internet of Things” was coined by entrepreneur Kevin Ashton.
- Internet of Things (IoT) is nothing but connection of physical devices, sensors, actuators, electronic embedded gadgets to form a network and connected to the Internet for communication purposes.

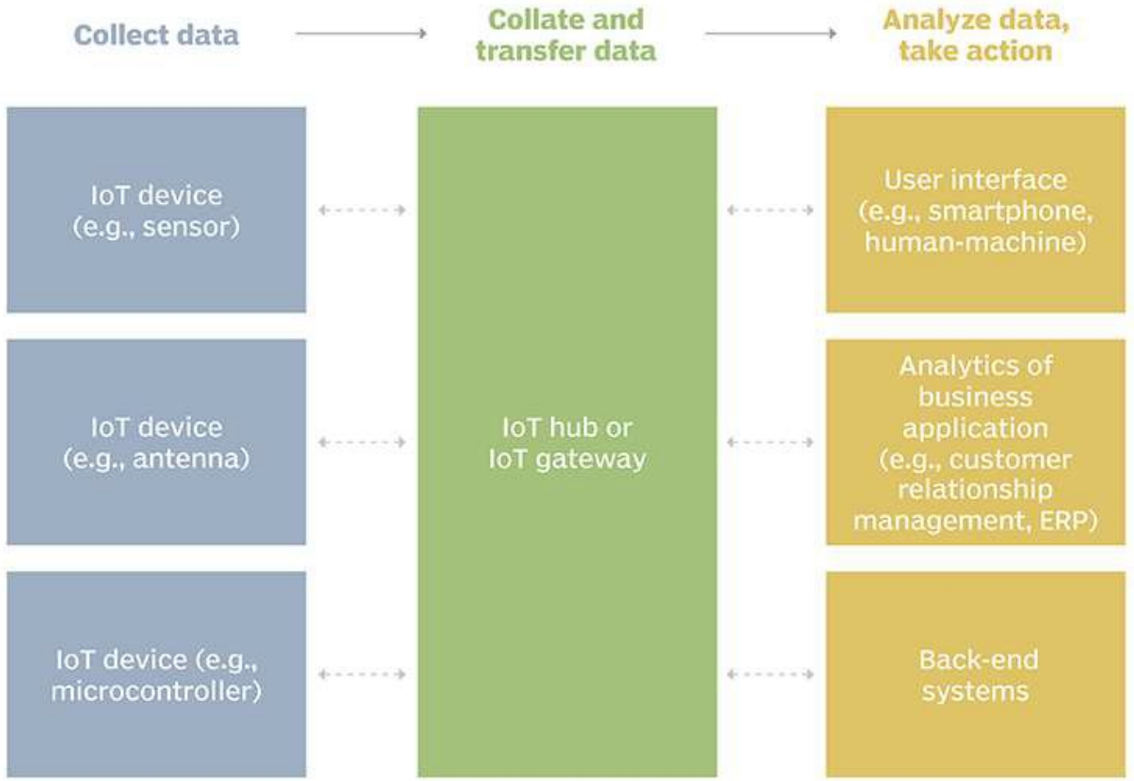


Fig.2. IoT Device

Fig.3. IoT Applications

Literature Survey

S.no	Authors	Title	Source	Findings	Limitations
1.	Navya R Sogi, Priya Chatterjee, Nethra U, Suma V	SMARISA: A Raspberry Pi based Smart Ring for Women Safety Using IoT	International conference on Inventive Research in Computing Applications, 2018	This process deals with the women's safety ring, where the ring is interfaced with GSM and GPS module to raspberry pi. Here the button is used to send the alert notification and GPS tracking link to police station and family contacts.	This model doesn't give the perfect information of the person if he holds the hand tightly at some times
2.	Surekha Goankar and Mrs. Meghashree AC	Emergency Tracking System for Women Using Body Sensors via Wrist Watches using Internet of Things (IoT)	International Research Journal of Engineering and Technology	Here, pulse rate, temperature sensor, vibration sensor is also used. Here, if the threshold of any sensor increases then GSM alert system will go to the family and police station..	Here the sensors doesn't show the values when it is needed and if vibration increases due to the sudden movement of hand, then the alert message will go, which is a drawback
3.	Mahejabeen Budebhai	IoT Based Child and Women Safety	International Journal of Computer Science and Mobile Computing, Vol, 7. 2018	Here, the sensors such as temperature sensor, heart beat sensor, panic button are interfaced with raspberry pi. GSM and GPS send the message to family with line location. Here, micro phone also interfaced to record the voice and to activate the panic button to send alert message to the source.	Here the pulse sensor value crosses the threshold value ,then automatically triggers the Raspberry Pi, but in some cases pulse sensor gives values in some other situations also, and this sensor is not accurate one.

S.no	Authors	Title	Source	Findings	Limitations
4.	Dr. G.Sivasankari, Prerana G Joshi	Live Video Streaming using Raspberry Pi in IoT Devies	International Journal of Engineering and Technology, 2017, Vol.5	If anybody moves near the camera, it starts capturing the information. Here the video is captured by raspberry pi camera. To stream the video, the Ethernet cable was connected and stream the data to the cloud.	Here in this paper there are no limitations.
5.	Geetha Pratyusha Miriyala, P.V.V.N.D.P.Sunil, Ramya Sree Yadlapalli, Vasantha Rama Lakshmi Pasan, Tejeshwini Kondapalli, Anusha Miriyala	Smart Intelligent Security System for Women	International Journal of Electronics and Communication Engineering and Technology, 2016	This paper utilizes the raspberry pi 2 in great manner. Here the raspberry pi is interfaced with GSM and GPS where alert data is required in the android secure connected phone. Here the camera captures the video and likewise also saves it in the webserver. Here, the teargas is used. It mistaking if the button was pressed, it causes a great issue that the gas will spill out.	It mistaking if the button was pressed, it causes a great issue that the gas will spill out spectacles. If teargas spills, it causes damage even to women's eyes also.
6.	C. Priya, Ramya C, Befy D, Harini G, Shilpa S, Sivani Kiruthiga	One Touch Alarm for Women's Safety using Arduino	International Journal of Innovative Technology and Exploring Engineering	Touch sensor, GSM, teargas mechanism, GPS with buzzer alert systems were installed. Here, by activation of touch sensor sends the alert message to police and family with live tracking of GPS link and suddenly the teargas mechanism switch on which is used to spray on the person's eye and even at a second alarm system switch on.	In this project touch sensor used is a drawback because touch sensor switches on even if it touches the any part of the body skin.

S.no	Authors	Title	Source	Findings	Limitations
7.	S.A. More, R.D. Borate, S.T. Dardige, SS.Sekhar, Prof. O.S.Gogawale	Smart Band for Women Security Based on Internet of Things	International Journal of Advance Research in Science and Engineering, November 2017, Vol.06, Issue No.11	This paper is mainly focused on the GPS location tracking and GSM message alert system. Here, the authors have interfaced pulse rate sensors and temperature so that to monitor the body conditions of the client. Here, via the Bluetooth module the sensors data will be send to the mobile application where they can monitor at every time	The limitation is this is the alert system can be ON only with the mobile phone and the watch must be via Bluetooth
8.	B.Sathyasri, U.Jaishree Vidhya, G.V.K. Jothi Sree, J.Pratheeba, K.Ragapriya	Design and Implementation of Women's Safety System based on IoT Technology	International Journal of Recent Technology and Engineering, Vol.7, Issue-63, April 2019	This project is implemented with ATMega 2569 microcontroller. Here the press button sends the GSM Message of the current GPS location. Here, they have used the neuro simulator and vibration sensor. Neuro simulator senses the nervous system of the women in such conditions. If the simulator is ON, then it apply shock to the attacker.	Here the limitation is watch battery they have used doesn't cause much attack to the attacker if he holds the hand of the lady.
9.	Shreyas R.S, Varun.B.C, Shiva Kumar. H.K, Punith Kuar B.E, Kalpani.C.Y	Design and Development of Women Self Defence Smart Watch Prototype	International Journal of Advanced Research in Electronics and Communication Engineering (IJARECE), Vol.5, Issue-4, April 2016	Here with the help of microcontroller the panic button is interfaced. It sends the GPS location with the help of GSM to the police station and family at the same time with the help of relay shock generator is used and at the same time the buzzer will switch ON for alert system. All the data is shown in the LCD Display.	Here, the limitation is heavy battery is required for shock generator which is no practically impossible and it doesn't harm the attacker if he holds the hands.

S.no	Authors	Title	Source	Findings	Limitations
10.	Aswini A, PG Scholar and Dr.J.Preethi	Smart Self-Defense Gadget for Women's Safety Using IoT	International Journal for Research in Engineering Applications and Management, ISSN: 2454-9150, special Issue-NCCT-2018	In this system, the module is offline for sending alert message and GPS tracking location to the family and police-station and other is online, which records the audio recording and uploads the data to the cloud. Here, the pulse shock generator is also interfaced. If the pulse increased, then shock automatically generates.	The limitation is that if pulse increased due to the horror effects or some of the dare games in exhibitions or excluding, then the shock generator ON and generated shock which is wastage of battery and due to this the women wearing watch also effected by shock in some cases
11.	Mr. Pampapathi B.M, Komal Singh, Madhavi V, Madhu B Yallamaddi, Mangala Desai	Smart Band for Women's Safety Using Internet of Things (IoT)	International Journal of Advanced Research in Computer and Communication Engineering, Vol.7, Issue 3, March 2018.	This paper has an arduino microcontroller. Here, the pulse rate sensor and temperature sensor are interfaced and also Bluetooth module is used to connect to the app in the phone. Here, the no external GSM and GPS is used. They have used the phones GPS location. In case of emergency, the women makes use of the phone application. By pressing the application in phone, the GPS location will send to the police station.	The limitation is the model is possible only when internet is ON and in such case of emergency the women can't use the phone to send the GPS location.

System Representation

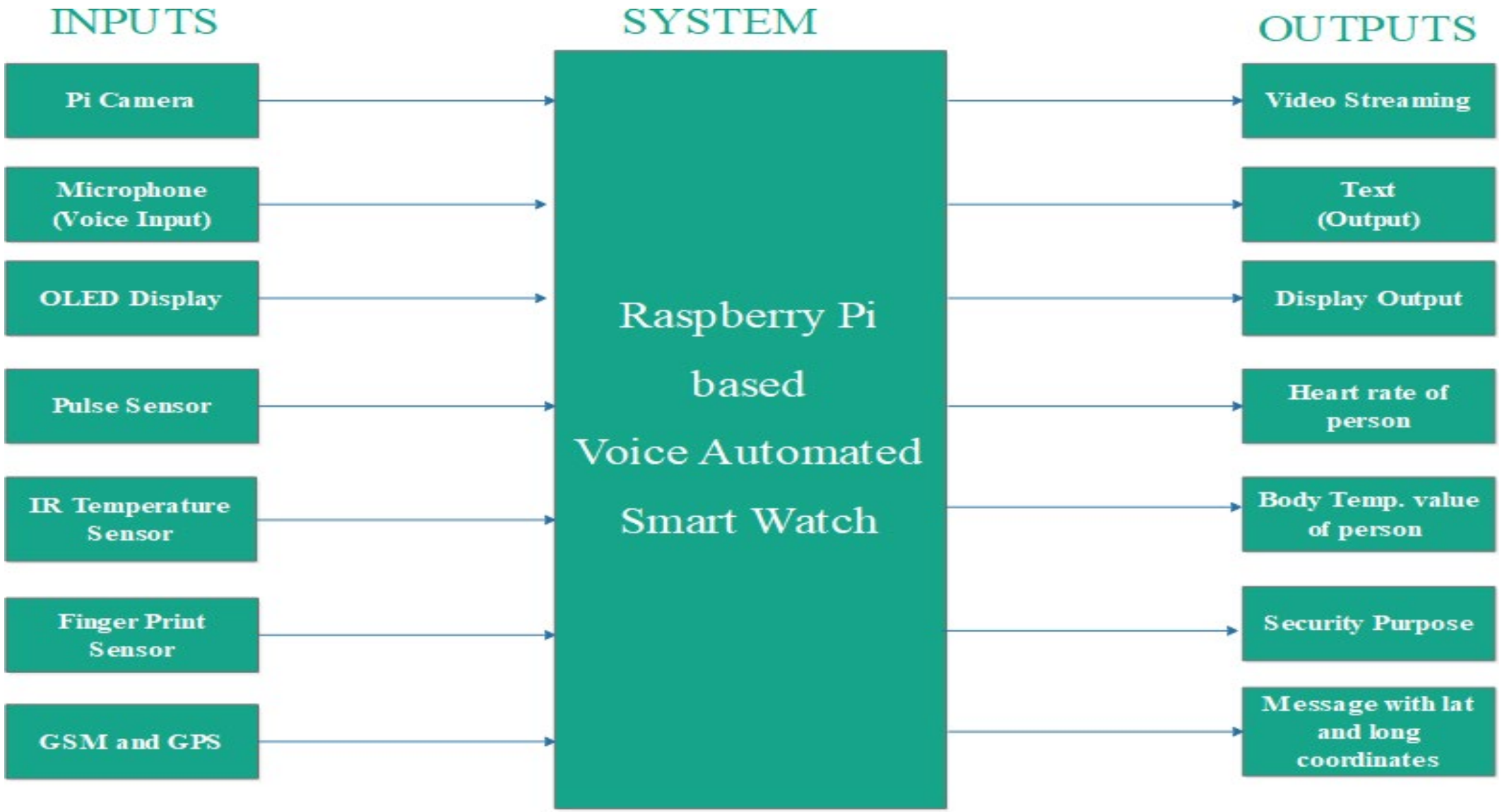


Fig.4. System Representation of Smart Watch

Architecture

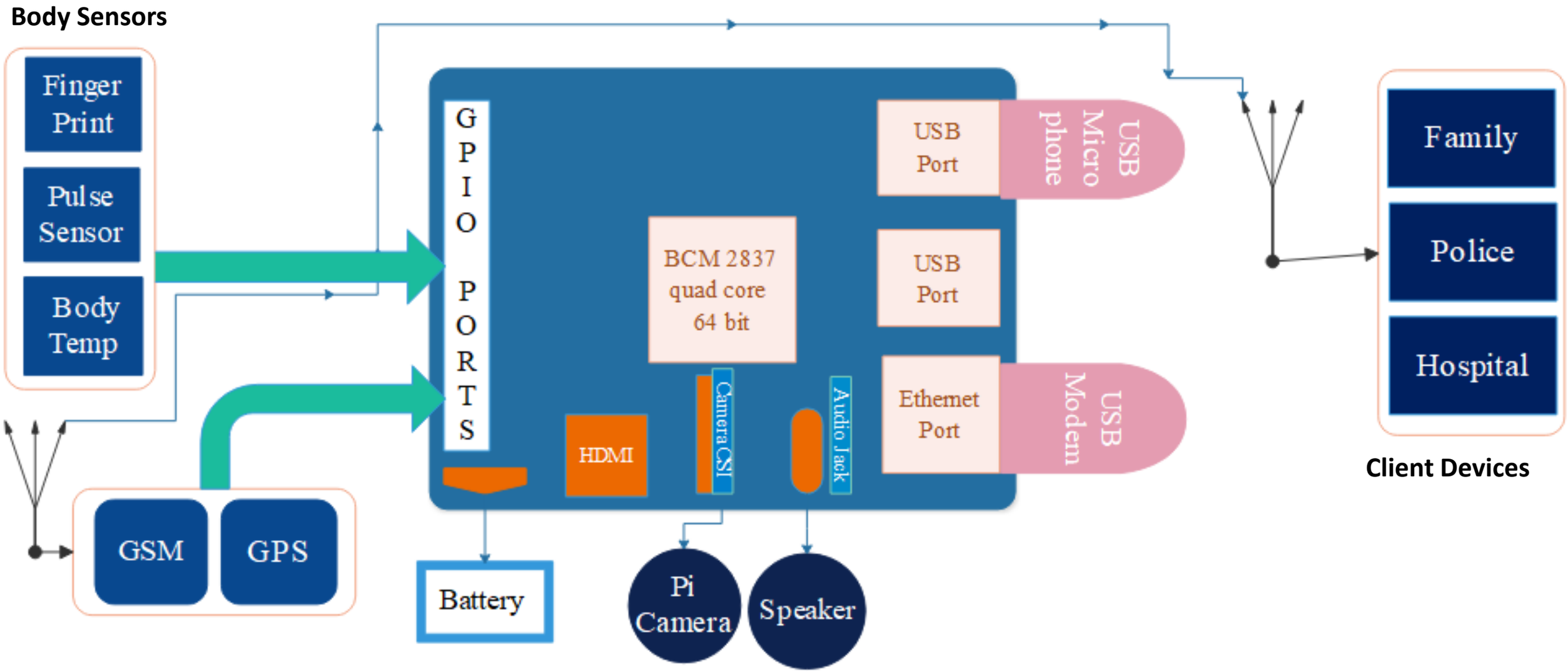


Fig.4. Architecture of our Smart Watch

Block Diagram

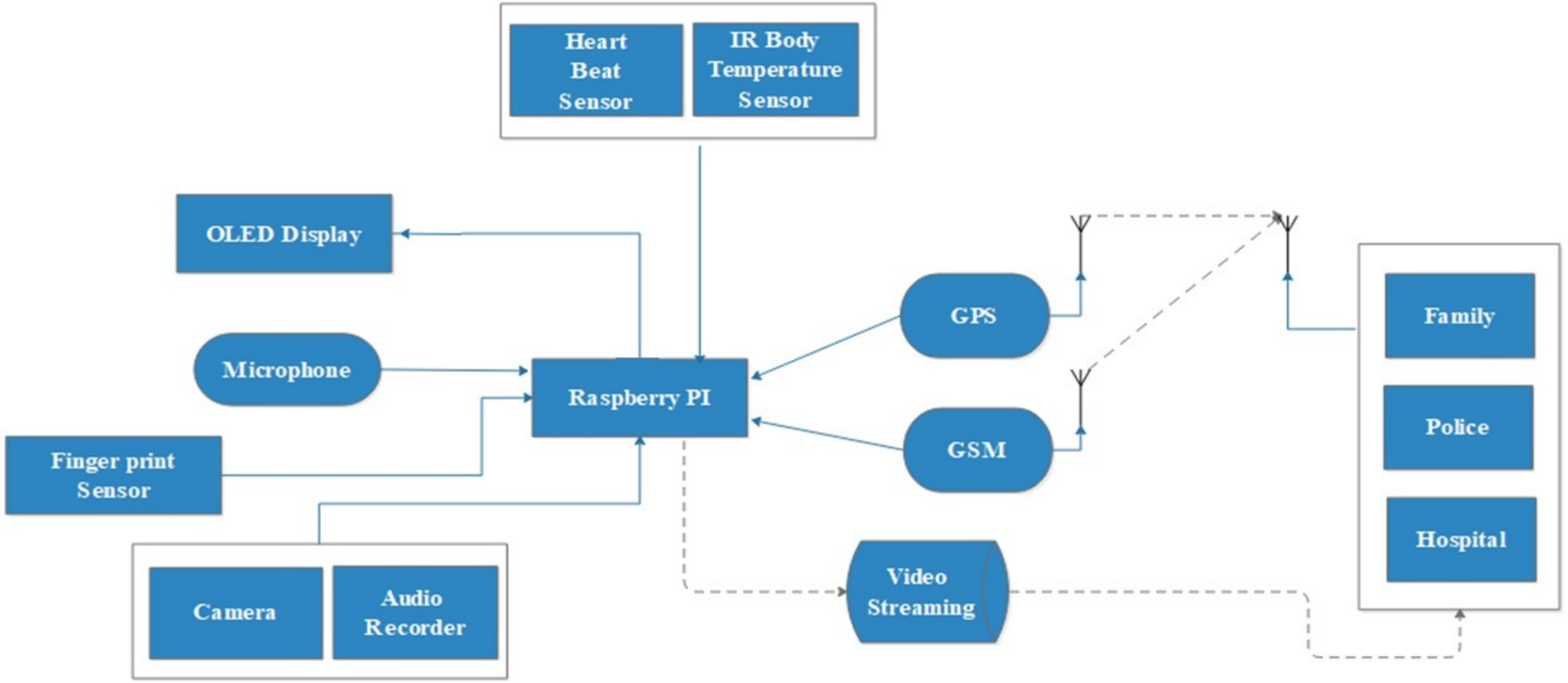


Fig.5. Block Diagram

Circuit Diagram

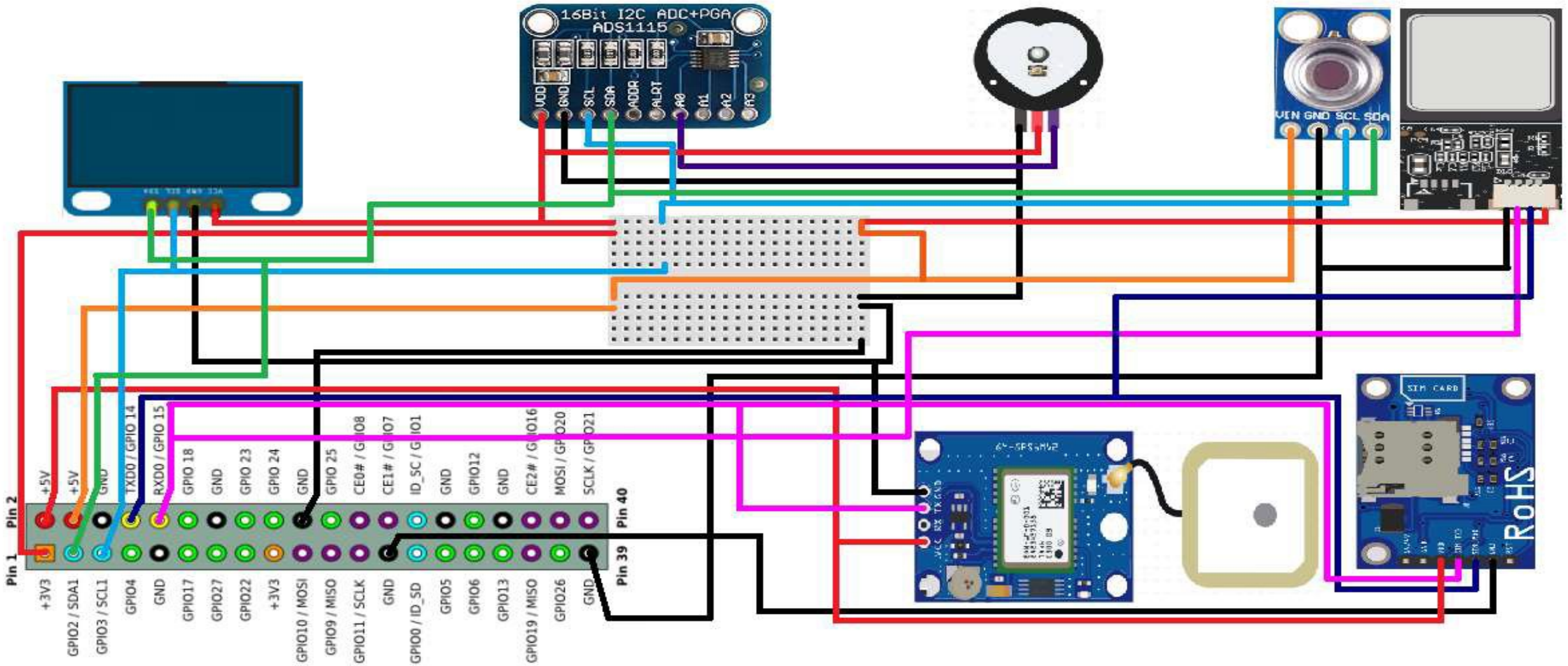


Fig.6. Circuit Diagram

1. VideoStreaming

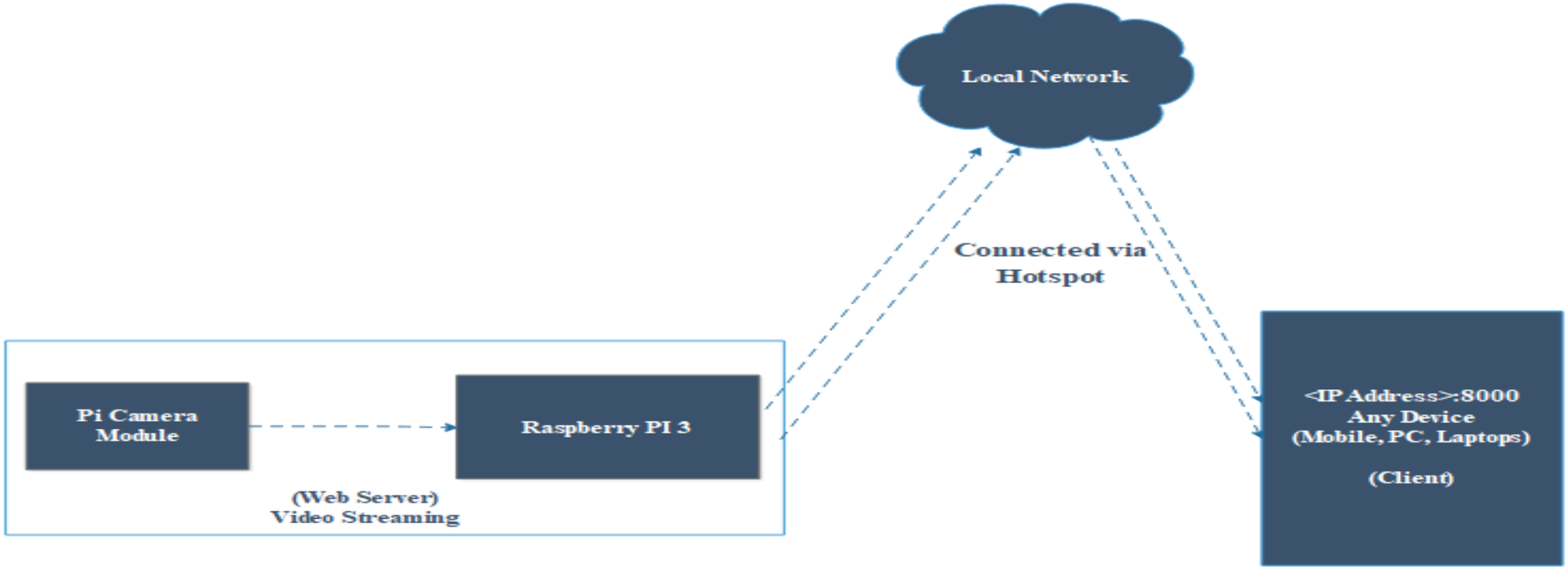


Fig.7. Video Streaming with in a Network

Live Video Streaming using **Web-Server to Client** Data Transfer Protocol

- Raspberry pi with pi-cam module acts as web-server for live video streaming
- client devices can access the RPI **<IP-address >:8000**
- When both server and client are connected to same network.

I. Video Streaming cont. . . .

To Stream live video into a Web-Server page that can be accessed through any

Client device ,

Libraries Required:

1. IO Library
2. Pi Camera Library
3. Logging Library
4. socketserver Library

Algorithm for Video Streaming

Step 1:Enable the Raspberry Pi Camera Module.

Step 2:Find the Raspberry Pi IP Address.

Step 3:Connect the camera.

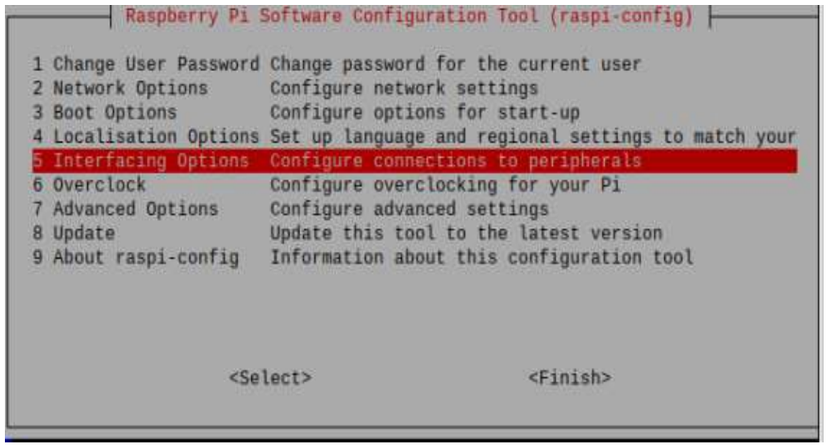
Step 4:Write the Python Script

Step 5:Accessing the Video Streaming

Step 1.Enable the Raspberry Pi Camera Module

By default it is Disabled,

Raspberry Pi Configuration → **Interfacing options** → **Enable Camera.**



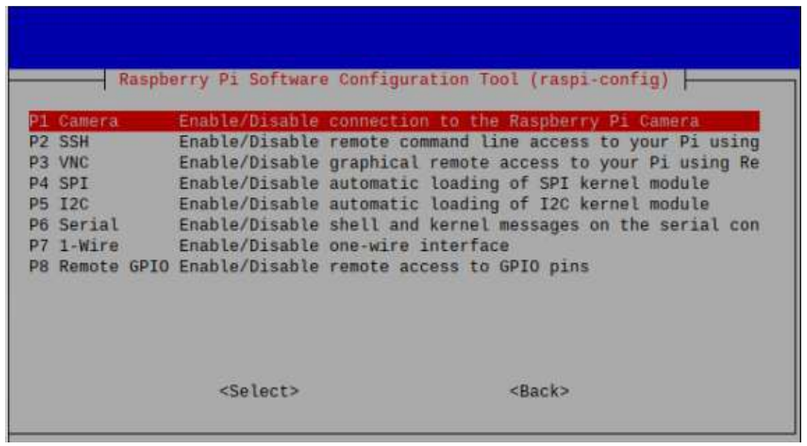


Fig.8. Enabling Camera module in Raspberry Pi 3

I. Video Streaming cont.…

Step 2: Find the Raspberry Pi IP address

In Computer Network's , Every Electronic Device is identified based on IP-Addresses only.

$ **ifconfig**

Shows Wi-fi Card (WLAN0) configuration details along with Raspberry IP address is

192.168.69.129

Algorithm for Video Streaming

Step 1:Enable the Raspberry Pi Camera Module.

Step 2:Find the Raspberry Pi IP Address.

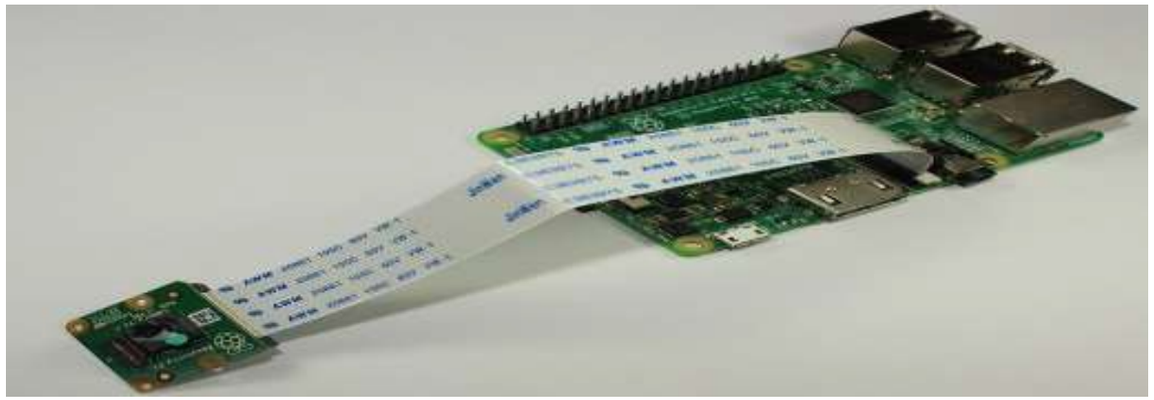
Step 3:Connect the camera.

Step 4:Write the Python Script

Step 5:Accessing the Video Streaming

Step 3. Connect the camera

Connect the camera to the Pi CSI port



```
File  Edit  Tabs  Help
pi@raspberrypi:~ $ ifconfig
eth0: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        ether b8:27:eb:2d:7c:b2  txqueuelen 1000  (Ethernet)
        RX packets 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 114  bytes 25933 (25.3 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 114  bytes 25933 (25.3 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.69.129  netmask 255.255.252.0  broadcast 192.168.71.255
        inet6 fe80::8f14:c274:f050:fa0f  prefixlen 64  scopeid 0x20<link>
        ether b8:27:eb:78:29:e7  txqueuelen 1000  (Ethernet)
        RX packets 127522  bytes 89935791 (85.7 MiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 61982  bytes 25950019 (24.7 MiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

I. Video Streaming cont.…

Algorithm for Video Streaming

Step 1:Enable the Raspberry Pi Camera Module.

Step 2:Find the Raspberry Pi IP Address.

Step 3:Connect the camera.

Step 4:Activating the Python Script

Step 5:Accessing the Video Streaming

Step 4. Activating the python script

- Initiates Socket port addresses to assign Web-Server at 8000 port for Data Transfer protocols
- Activates live video streaming from pi-camera module
- Sends SMS notification to Client Devices

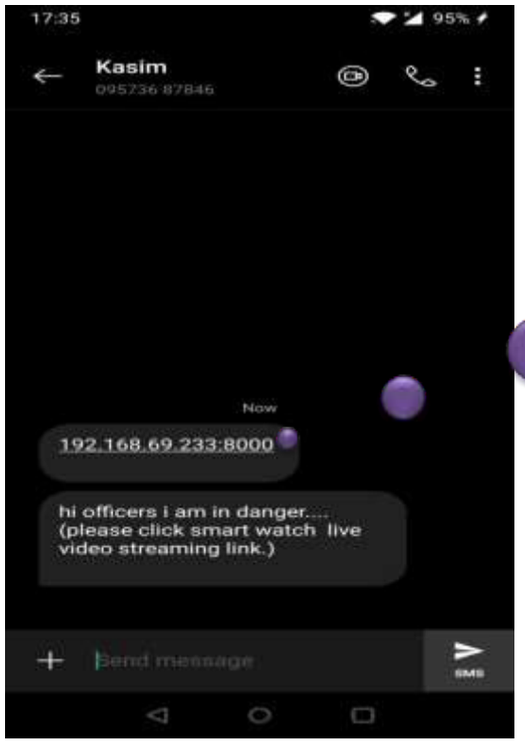
5.Accessing the video streaming

Client Devices can access your video streaming web server at:

http://**<Your_Pi_IP_Address>**:8000

http://192.168.68.129:8000.

Both **client device** and **Web-server system** has to be connected to the same network.



After clicking this link the video streaming starts in your mobile. This message is sent with the help of GSM Module

Fig.9. Message showing Video Streaming link

PiModule Cam(serving the video stream) – Laptop(accessing the flask server for video capture)

Fig.10.Video Streaming (Embedded Systems Lab)

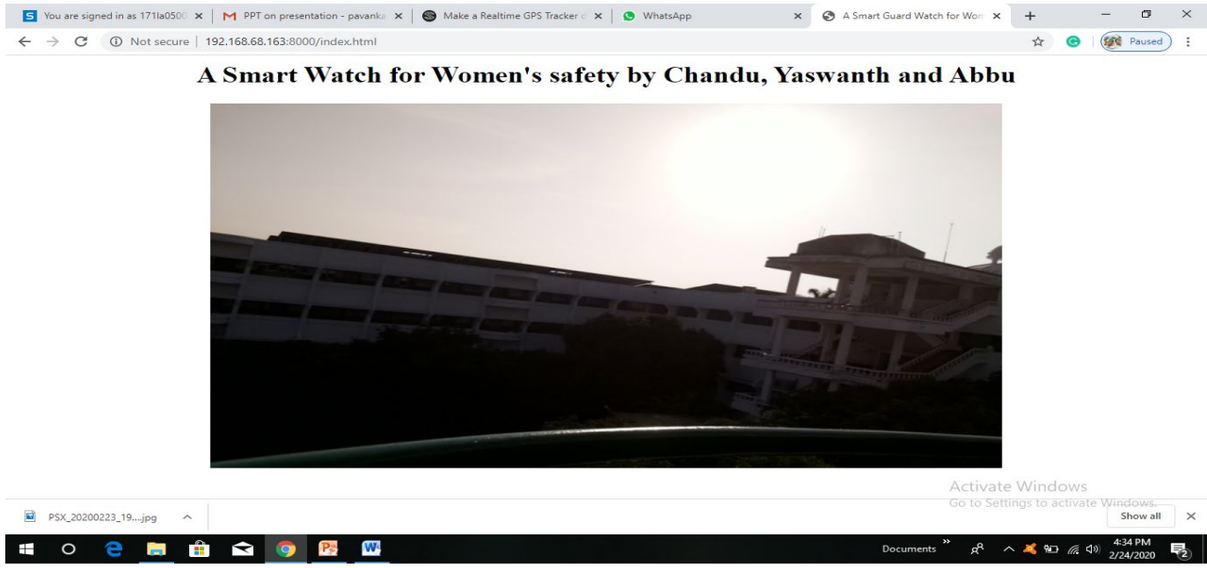


Fig.11.Video Streaming (H-Block)

Client Device - Mobile (accessing the flask server for video capture)

Fig.12.Video Streaming (Balcony)

Fig.13.Video Streaming (H-Block)

Range of Communication (Live Video Streaming)

Fig.14.Video Streaming (A-Block)

Fig.15.Video Streaming (At the H-Block)

Both Serving Pi module and Client Receiver device connected to same local network

Fig.16.Video Streaming (Outer Garden of H-Block)

Fig.17.Video Streaming (Main Entrance)

2. Voice Automation

To Receive our Voice commands and perform the related task , We Use

1. Recognize spoken voice (Speech recognition)

2. Output Voice Alert's (Text to speech)

"Provided by Google API services"

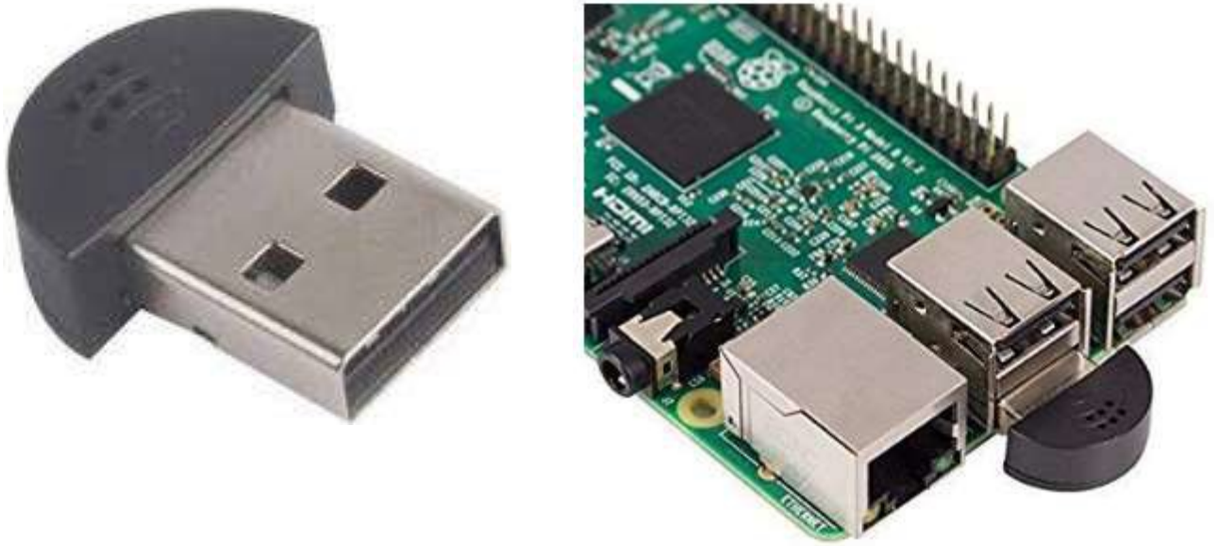
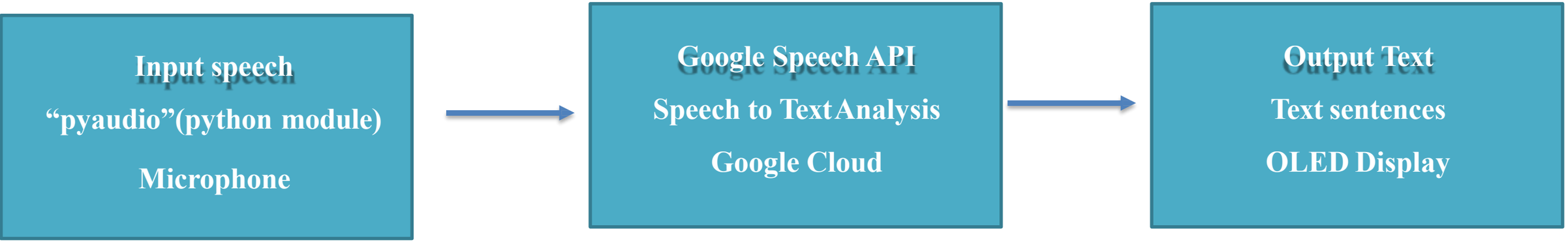


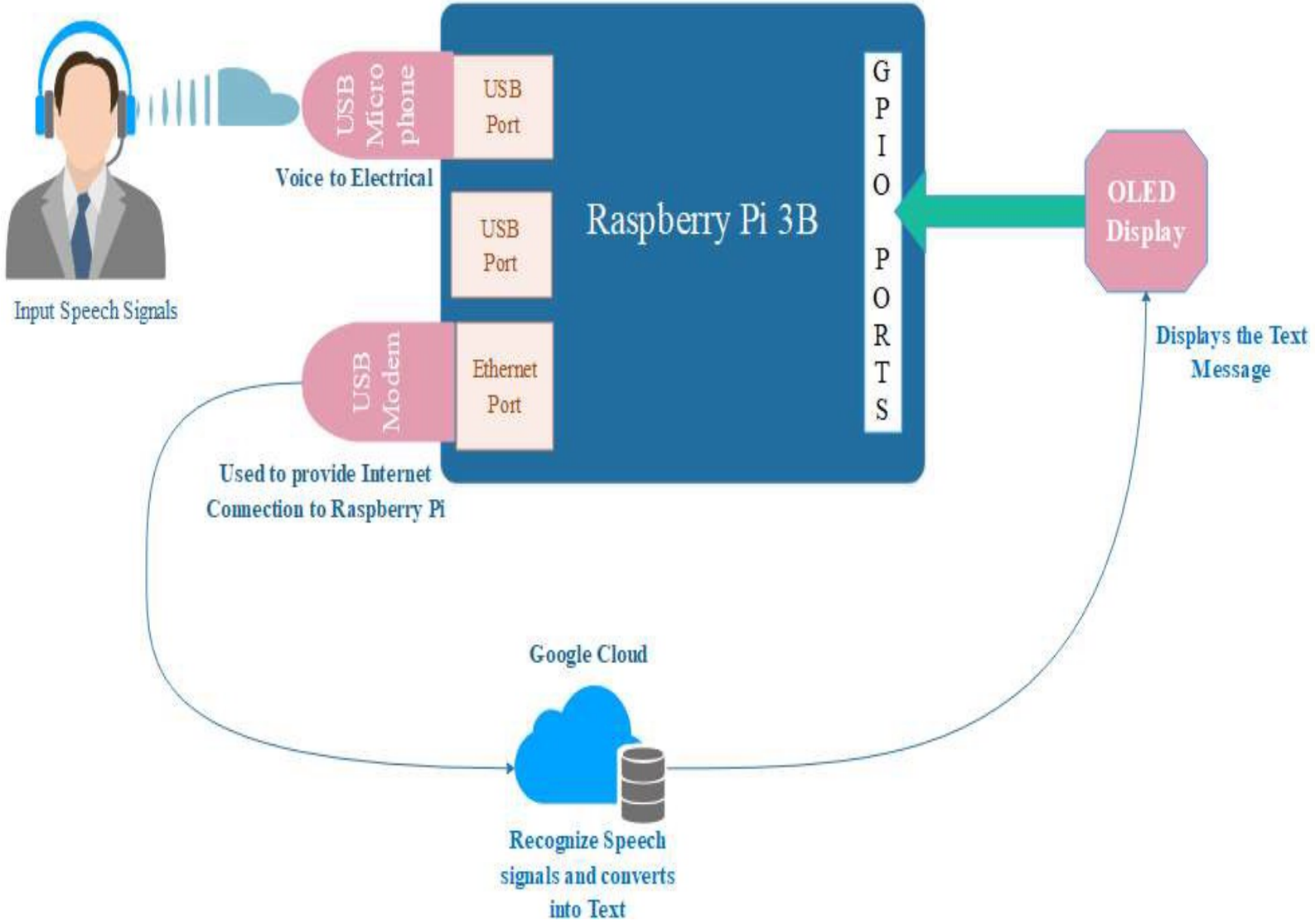
Fig.21 USB 2.0 Microphone for RPI

Step 1.Recognize spoken voice

- Python Speech Recognition module converts spoken words into text.
- It sends input recorded speech to Google Database where user speech is analyzed to match with related Text Sentences



SPEECH TO TEXT ANALYSIS



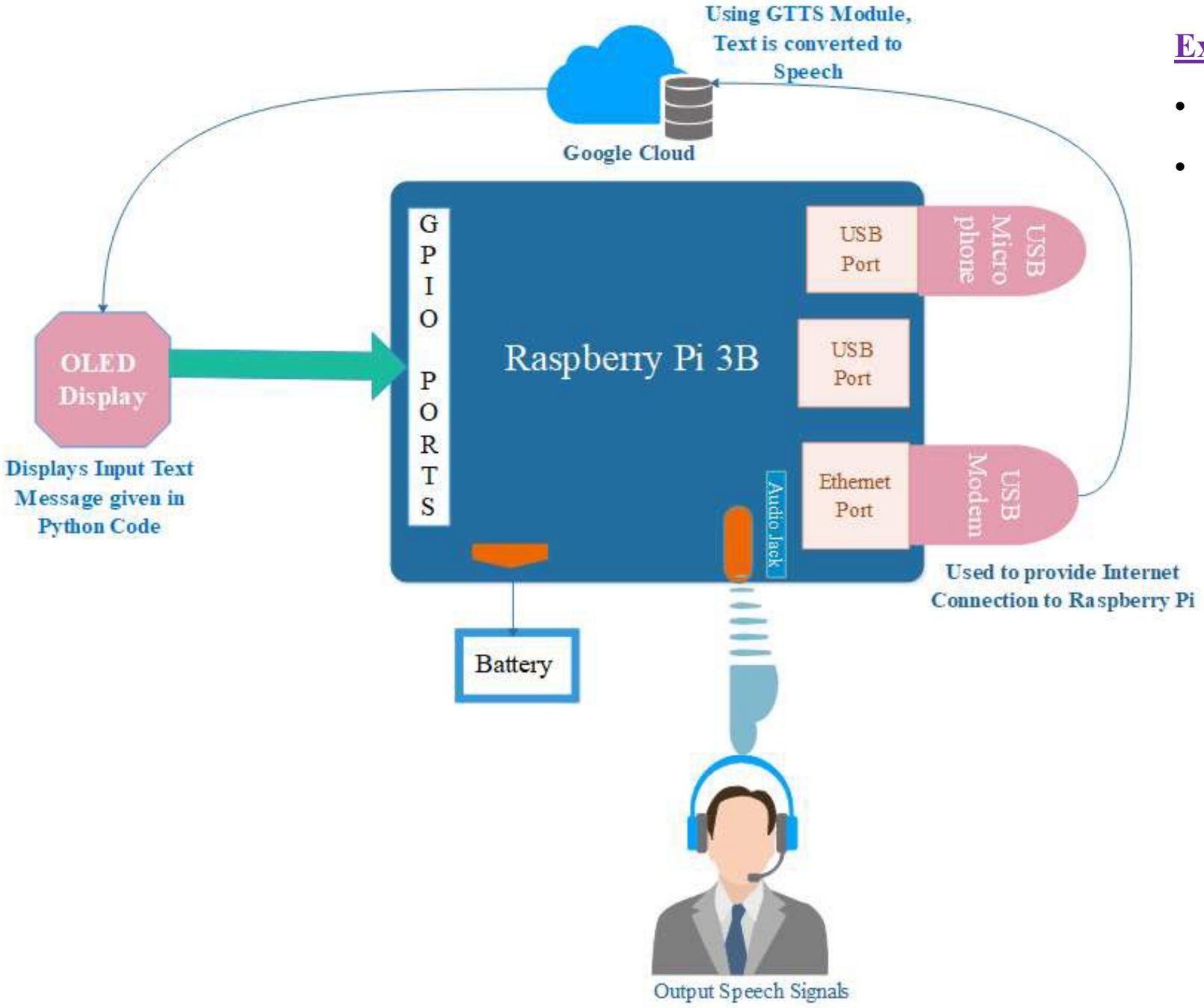
input Voice Command
OLED Indication

Fig.22 Input Voice Command **OLED Indication**

2. Voice Automation cont. . .

Step 2.Output Voice alerts (Text To Speech)

- Google text to Speech module converts written Text to Speech
- Pre-written Text Arguments in Python Code re sent output speech generated by Google SpeechAPI service



Example (output):

- Indicates the Output speech on OLED Interface
- Uses .mp3 format to play through output speaker

3. Sensors Interfacing

We are using Body Sensors to detect medical condition of the user , Such as

- Heart Pulse Sensor
- IR Temperature Sensor

Step 1: Interfacing Pulse Sensor and ADS1115 to Raspberry Pi.

- Works on the principle of **Photoplethysmography.**
- As Pulse Sensor is an Analog Sensor, ADS1115 Analog-to-Digital Converter is used to convert Analog signals into digital signals and fed to Rpi system.

Algorithm for Interfacing Pulse Sensor

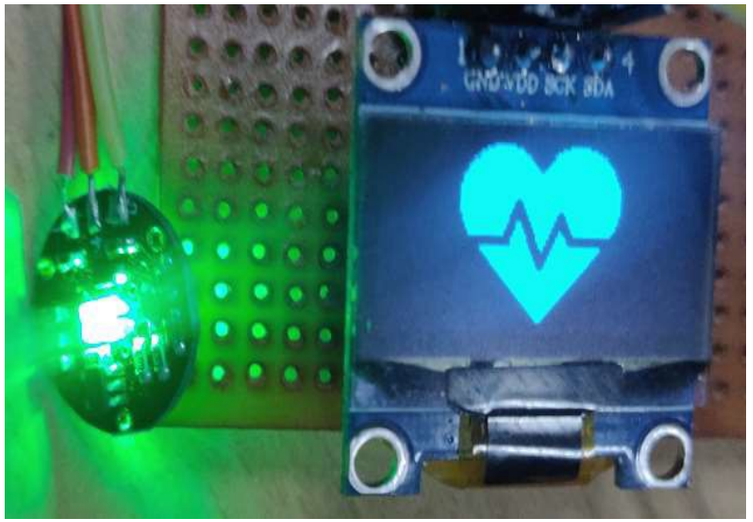
Step 1:Connecting ADS1115 and Pulse sensor to Raspberry Pi.

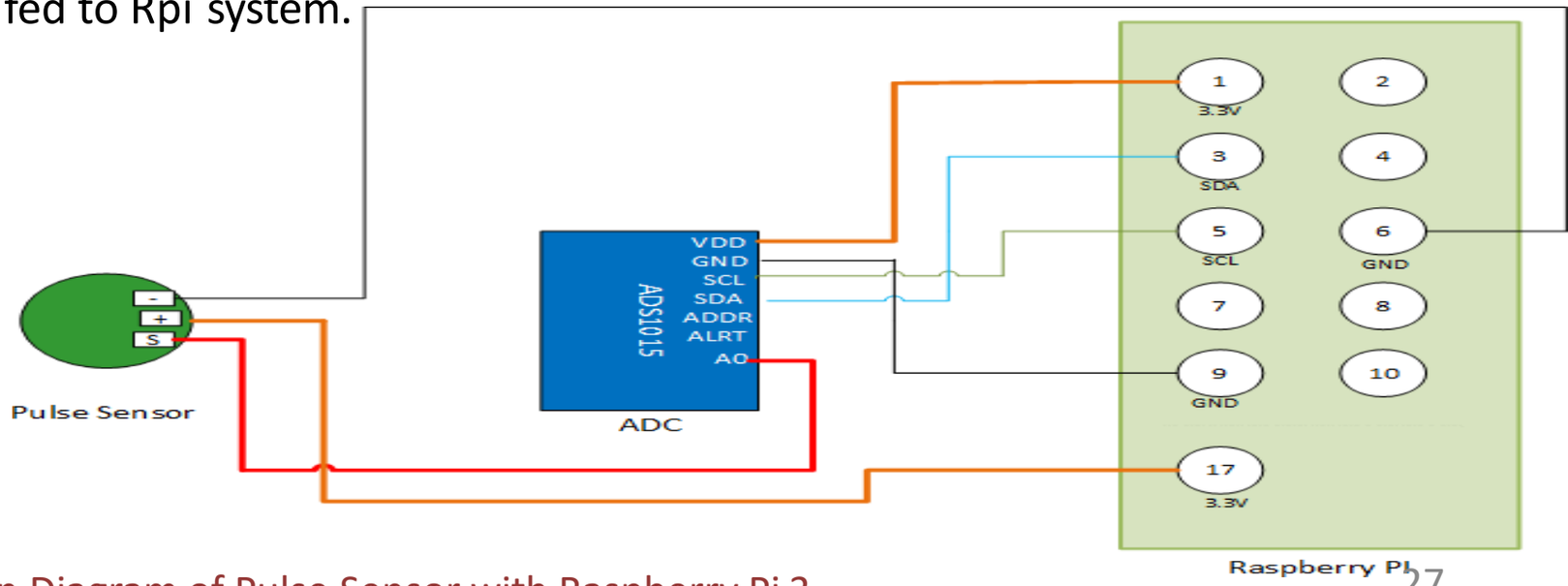
Step 2:Enabling I2C options for Raspberry Pi.

Step 3:Enabling Serial interfacing also.

Step 4:Installing packages required.

Step 5:Run the Python Script.





Connection Diagram of Pulse Sensor with Raspberry Pi 3

3. Sensors Interfacing cont.…

Step 2: Enabling I2C options for Raspberry Pi

→To receive sensor reading we have to enable serial Communication Interfacing (IC)

Step 3: Enabling Serial interface for Raspberry Pi

→Also UART (Universal Access Receiver and Transmitter) Raspberry Pi has to enabled for data Transfer between Sensor and Receiver

Algorithm for Interfacing Pulse Sensor

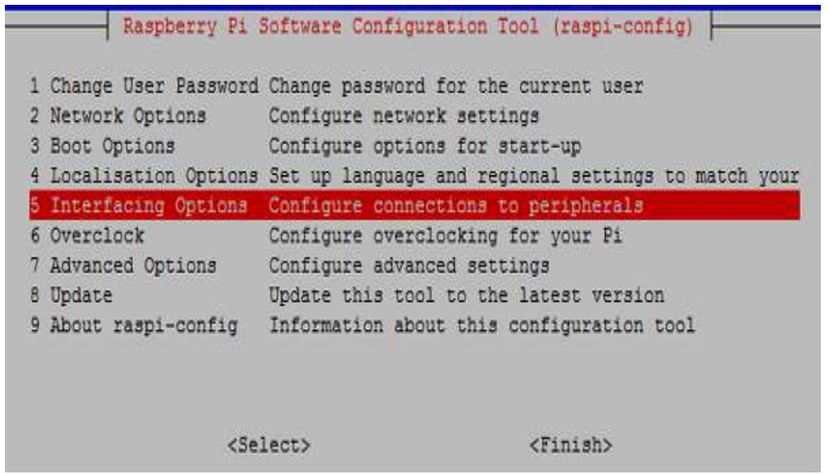
Step 1:Connecting ADS1115 and Pulse sensor to Raspberry Pi.

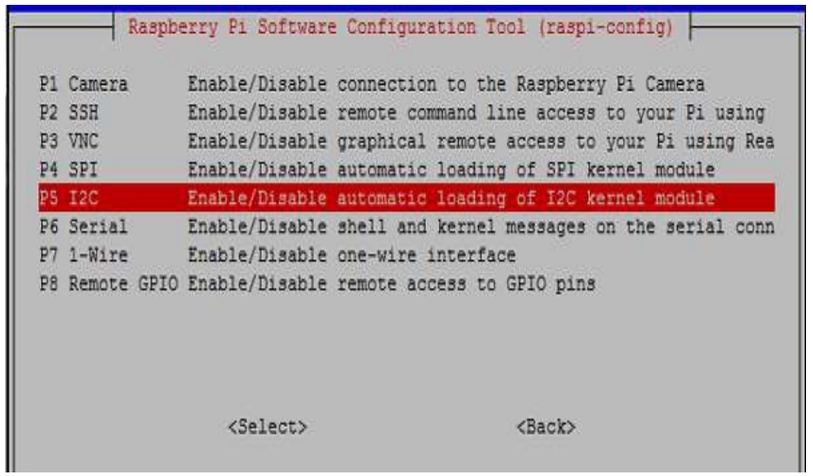
Step 2:Enabling I2C options for Raspberry Pi.

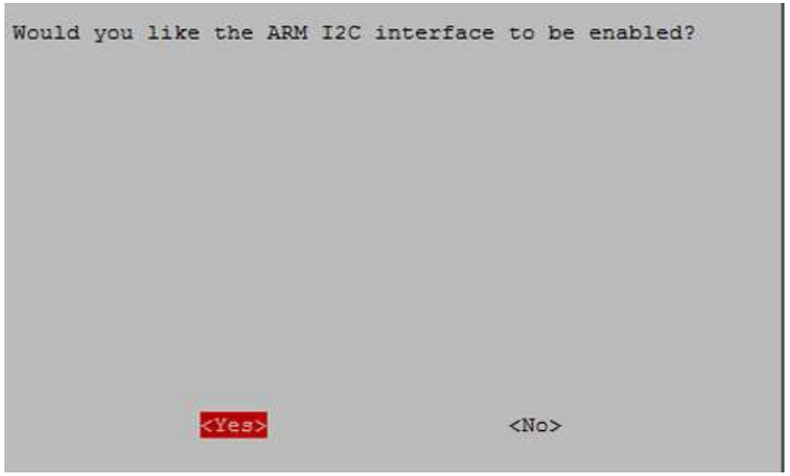
Step 3:Enabling Serial interfacing also.

Step 4:Installing packages required.

Step 5:Run the Python Script.







3. Sensors Interfacing cont.…

Algorithm for Interfacing Pulse Sensor

Step 1:Connecting ADS1115 and Pulse sensor to Raspberry Pi.

Step 2:Enabling I2C options for Raspberry Pi.

Step 3:Enabling Serial interfacing also.

Step 4:Installing packages required.

Step 5:Run the Python Script.

Step 4: Installing packages required

The following python libraries required for Heart Rate Monitoring are

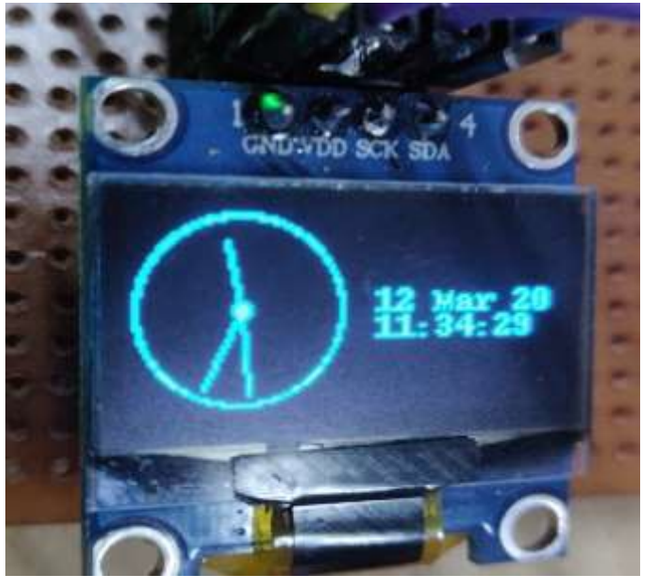
- Adafruit_ADS1x15 library
- Time library
- IO library

```
sudo  pip install "library_name"
```

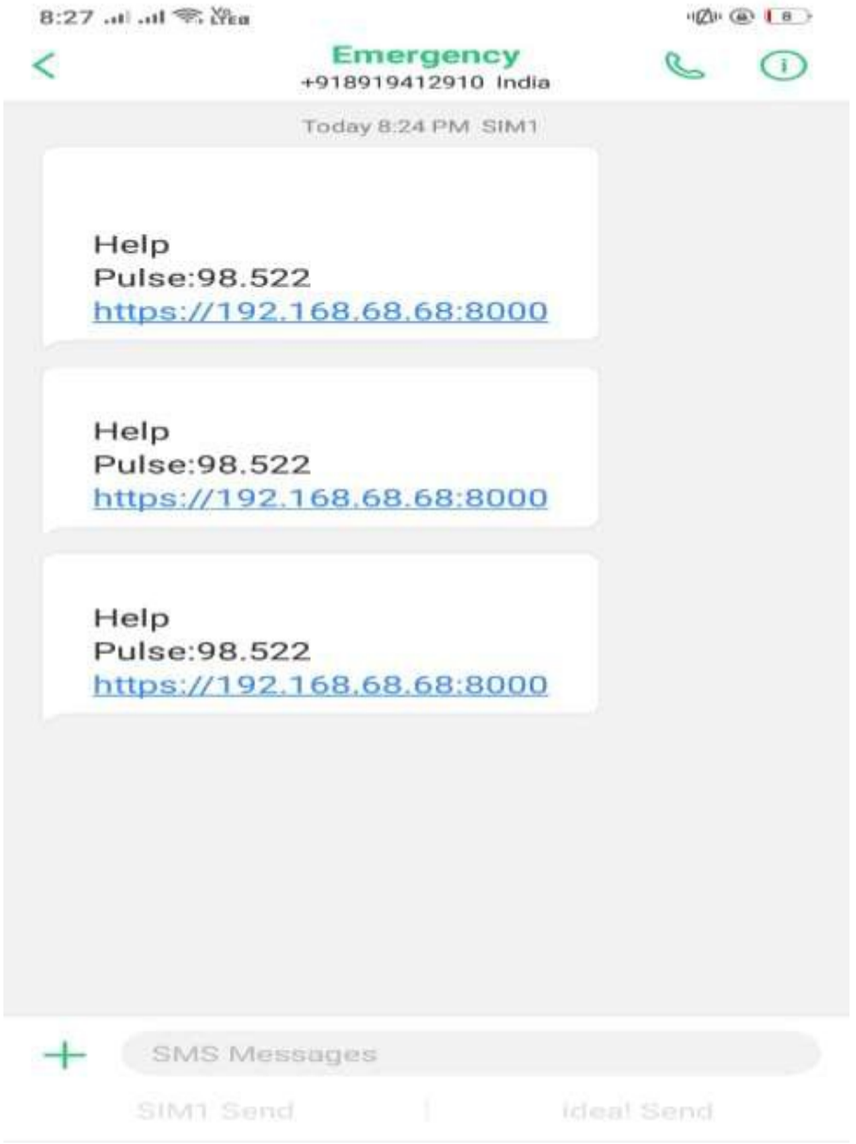
Step 5: Running the python Script

- python code for heartbeat monitoring is saved with the name of pulse.py and run the python code.
- Python Script executes all these 5 steps mentioned Sequentially.

HEART PULSE (BPM)



SMS Notifications



Medical condition
(SMS Alerts to Relatives / Hospitals)

3. Sensors Interfacing cont.…

2. Interfacing IR Body Temperature Sensor (MLX90615)

To measure thermal temperature we are using IR (MLX90615) sensor

IR Body Temperature Sensor

Algorithm for Interfacing Pulse Sensor

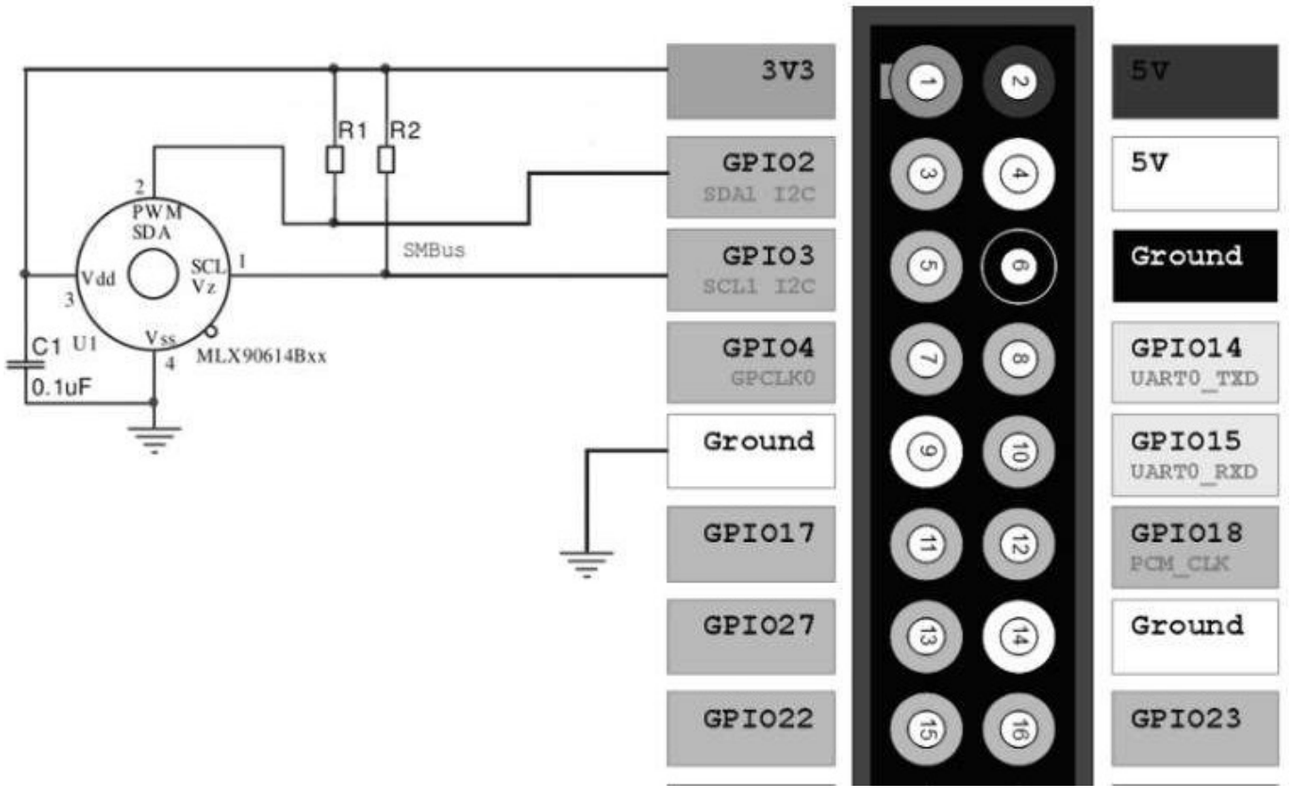
Step 1:Connecting IR Body Temperature sensor to Raspberry Pi.

Step 2:Enabling I2C options for Raspberry Pi.

Step 3:Enabling Serial interfacing also.

Step 4:Installing packages required.

Step 5:Run the Python Script.

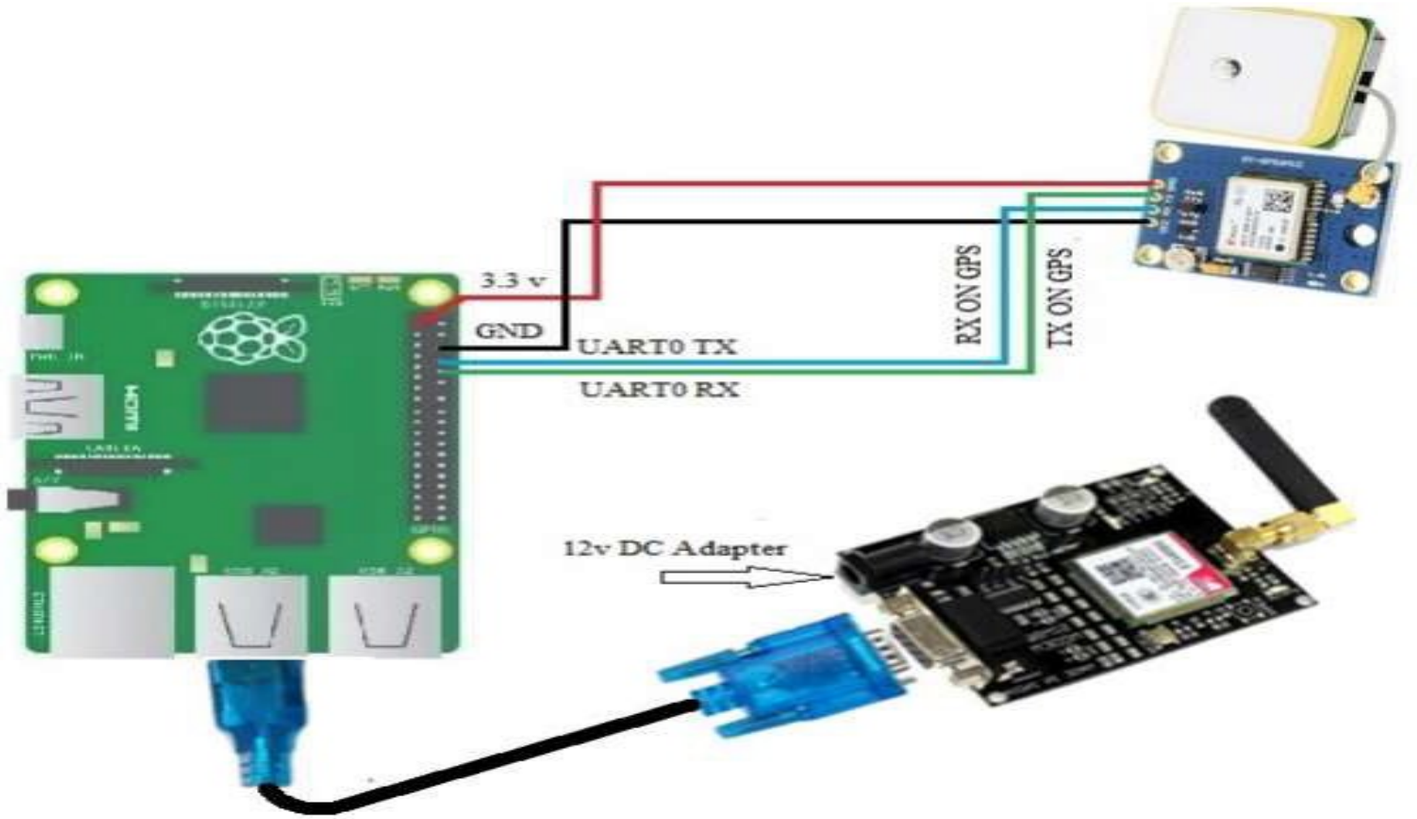


4. Live Location Tracking

Libraries Required

Step 1: Connect GPS and GSM module to Raspberry Pi 3

- Connect GPS and GSM Modules to the Raspberry Pi 3 as shown in the below figure.



Connection Diagram of GPS and GSM modules to Raspberry Pi 3

Algorithm for GPS and GSM Interfacing

Step 1:Connect GPS and GSM modules to Pi 3.

Step 2:Getting Data from GPS Module.

Step 3:Reboot the System and insert SIM card in GSM.

Step 4: Writing the Python code.

Step 5:Get message from GSM Module to phone

Step 6: Live Tracking of Location is done.

```
Neo 6M VCC -----> Raspberry pi 5v
Neo 6M GND -----> Raspberry pi GND
Neo 6M  RX -----> Raspberry pi TX (gpio 14)
Neo 6M  TX -----> Raspberry pi RX (gpio 15)
```

4.Live Location Tracking cont. . . .

Step 2: Getting Data from GPS Module.

- To receive GPS co-ordinates from Satellites ,

Edit the OS boot configuration to detect GPS module

$ sudo nano /boot/config.txt

Algorithm for GPS and GSM Interfacing

Step 1:Connect GPS and GSM modules to Pi 3.

Step 2:Getting Data from GPS Module.

Step 3:Reboot the System and insert SIM card in GSM.

Step 4: Writing the Python code.

Step 5:Get message from GSM Module to phone

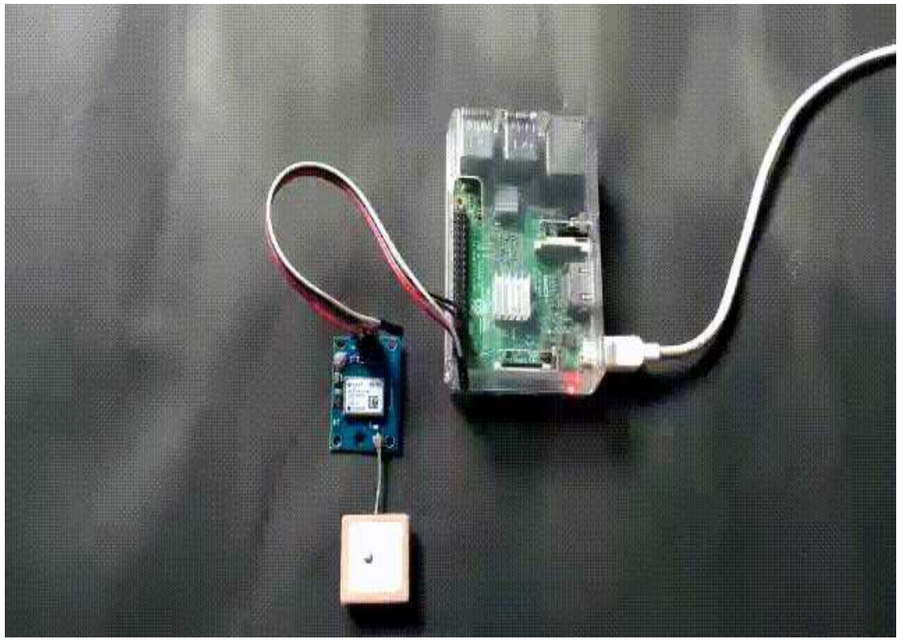
Step 6: Live Tracking of Location is done.

Step 3: Reboot the System and Insert SIM card in GSM Module

$ sudo reboot

After Rebooting the System the GPS Module will blink.

→ This Blinking of LED in GPS Module shows that GPS Module is receiving the data.

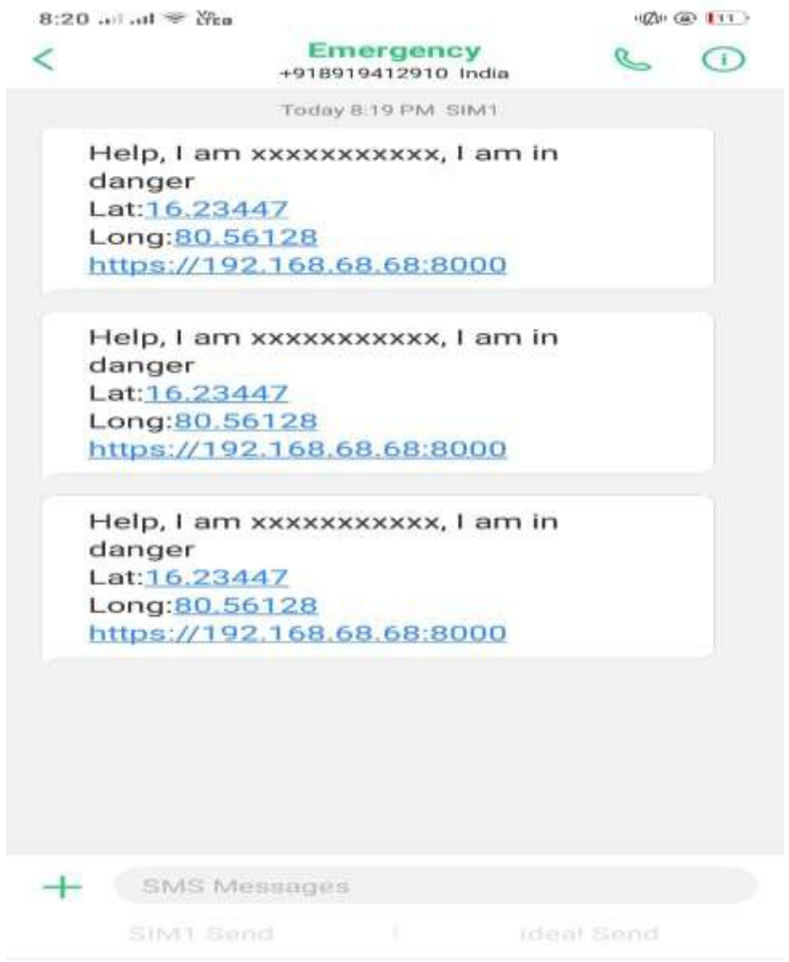


Step 4: Execute python code

- Code starts receiving latitude and longitude GPS co-ordinates.
- Sends SMS Alert with Google map URL link to Client mobile phones.

4. Live Location Tracking cont. . . .

Step 4: Executing the Python Code.



Algorithm for GPS and GSM Interfacing

Step 1:Connect GPS and GSM modules to Pi 3.

Step 2:Getting Data from GPS Module.

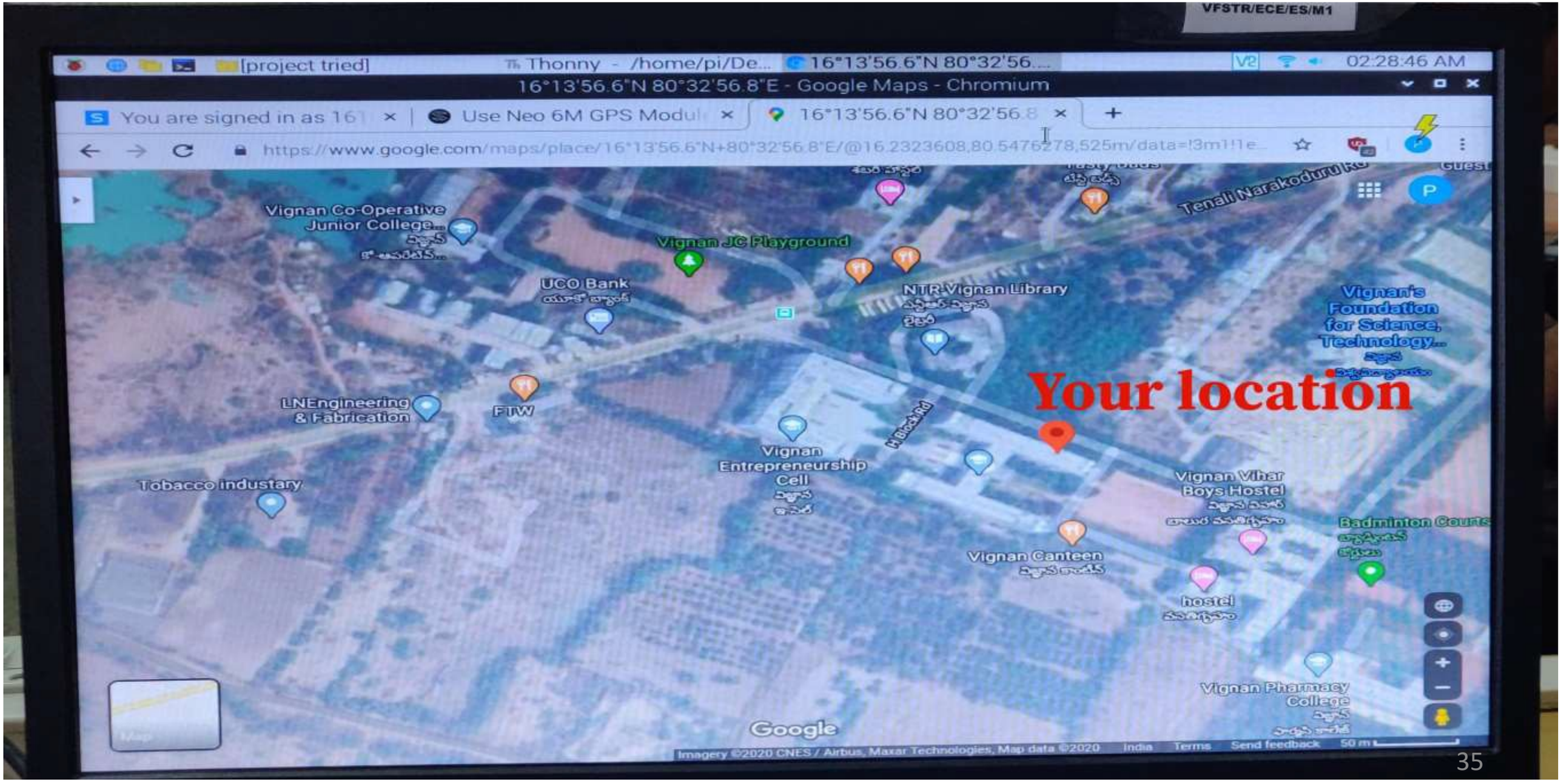
Step 3:Reboot the System and insert SIM card in GSM.

Step 4: Writing the Python code.

Step 5:Get message from GSM Module to phone

Step 6: Live Tracking of Location is done.

By clicking on the URL Link ,redirects to the Google Maps in Client Devices



5. Calls, Messages and Notification Alerts

Step-by-Step

Setting up Raspberry Pi's Bluetooth

Pairing Raspberry Pi and Android Phone

1. Setting up Raspberry Pi's Bluetooth

→Install bluez (Python Bluetooth Library)

Sudo apt-get install python-bluez

→Setup the Bluetooth Compatibility Mode

→Load the Serial port profile by typing this command in the terminal

sudo sdptool add SP

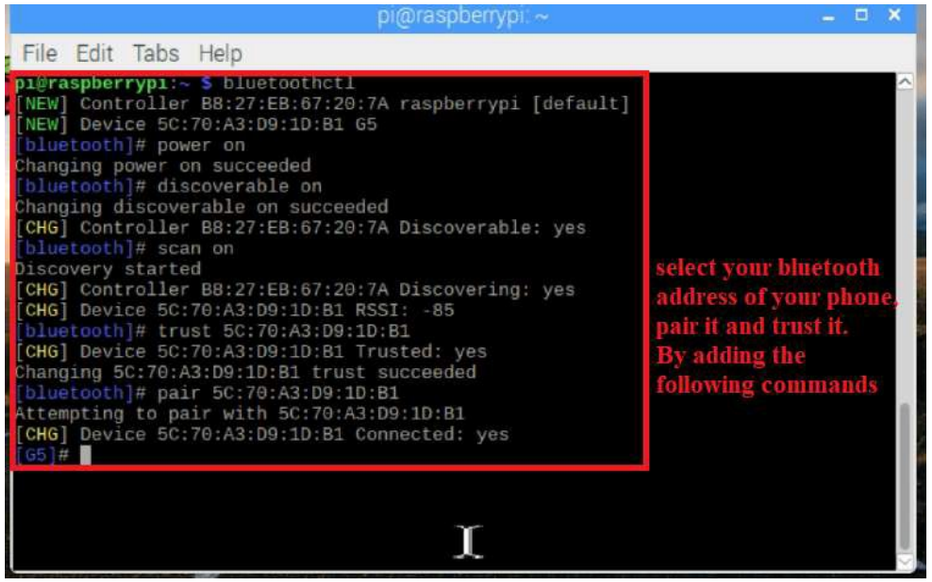
→Save the changes and restart the system by typing this command in the terminal.

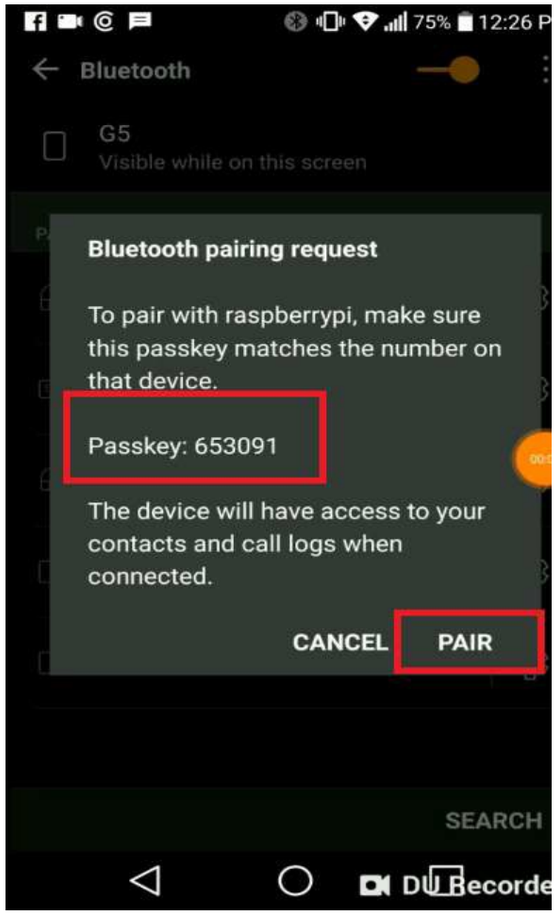
sudo reboot

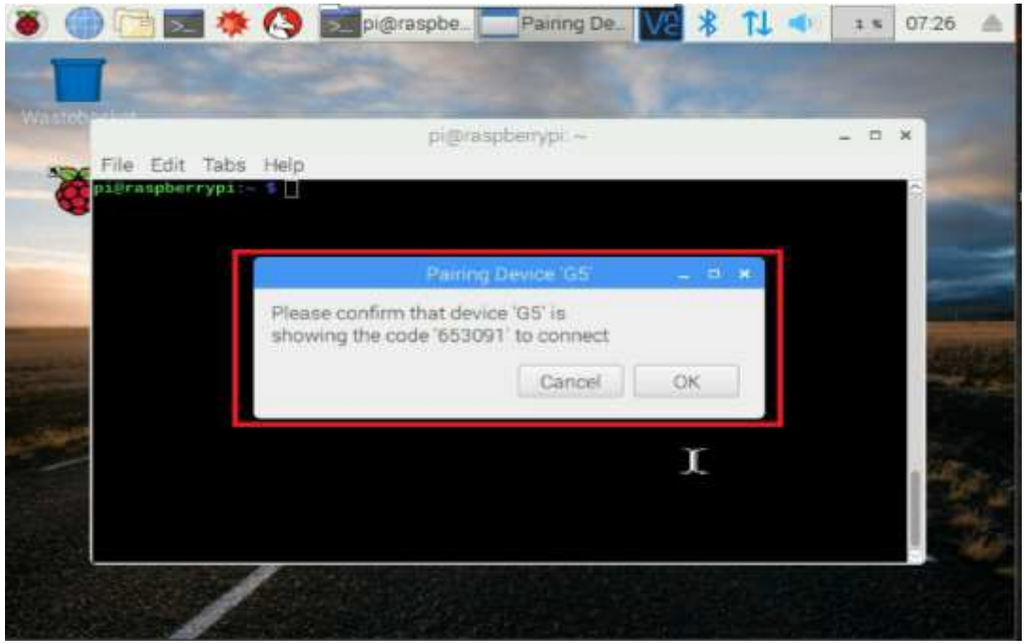
5. Calls, Messages and Notification Alerts cont.…

2. Pairing Raspberry Pi and Android Phone

→Connect Raspberry Pi and mobile using Bluetooth Wirelessly.







6. Security for Smart Watch

For User Security, We are using Finger print Sensor Recognition

Components required:

→Raspberry Pi Fingerprint

→Serial USB TTL UART converter

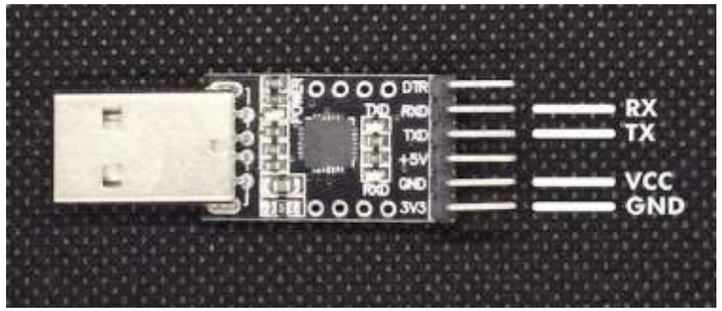
1. Connection of the Raspberry Pi Fingerprint Sensor

Red: Depending on the accepted voltage of the sensor (3.3V or 5V).

White: RXD

Green: TXD

Black: GND



2. To check whether the cabling is correct and whether the sensor is detected

ls /dev/ttyUSB*

6. Security for Smart Watch cont.…

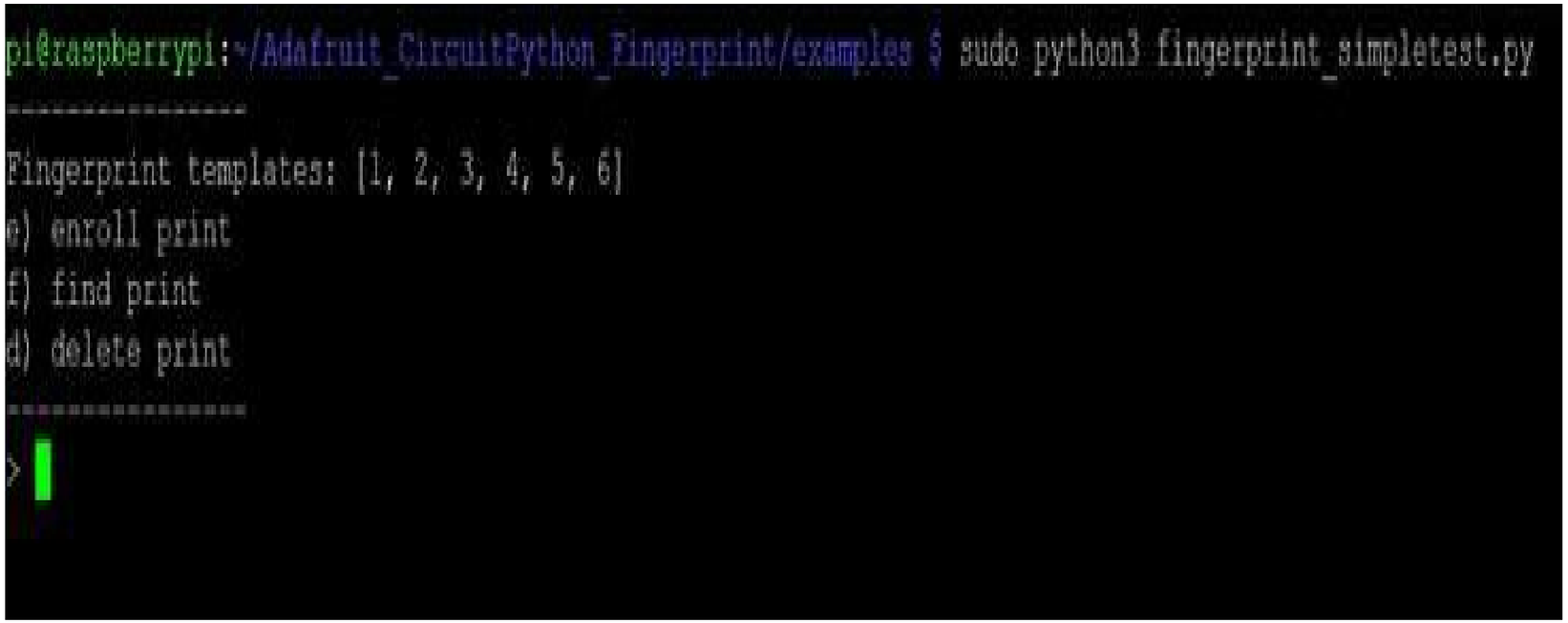
4. Test code & example scenario

Test to see if the sensor is detected

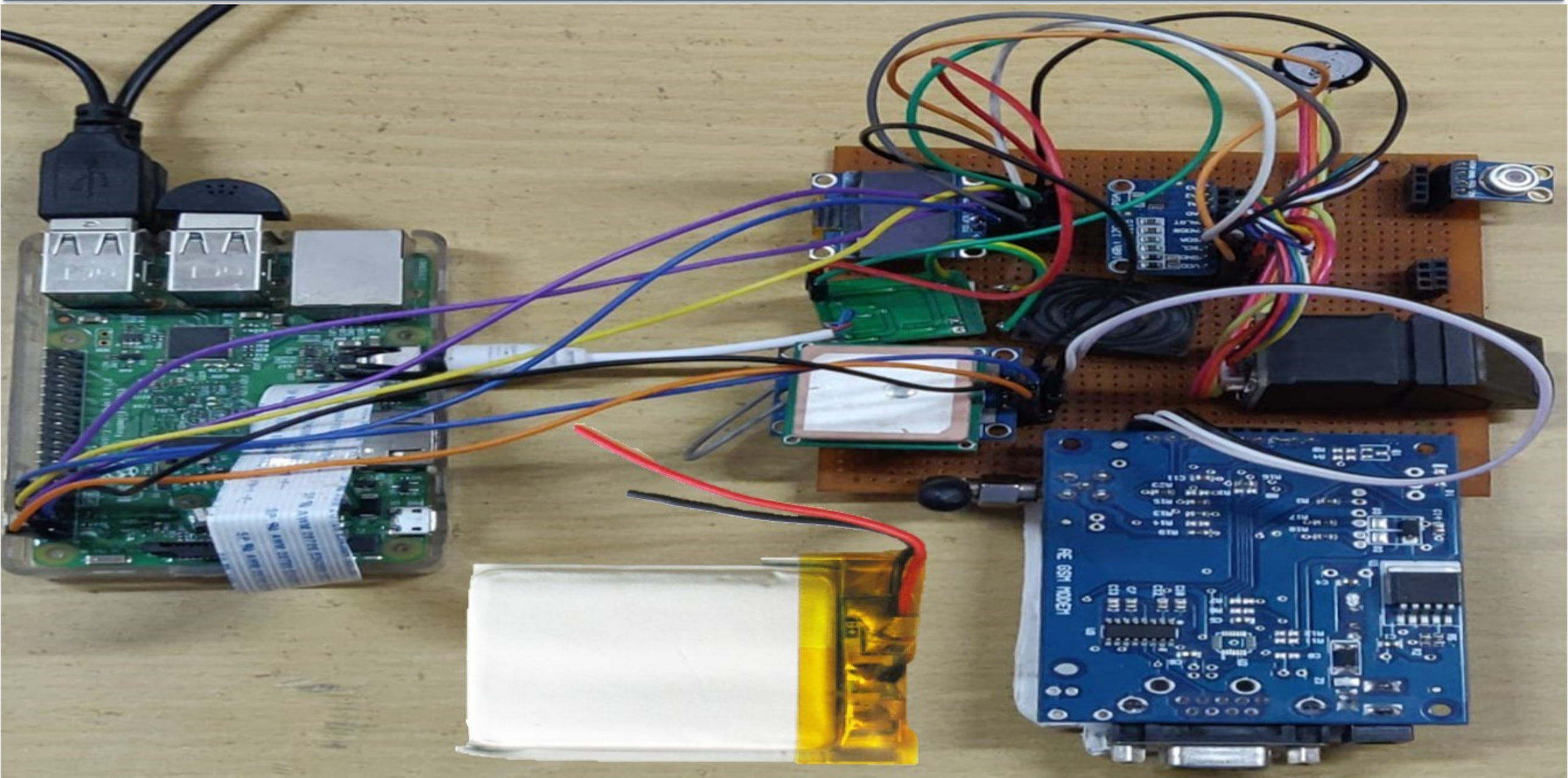
python3 /usr/share/doc/python-fingerprint/examples/example_index.py

5. Save and read out

6.Put your finger on it again. If the fingerprint on the Raspberry Pi is detected, a message like this appears:



Hardware Setup



Step wise Algorithm

Start:

While Loop: (Initialize operation with the recognition of the finger print):

Step 1: If (panic button activates then):

Sending Live video stream to police server.

Recognize the location through GPS

Sending alert message to police and family.

Go back to Step 1

Elif (panic button not activates):

Display clock on OLED Display.

Activates voice recognition.

Go back to Loop.

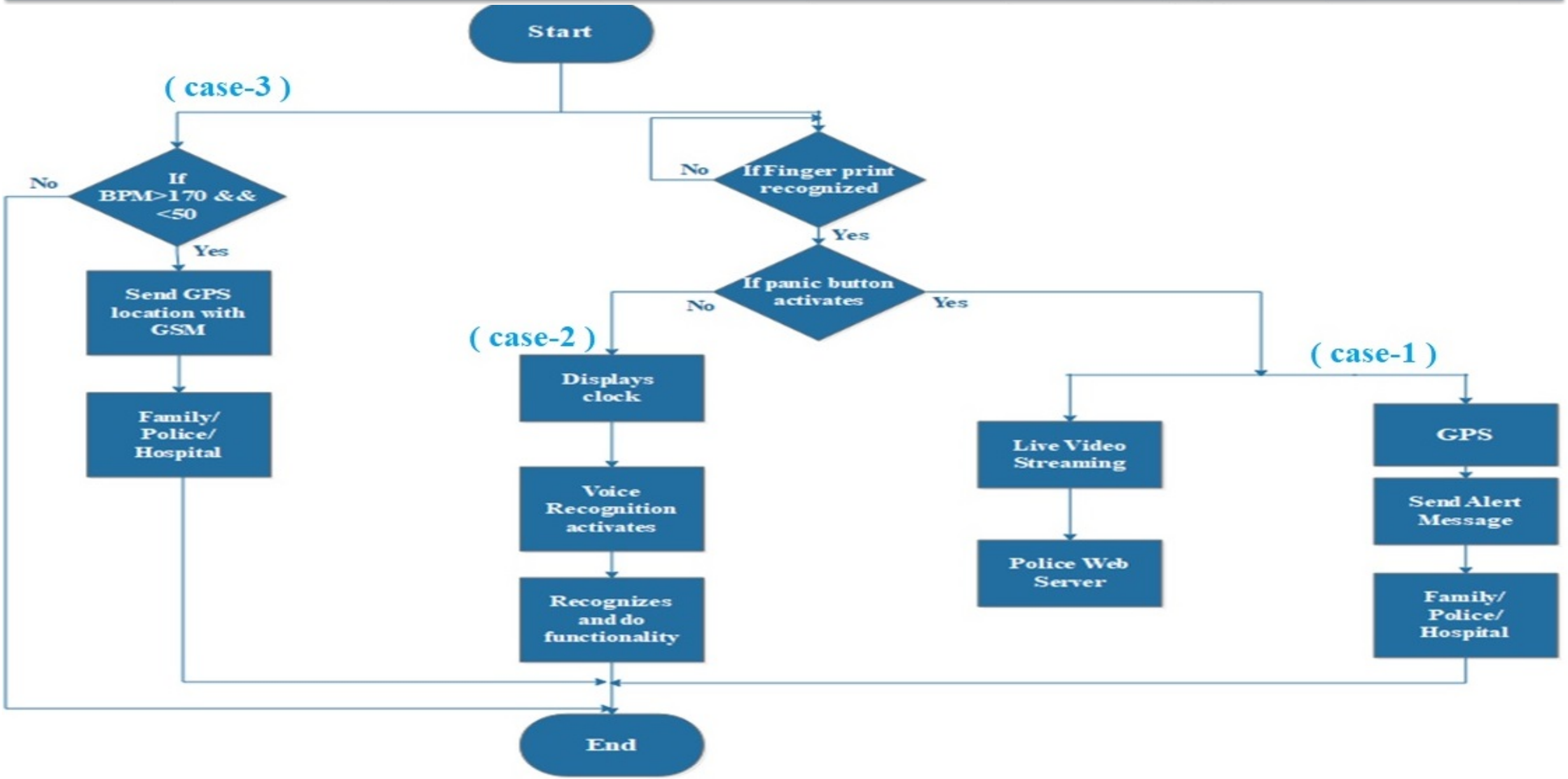
Else

If (pulse >170 or <50):

Sends GPS location alert messages with present pulse to family and hospital

Stop.

Flow Chart


Start
(case-3)
If BPM>170 && <50
No
Yes
Send GPS location with GSM
Family/ Police/ Hospital
If Finger print recognized
No
Yes
If panic button activates
No
Yes
(case-2)
Displays clock
Voice Recognition activates
Recognizes and do functionality
(case-1)
Live Video Streaming
Police Web Server
GPS
Send Alert Message
Family/ Police/ Hospital
End

Conclusion

IOT Devices alike Smart watch can help in reducing Women harassment in Society

- By sending , live video streaming the incident to police authorities for verification
- SMS Alerts for live GPS Location Tracking of the User
- Also Body sensors useful in observing medical condition of the user and report to local hospital immediately

"We hope IOT projects like smart watch would be useful in Real-Time Situations"

Future Scope

1. Converting into Mobile Technology or Android OS

- Converting Raspbian OS model into Android OS.

  Why..?

  →Raspbian OS is not good in real-time circumstances.

  →Easy to build a module in Android OS.

- Mobile and Smart watch are connected with the help of Wi-Fi or Bluetooth.
- Full Duplex communication has to be done.
- The designed App has to work in such a way that it has to receive data from the sensors in the watch and based on the inputs from the watch it has to activate mobile sensors also.

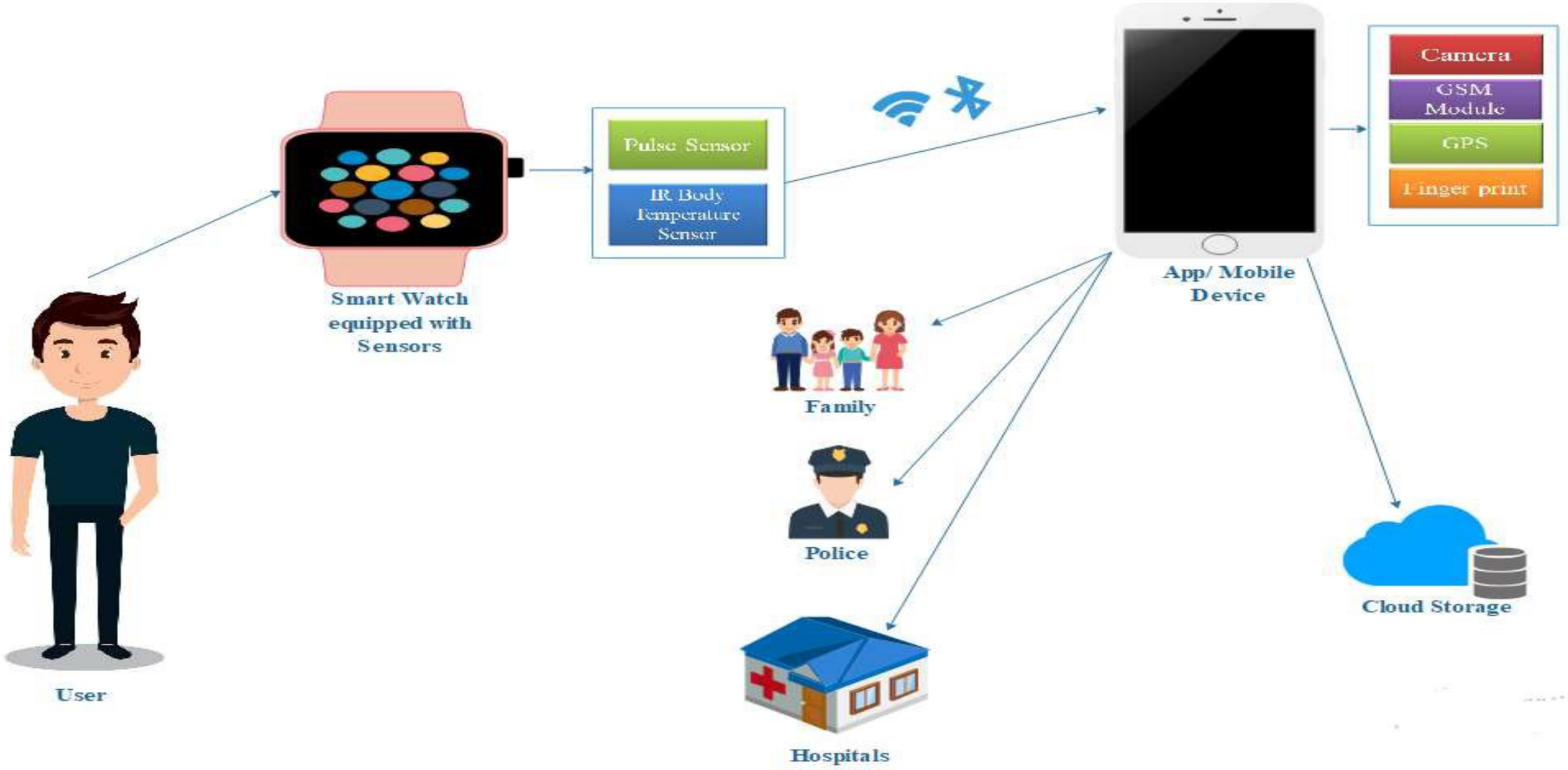
Future Scope cont.…

-

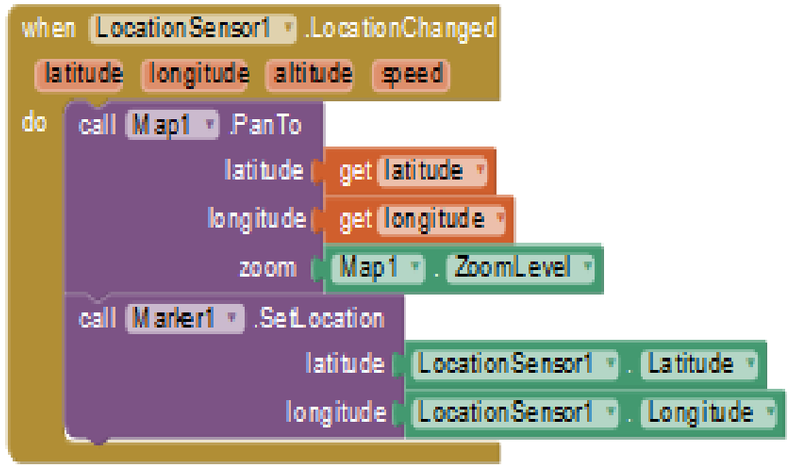
For Example

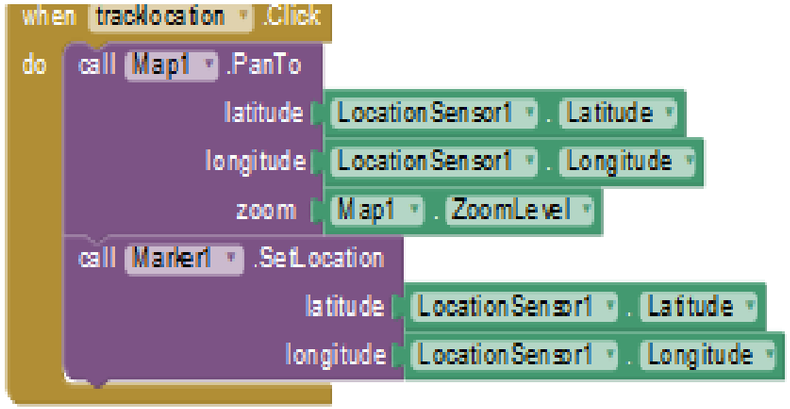
1. If user says Video Streaming in Smart Watch.
2. With the help of Wi-Fi/ Bluetooth the app in the smart phone receives the data from the watch
3. It activates the front camera of the phone and then video streaming starts
4. We can trace the location of mobile location in which it is near to the Smart watch
5. Calls and messages are done to family or nearby police station if necessary.

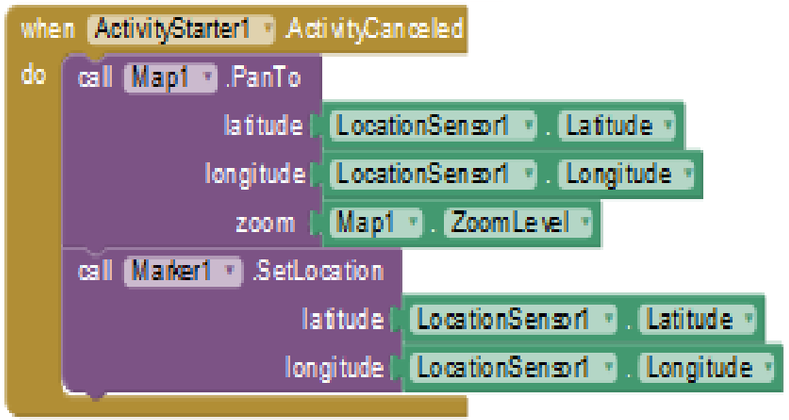
Future Scope cont.....

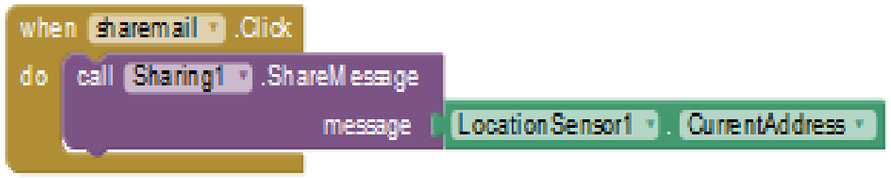


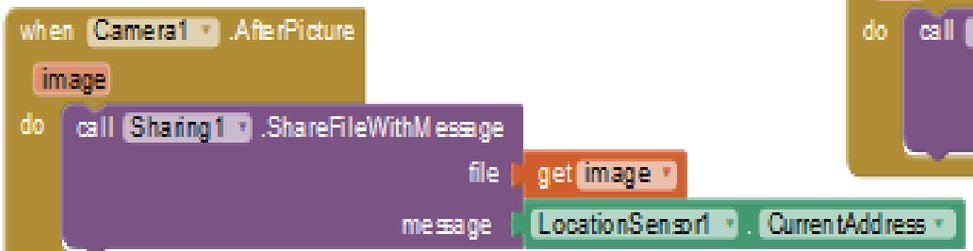
Implementation of Mobile App using MIT App Inventor

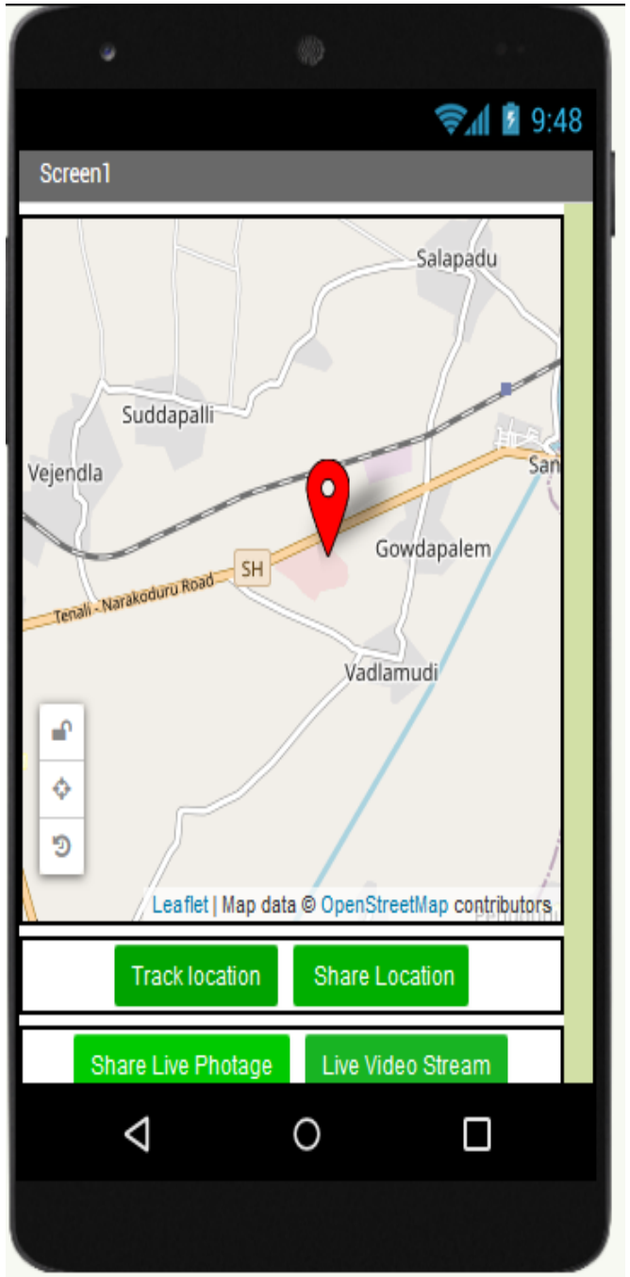












Future Scope cont.…

2. Primary School Children Safety

- As the school children safety are major concerns for parents as well as school management due to the recent incidents like children missing, abuse etc. This module monitors the child safety when they are travelling in school buses.
- Once they reached the school the device gets deactivated by school authority and message send the parents that the child reaches the school safety.
- At return journey again the device is activated by school authority and when they reached the home, the acknowledge message is send to the school when parents deactivate the device.
- The device is capable of audio recording when activated that can be listening by the parents or authorize person.

References

1. G C Harikiran,Karthik Menasinkai and Suhas Shirol, ”Smart Security Solution For Women Based On Internet Of Things(IOT)”, International Conference on Electrical, Electronics, and Optimization Techniques (ICEEOT) – 2016IEEE.

2.Taiyang wu, Fan wu, Jean-Michel Redoute,”An Autonomous Wireless Body area Network Implementation towards IOT connected Healthcare Application”, 2016.

3.Alexandrous Plantelopoulous and Nikolaos.G.Bourbakis, ”A Survey on Wearable sensor based system for health monitoring and prognosis”, Vol.40, No.1, January 2010.

4. B.Chougula, ”Smart girls security system”,International Journal of Application or Innovation in Engineering and Management Volume 3, Issue 4, April 2014 .

5. Vamil B. Sangoi, “Smart security solutions,” International Journal of Current Engineering and Technology, Vol.4, No.5, Oct-2014.

6.Kavita Sharma, Anand More,” Android Application for women security system”, International Journal of Advanced Research in Computer Engineering & Technology (IJARCET) Volume 5 Issue 3, March 2016

7. Shreyas R.S, Varun.B.C, Shiva Kumar.H.K, Punith Kumar B.E, Kalpavi.C.Y,” Design And Development Of Women Self Defence Smart Watch Prototype”, International Journal of Advanced Research in Electronics and Communication Engineering (IJARECE) Volume 5, Issue 4, April 2016

References

8. Vaibhav A. Alone, Ashish Manusmare," A Study Based On Women Security System", International Journal of Science, Engineering and Technology Research (IJSETR) Volume 6, Issue 8, August 2017, ISSN: 2278 -7798.

9. J.K.Thavil, V.P.Durdhawale, P.S.Elake," Study on Smart Security Technology for Women based on IOT", International Research Journal of Engineering and Technology (IRJET) Volume: 04 Issue: 02 Feb -2017.

10 Vamil B. Sangoi, "Smart security solutions," International Journal ofCurrent Engineering and Technology, Vol.4, No.5, Oct-2014.

11. PalvePramod, "GPS Based Advanced Soldier Tracking With Emergency Messages & Communication System," International Journal of AdvanceResearch in Computer Science and Management Studies Research Article,Volume 2, Issue 6, June 2014.

12. B.Chougula, "Smart girls security system," International Journal ofApplication or Innovation in Engineering & Management, Volume 3, Issue 4,April 2014.

13.AlexandrousPlantelopoulous and Nikolaos.G.Bourbakis, "A Survey on Wearable sensor based system for health monitoring and prognosis," IEEETransaction on system, Man and Cybernetics, Vol.40, No.1, January 2010.

14. Simon L. Cotton and William G. Scanlon, "Millimeter - wave Soldier – to-soldier communications for covert battlefield operation," IEEEcommunication Magazine, October 2009.

References

15.Tamil selvan, K.S, Murugesan, G, and Ashok, V. ―Embedded system based Smart Conveyor belt Security system for textile and Dyeing Industries‖, International Journal of Advanced Research in Computer Science and Software Engineering, Vol. 6, No. 7, pp, 148-152, 2016

16. V.Ashok,P.P.Janarthanan, Mohana Sundaram," Certain Investigation on EC-A Algorithm for Energy Minimization in Multiprocessor Systems", Journal of Advanced Research in Dynamical and Control Systems Vol. 9. Sp– 6, 2017

17.Alexandrous Plantelopoulous Nikolaos G. Bourbakis "A Survey on Wearable sensor based system for healthmonitoring and prognosis" IEEE Transaction on system Man and Cyberneticsvol.40 no. 1 January 2010.

18. Palve Pramod "GPS Based Advanced Soldier Tracking With Emergency Messages & Communication System" International Journal of Advance Research in Computer Scienceand Management Studies Research Article vol. 2 no. 6 June 2017.

19. Hock Beng Lim "A Soldier Heath Monitoring System forMilitaryApplications"International Conference on Body Sensor Networks Vol.2.15 April, 2016.

20. A.H.Ansari, BalsarfPratiksha P, MaghadeTejal R, YelmameSnehal M, “Women Security System using GSM & GPS”, International Journal of Innovative Research in Science, Engineering and Technology”, Vol.6, Issue 3, March 2017.

21. Azhaguramyaa V R, Sangamithra D, Sindhja B, “RFID Based Security System for Women”, International Journal of Scientific & Engineering Research Volume 8 Issue 5, May-2017.

The serious problem facing the world is Women's Harassment. It will only be solved if women have a seat at the table and are listened to as to what is required. These Harassment issues on women will never be solved until they are able to use their full potential on behalf of themselves, their families and their global and local communities.

THANK YOU