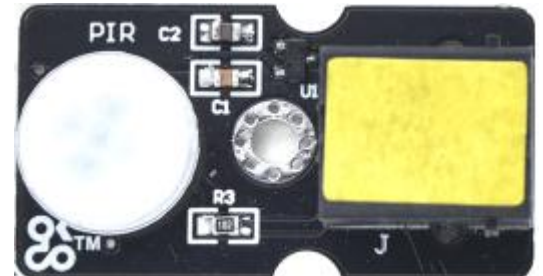


PIR Motion Sensor Module (000x0000 Article Number) (TS2150)



Product Details

The TelePort PIR motion sensor can detect the infrared signals from people and animals. When detecting the infrared rays, it will output High at pin 5. Its detection distance is about 3m. Yet the perfect detection distance is 2m and the most proper temperature is 25°C. It features higher reliability, low power consumption.



Features and Benefits

- Compatible with RJ11 6P6C OKdo TelePort Control boards and expansion shields.
- The PIR sensor will output a HIGH signal when presence is detected from a moving object like a human or animal.
- The sensor has a detection range of 7 meters and a detection angle of 100°.

Technical Specifications

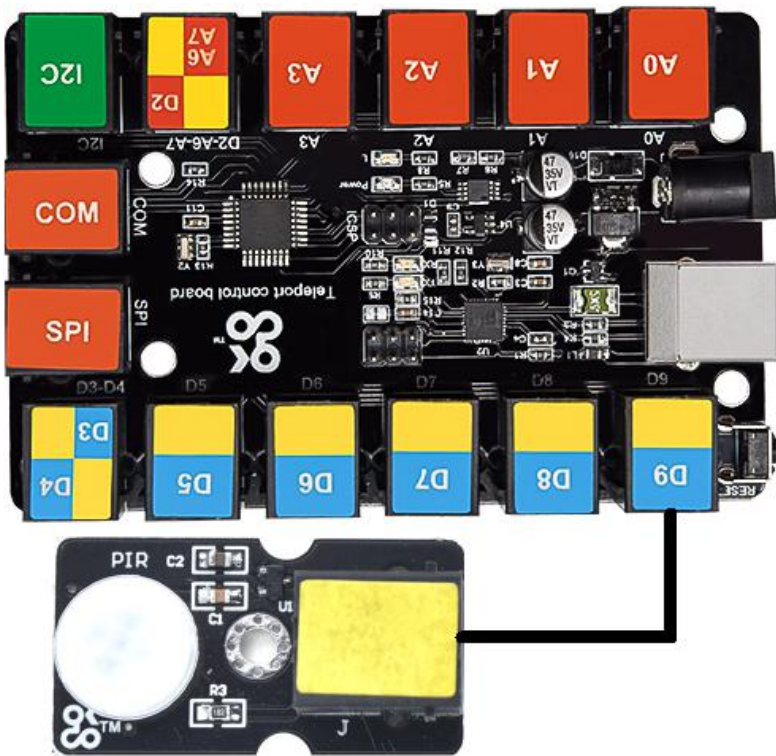
Sensor type	Digital input
Working Current	15uA
Working Temperature	-20 ~ 85°C
Output Voltage	High 3V, Low 0V
Output Delay Time (High Level)	About 2.3 to 3 Seconds
Detection angle	100°
Detection distance	7 meters
Pin limit current	100mA
Dimensions	38mm*20mm*18mm
Weight	5.6g
Output Indicator LED (When output HIGH, it will be ON)	

Applications

- Motion Sensor
- Motion Detector
- Security Alarm System
- Human Detection System

This module is compatible with the TS2180-Raspberry Pi shield, the TS2179-Micro:bit shield and the TS2178-TelePort main board.

➤ Arduino Application



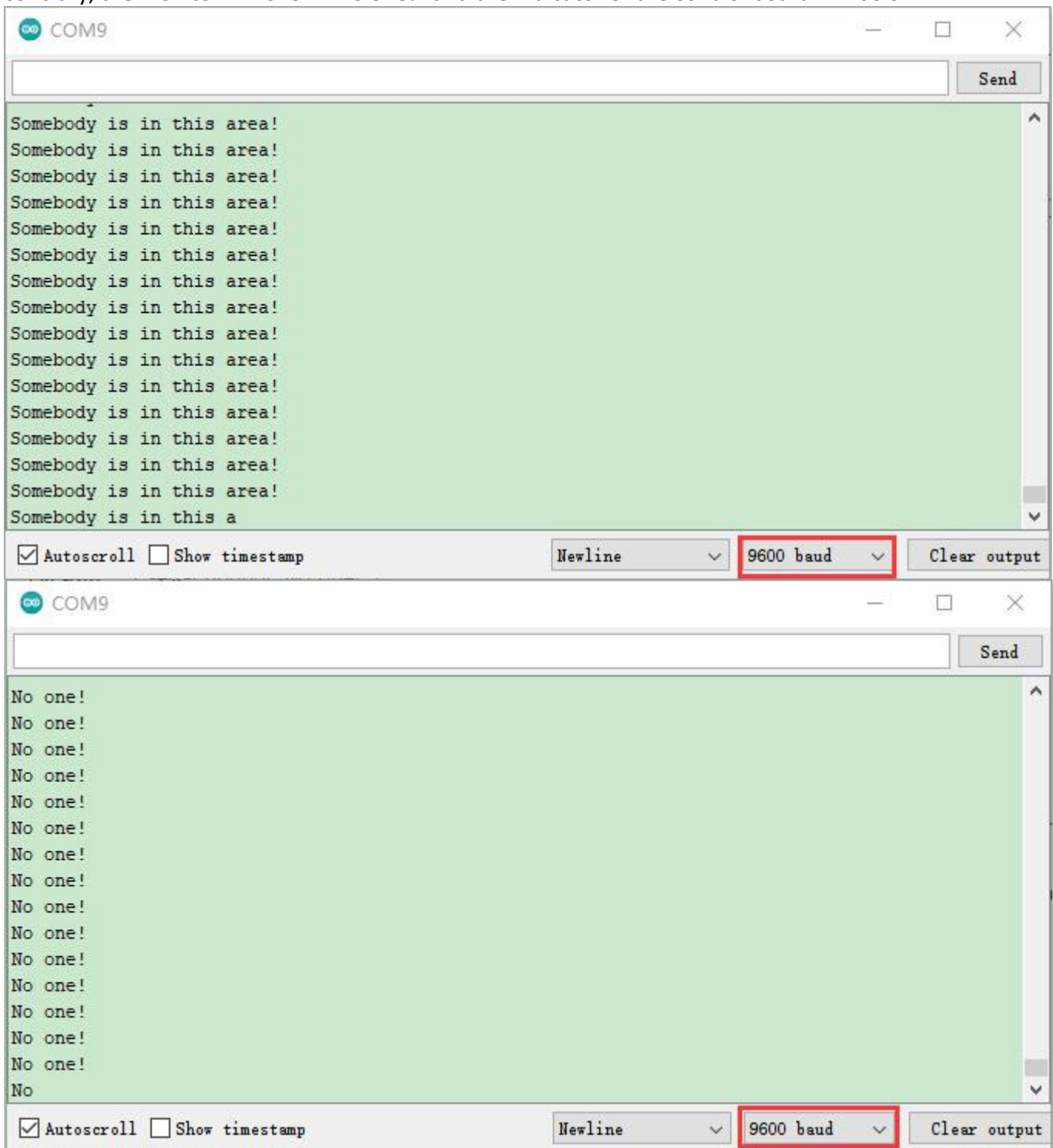
This module is compatible with the TS2178 TelePort control board.

Test Code

```
byte sensorPin = 9;
byte ledPin = 13;
void setup()
{
  pinMode(sensorPin,INPUT);
  pinMode(ledPin,OUTPUT);
  Serial.begin(9600);
}
void loop()
{
  byte state = digitalRead(sensorPin);
  digitalWrite(ledPin,state);
  if(state == 1){
    Serial.println("Somebody is in this area!");
    digitalWrite (ledPin, HIGH);
  }
  else if(state == 0){
    Serial.println("No one!");
    digitalWrite (ledPin, LOW);
  }
}
```

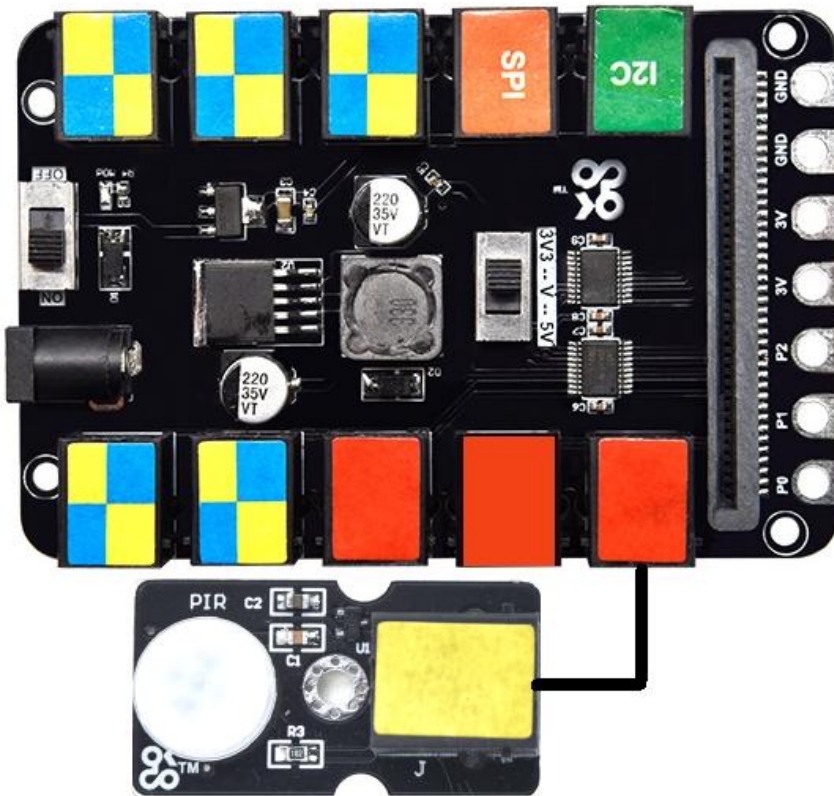
Test Result

Wire up, upload the test code, power it up, open serial monitor and set baud rate to 9600. If the sensor detects someone nearby, the monitor will show “Somebody is in this area!” and LED will be on; on the contrary, the monitor will show “No one!” and the indicator of the control board will be off.



If you want to know more details about Arduino and the TelePort control board, you can refer to TS2178.

➤ Micro:bit Application



It is compatible with the Micro:bit board and the TS2179 Micro:bit expansion board.

Test Code

```
on start
  led enable true

forever
  show number digital read pin P0
  if digital read pin P0 = 0
    show icon [LED Matrix Icon]
  else
    show icon [LED Matrix Icon]
```

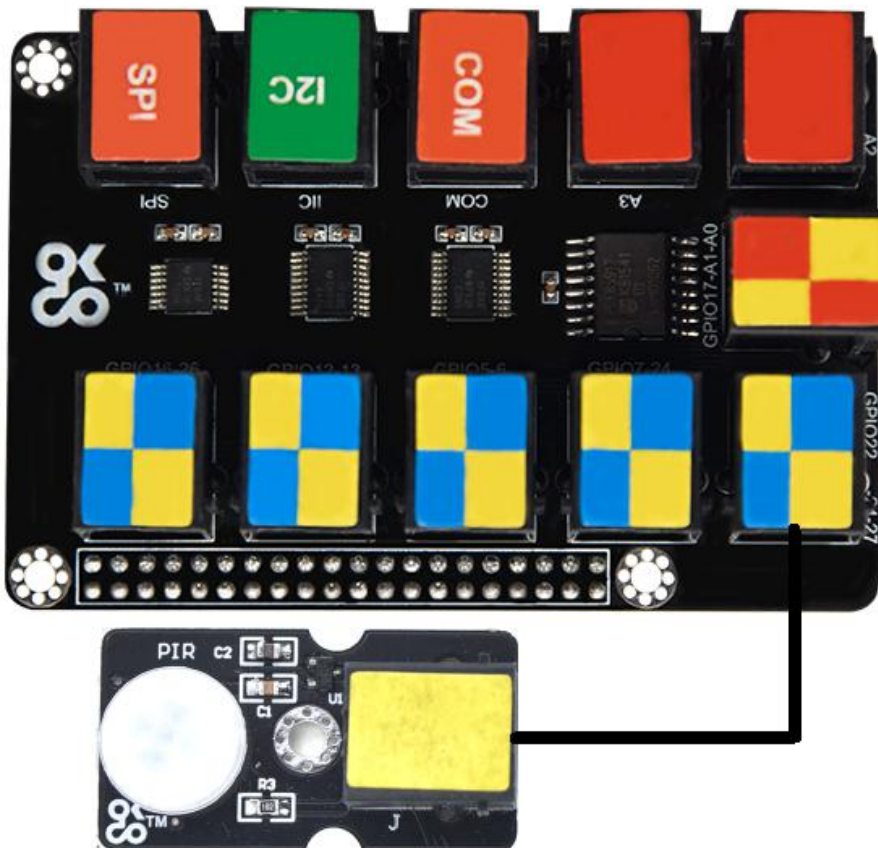
.....①Run the "on start" block to boot the program
.....②Open the LED matrix of the Micro:bit
.....③The program is run circularly under the command of "forever" block
.....④the Micro:bit will display the digital signals detected by PIR motion sensor.
.....⑤If P0=0, which indicates the sensor doesn't detect moving people., then execute the program under then
.....⑥the Micro:bit will display "♥"
.....⑦If P0=1, which indicates the sensor detects moving people, then execute the program under else
.....⑧the Micro:bit will show "👤"

Test Result

Wire up, insert the Micro:bit V2.0 into the shield, turn DIP switch to 3V3, upload test code and power it up. If the sensor doesn't detect someone nearby, the Micro:bit will show "♥"; on the contrary, the Micro:bit will display "👤".

If you want to know more details about the Micro:bit board and Micro:bit shield, you can refer to TS2179.

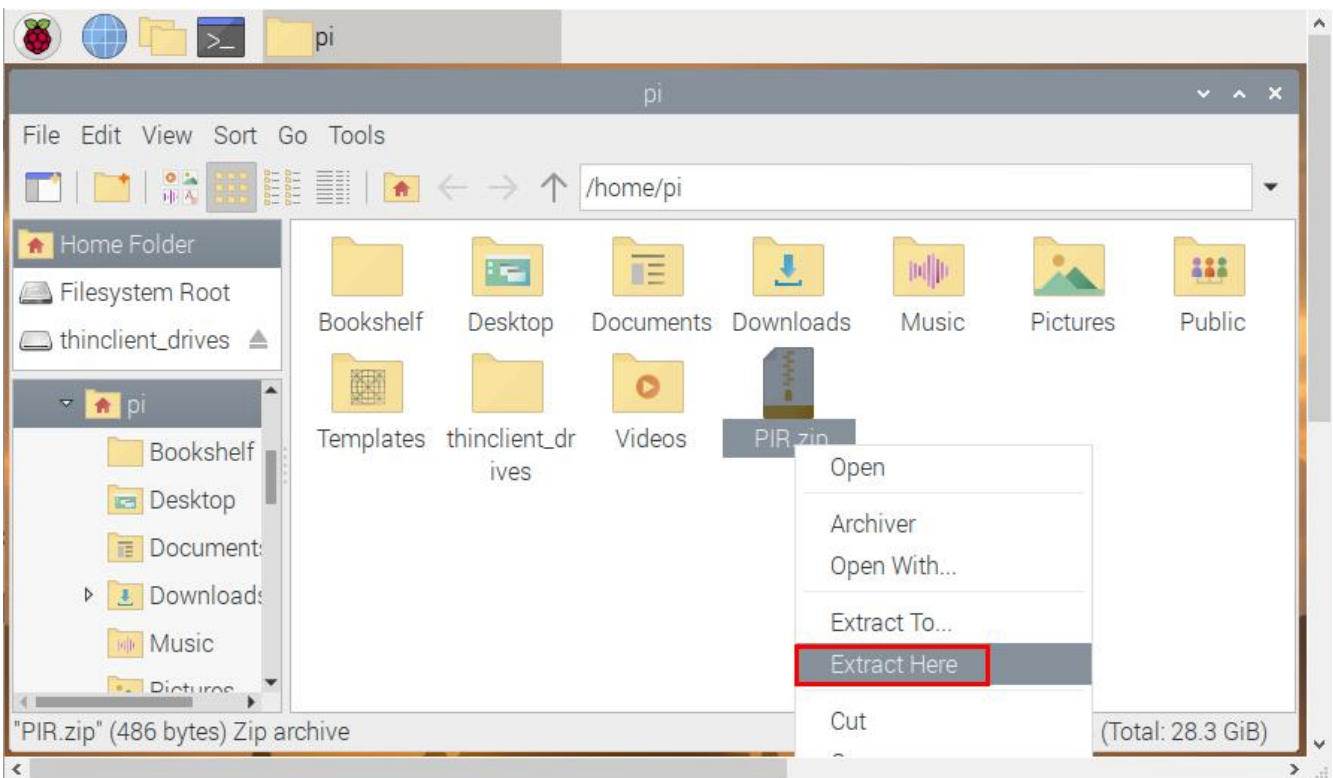
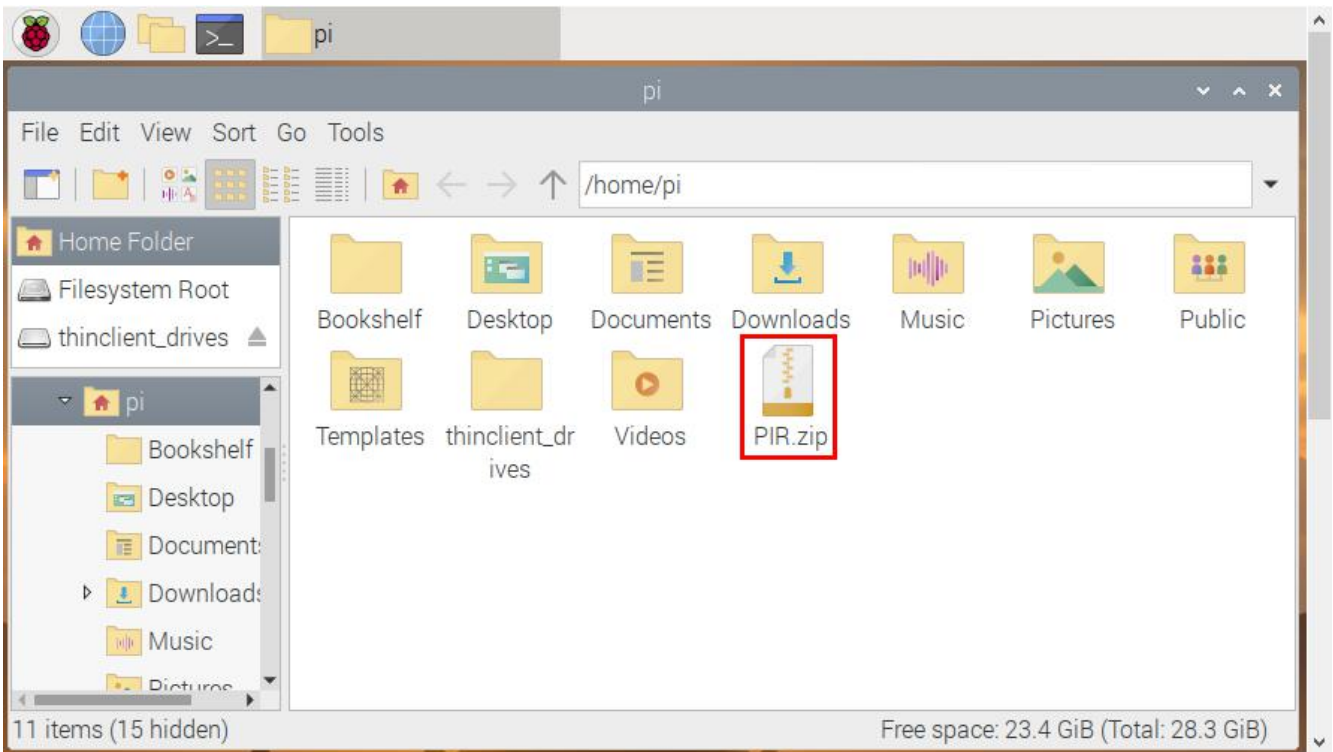
➤ Raspberry Pi Application

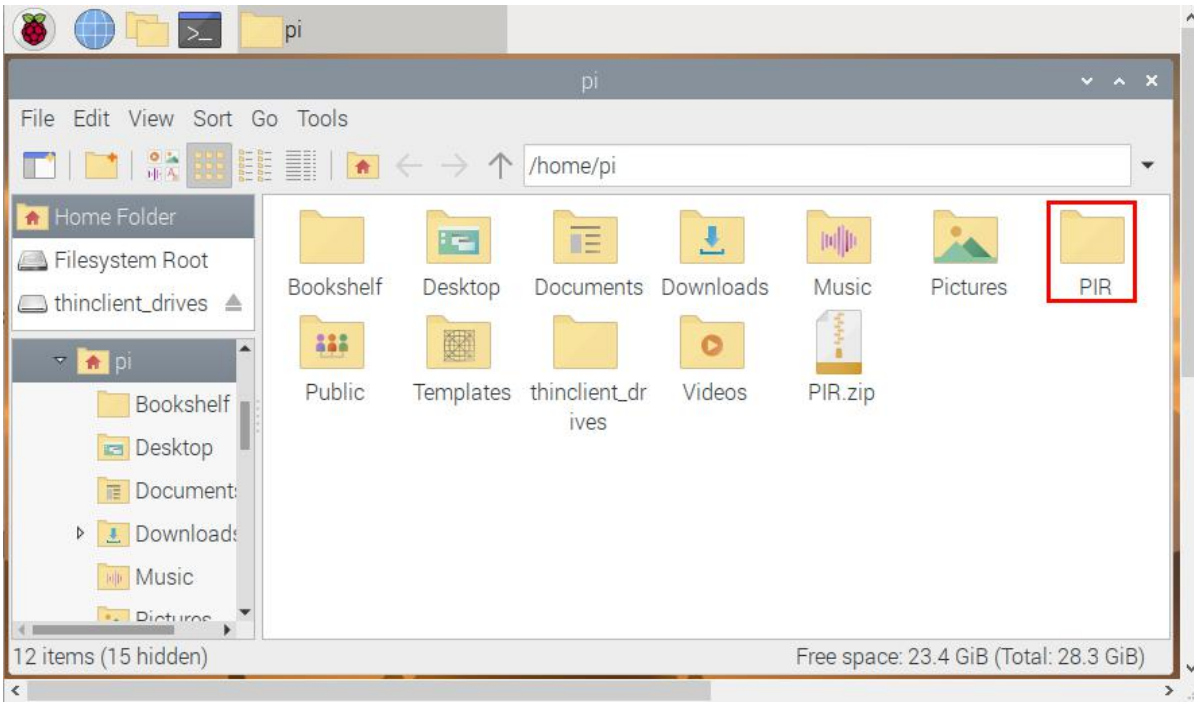


This module is compatible with the Raspberry Pi board and the TS2180 Raspberry Pi shield.

Copy the test code to Raspberry Pi system to run it

(1) Save the test code in the **pi** folder of Raspberry Pi system. Then place the **PIR.zip** file we provide in the **pi** folder, right-click and click **Extract Here**. As shown below:





(2) Compile and run test code :

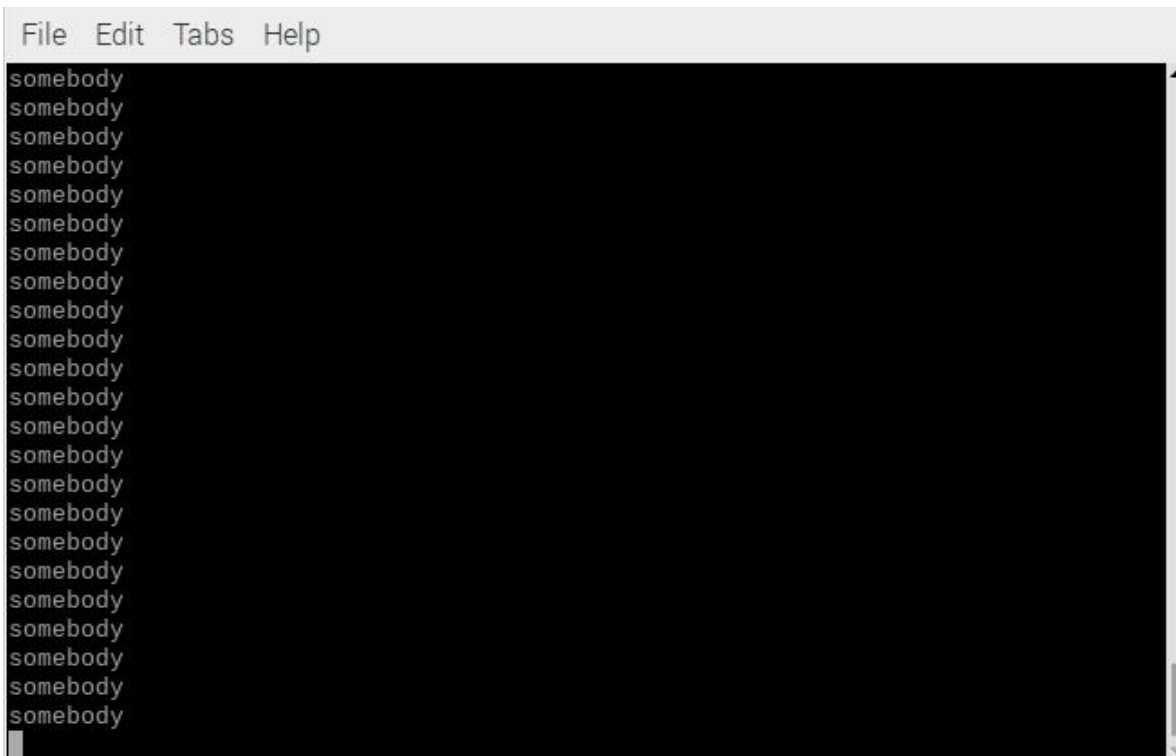
Input the following code and press "Enter"

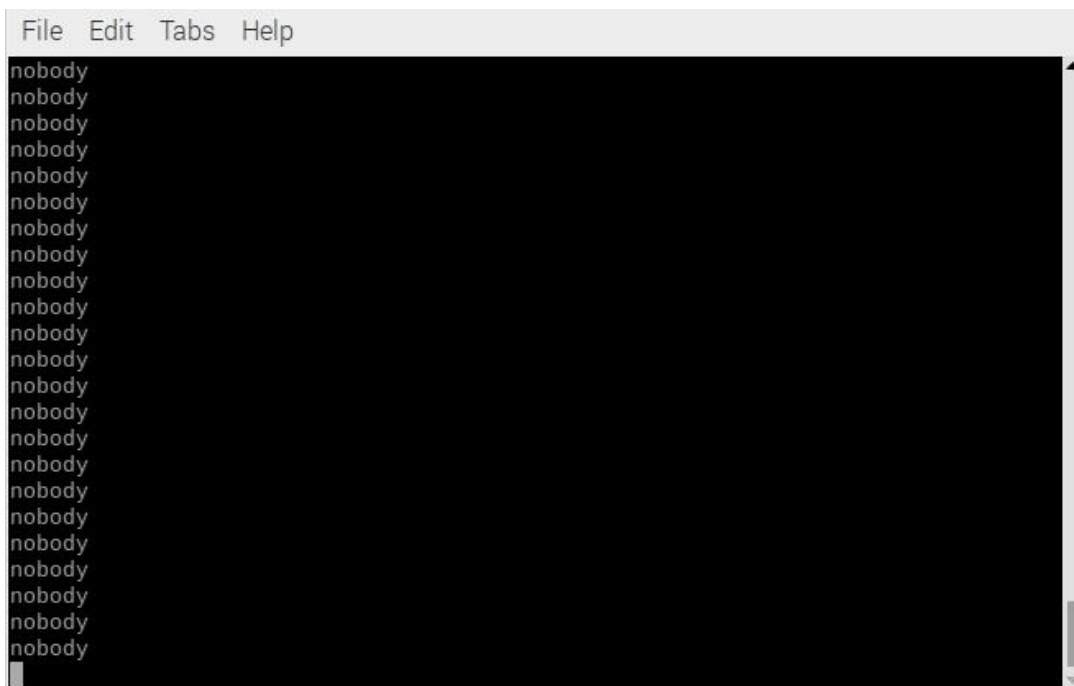
```
cd /home/pi/PIR
gcc PIR.c -o PIR -lwiringPi
sudo ./PIR
```

(3) Test Result :

Insert the shield into the Raspberry Pi board. After programming finishes, when the PIR motion sensor detects someone nearby, the terminal will print **somebody**; if not, the terminal will print **nobody**.

Note: press Ctrl + C to exit code running





```
File Edit Tabs Help
nobody
nobody
nobody
nobody
nobody
nobody
nobody
nobody
nobody
nobody
nobody
nobody
nobody
nobody
nobody
nobody
nobody
nobody
nobody
nobody
nobody
nobody
nobody
nobody
```

Test Code

File Name: **PIR.c**

```
#include <wiringPi.h>
#include <pcf8591.h>
#include <stdio.h>

#define PIR_pin 3 //PIR pin BCM GPIO 22

int main(void)
{
    int val = 0;
    wiringPiSetup();
    pinMode(PIR_pin,INPUT);

    while(1)
    {
        val=digitalRead(PIR_pin);
        if(val==1)
        {
            printf("somebody\n");
        }
        else
        {
            printf("nobody\n");
        }
    }
}
```

If you want to know how to utilize Raspberry Pi and the Raspberry Pi shield, you can refer to TS2180.