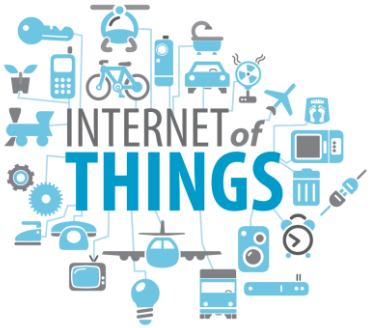
UNIVERSITY OF SCIENCE - VNUHCM
Faculty of Information Technology

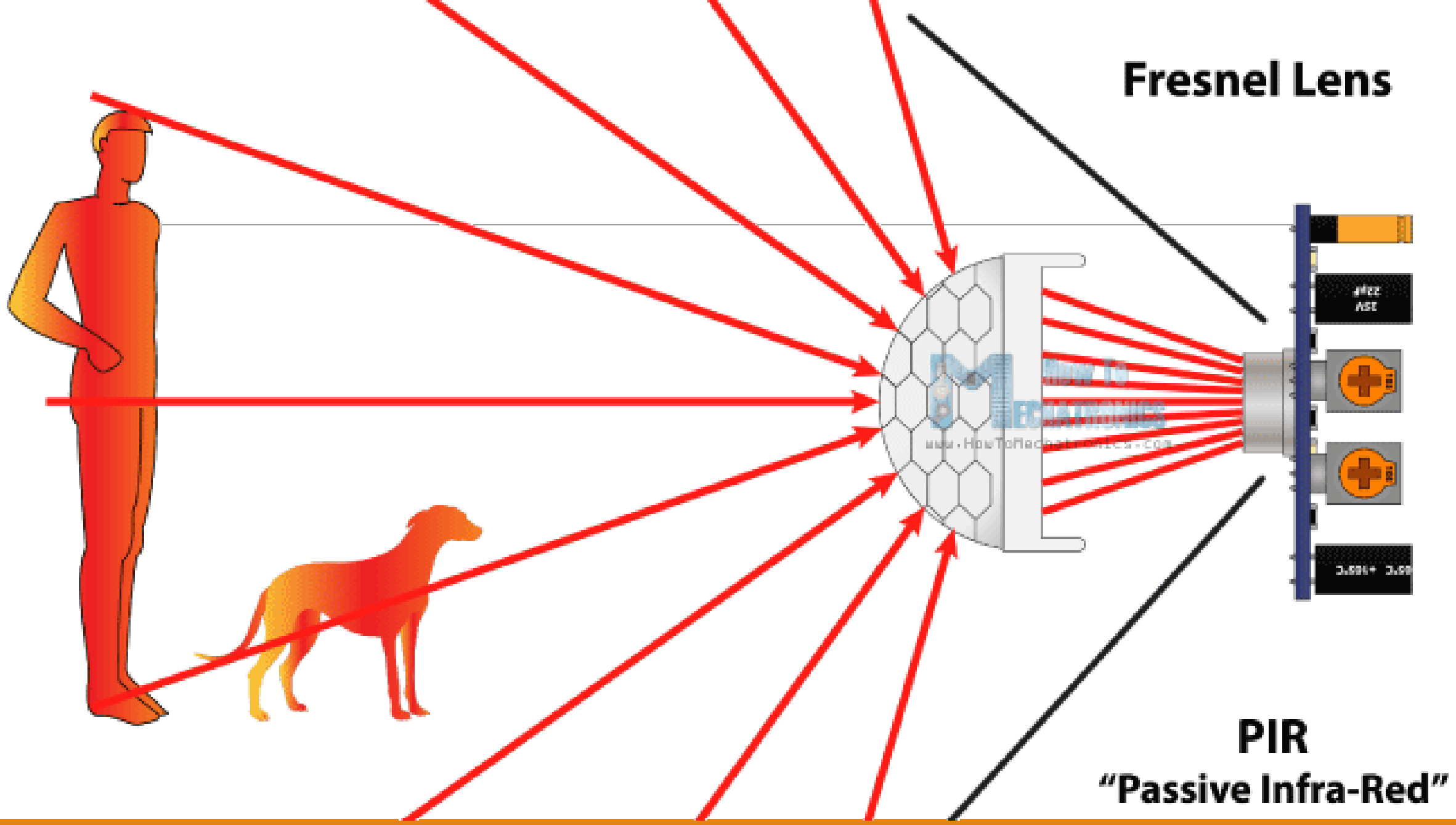
INTERNET OF THINGS

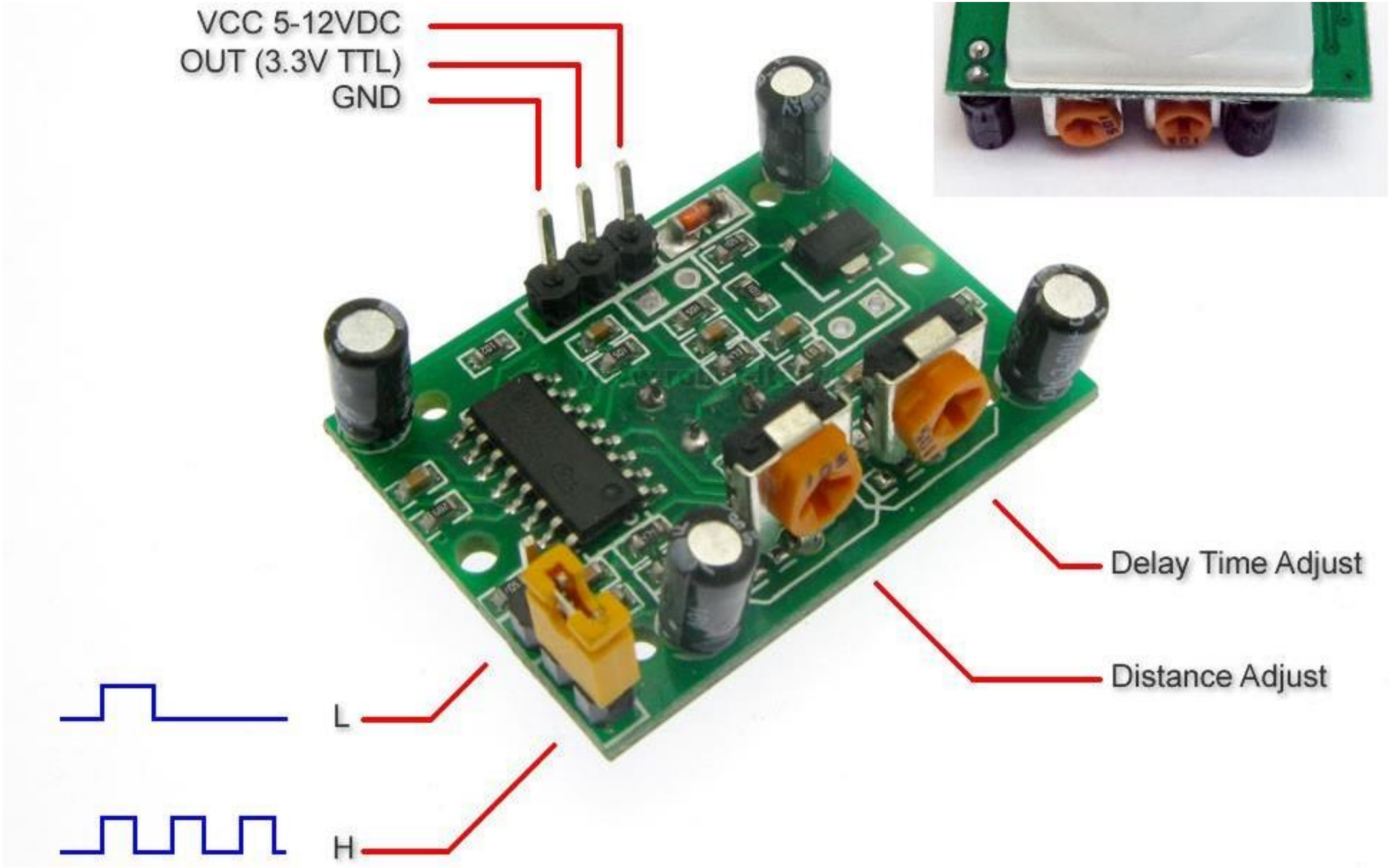
1.8

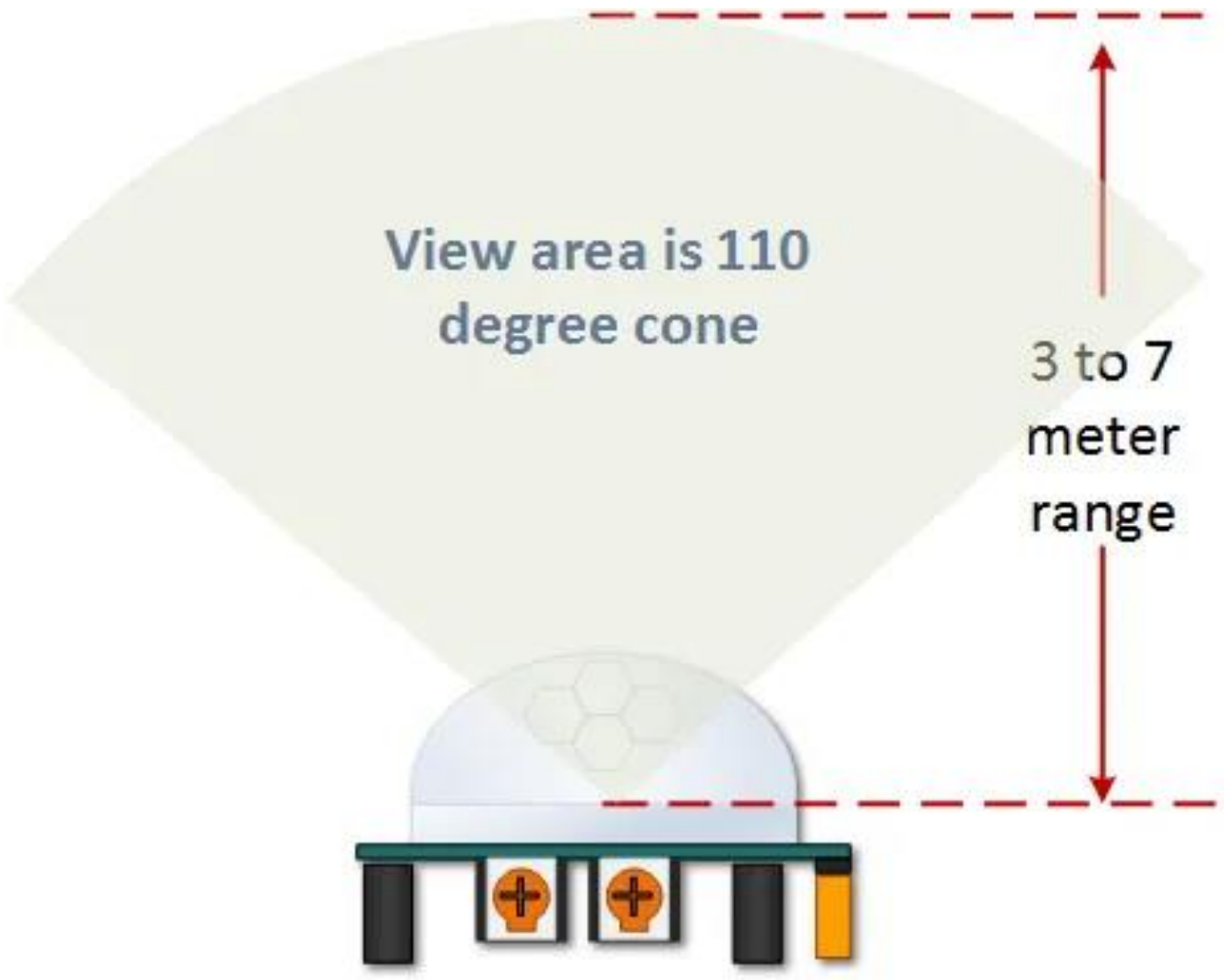
PIR MOTION SENSOR



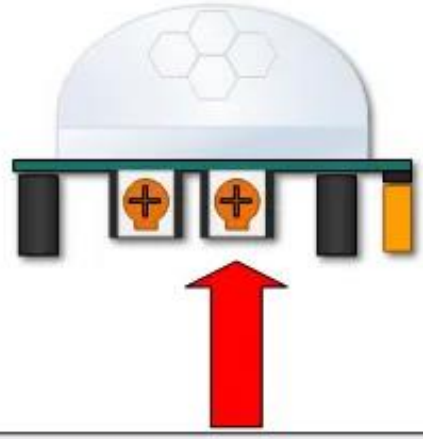
PIR MOTION SENSOR HC-SR501

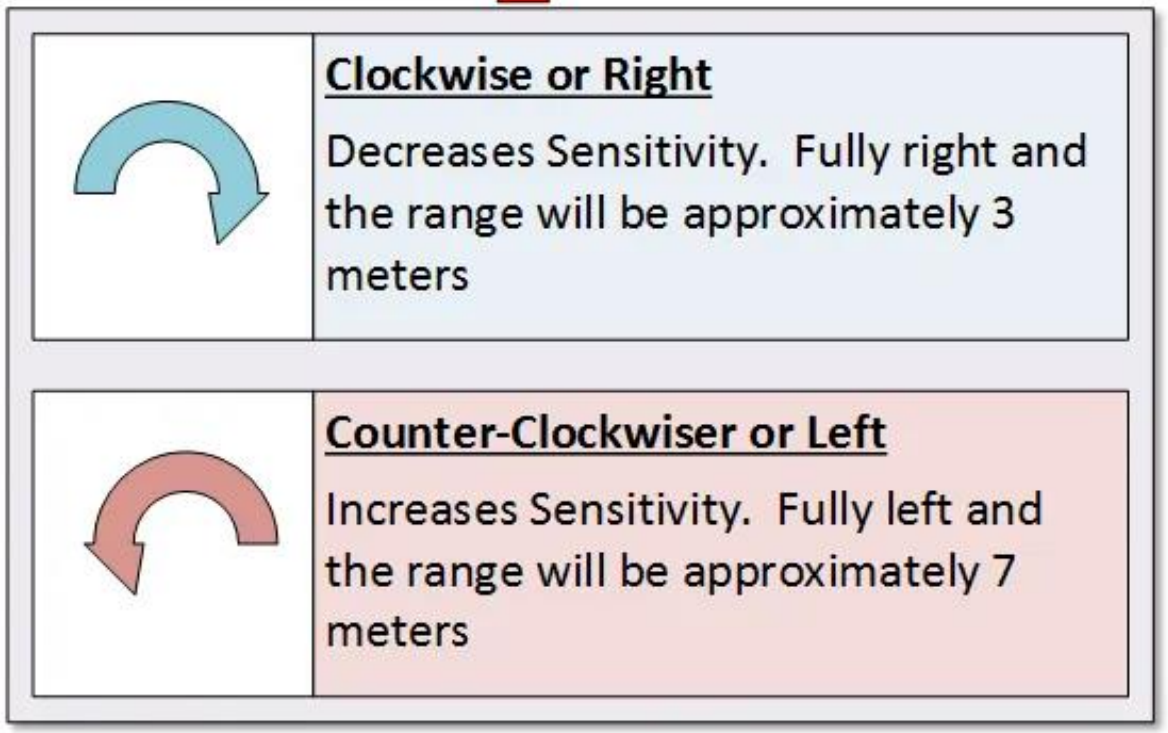

Fresnel Lens
PIR
"Passive Infra-Red"


VCC 5-12VDC
OUT (3.3V TTL)
GND
Delay Time Adjust
Distance Adjust
L
H

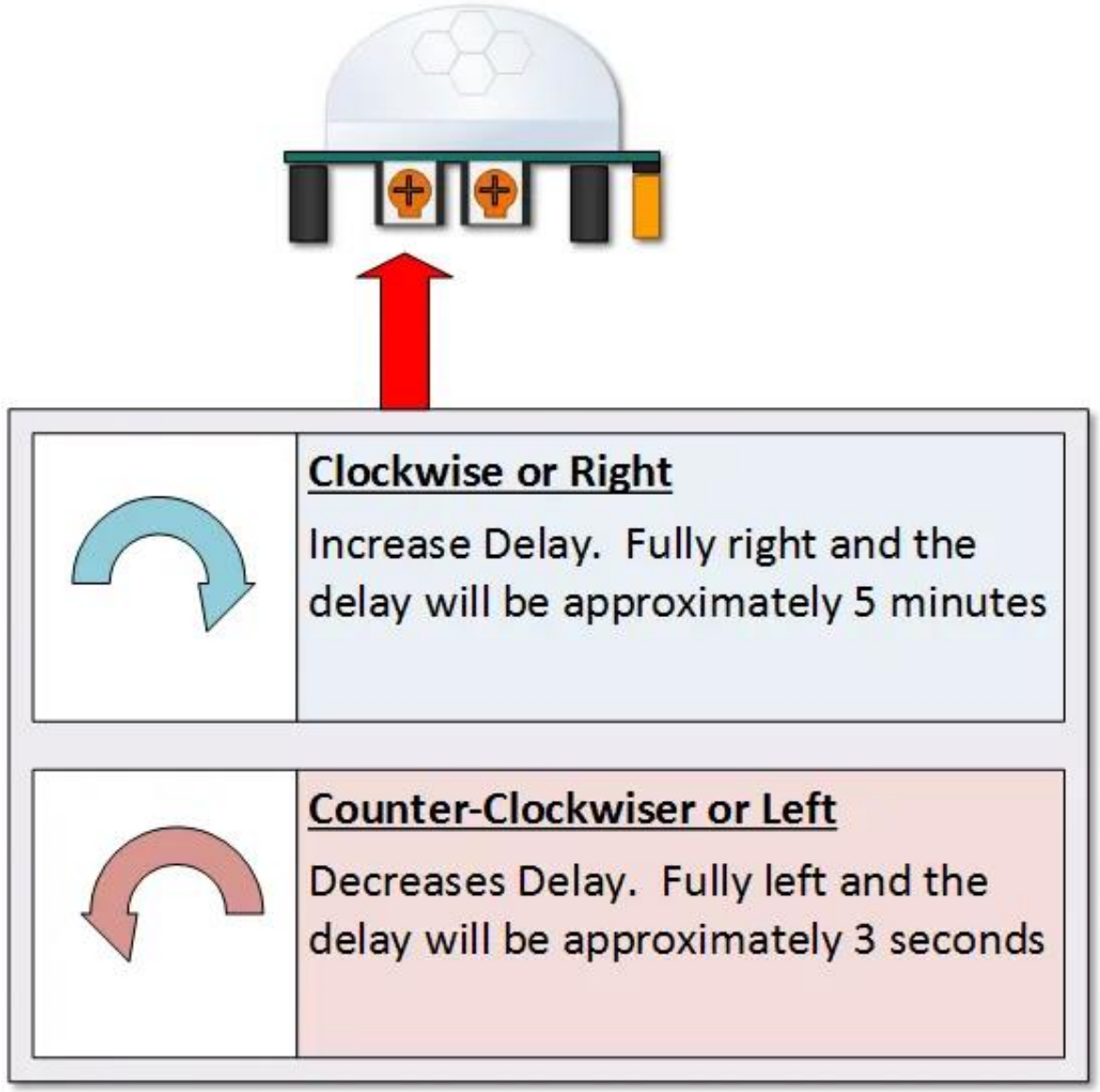

View area is 110
degree cone
3 to 7
meter
range

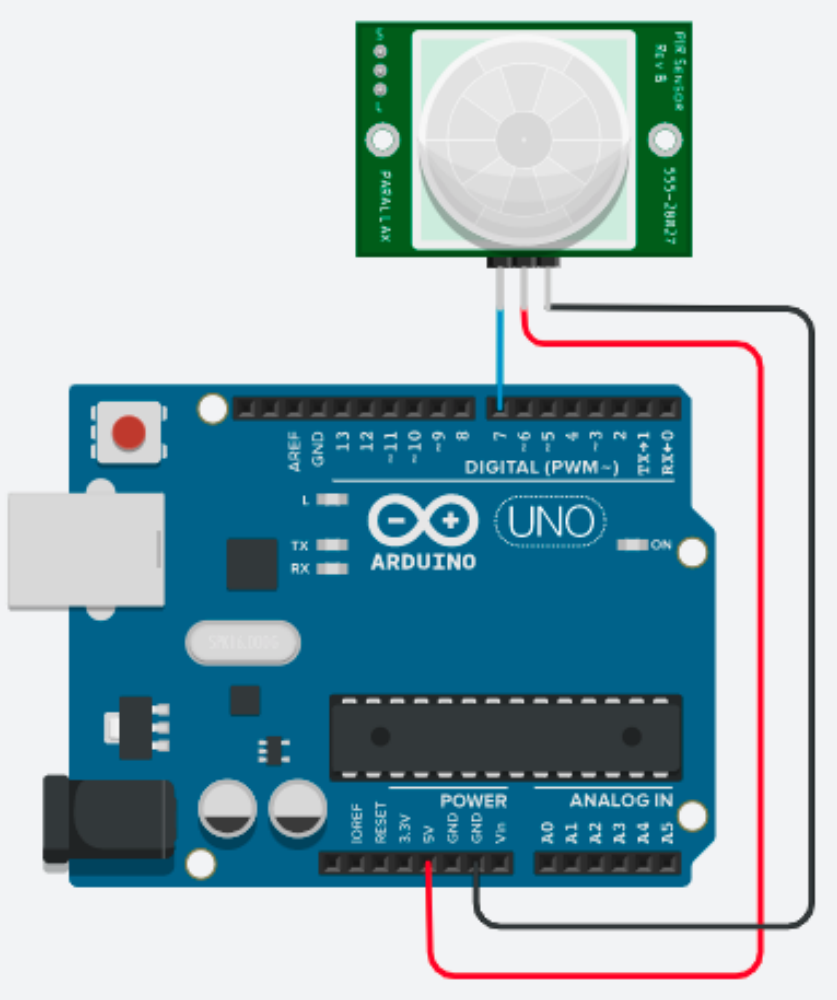
Distance Adjustment





Delay Time Adjustment





PIR	Arduino
VCC	5v
GND	GND
OUT	7

Lưu ý: trên thiết bị thật vị trí các chân có thể không giống hình vẽ.

```
int pir_pin = 7;

void setup(){
  pinMode(pir_pin, INPUT);
  Serial.begin(9600);
}

void loop(){
  int value = digitalRead(pir_pin);
  Serial.println(value);
  delay(100);
}
```

PIR debounce processing

```
const int debounceTime = 50;  // milliseconds
bool motionDetected = false;
int motionCount = 0;
unsigned long lastDebounceTime = 0;

void loop() {
  int sensorValue = digitalRead(PIR_PIN);

  // debounce processing
  if (sensorValue == HIGH) {
    if (millis() - lastDebounceTime > debounceTime) {
      motionCount++;
      lastDebounceTime = millis();
    }
  } else {
    motionCount = 0;
  }

  ...
}
```

Anti-theft system

When it gets dark, if the system detects motion, turn on the light and play an alarm. Otherwise, do nothing.