```
import RPi.GPIO as GPIO
import time

# Setup GPIO
GPIO.setwarnings(False)
TRIG = 11
ECHO = 8
servoPIN = 18
GPIO.setmode(GPIO.BCM)

# Ultrasonic sensor pin initialization
GPIO.setup(TRIG, GPIO.OUT)
GPIO.setup(ECHO, GPIO.IN)  # Corrected line: Set ECHO pin as input

# Servo motor pin initialization
GPIO.setup(servoPIN, GPIO.OUT)
servo = GPIO.PWM(servoPIN, 50)
servo.start(2.5)

try:
    while True:
        GPIO.output(TRIG, False)
        time.sleep(0.000002)

        GPIO.output(TRIG, True)
        time.sleep(0.00001)
        GPIO.output(TRIG, False)

        startTime = time.time()
        stopTime = time.time()

        while GPIO.input(ECHO) == 0:
            startTime = time.time()

        while GPIO.input(ECHO) == 1:
            stopTime = time.time()
        GPIO.output(TRIG, True)

        timeElapsed = stopTime - startTime
        distance = (timeElapsed * 34300) / 2
        distance = int(distance)
        print("Distance: {} cm".format(distance))

        if distance <= 20:
            duty_cycle = 12.5  # Adjust this value for desired servo
position
            servo.ChangeDutyCycle(duty_cycle)
            print("Motor Rotated")
            time.sleep(0.1)
        else:
            duty_cycle = 2.5  # Adjust this value for desired servo
position
            servo.ChangeDutyCycle(duty_cycle)
            print("Motor is at orignal position")
            time.sleep(0.1)

except KeyboardInterrupt:
    servo.stop()
    GPIO.cleanup()
```

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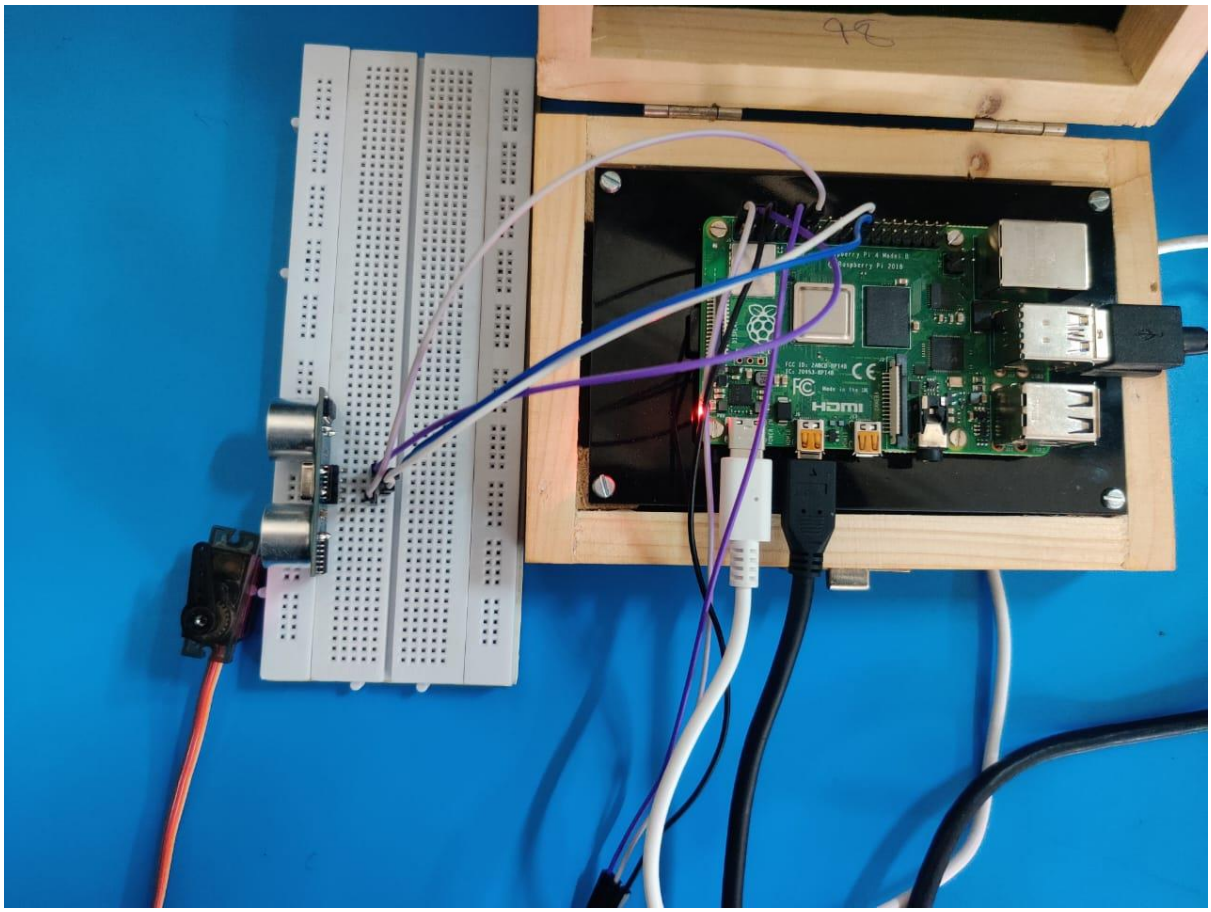

Thonny - /home/iotraspberrypi4/Desktop/abc.py @ 58 : 1

New Load Save Run Debug Over Into Out Stop Zoom Quit

Switch to regular mode

abc.py

```
import RPi.GPIO as GPIO
import time
```

Shell

```
Motor is at orignal position
Distance: 48 cm
Motor is at orignal position
Distance: 49 cm
Motor is at orignal position
Distance: 48 cm
Motor is at orignal position
Distance: 49 cm
Motor is at orignal position
Distance: 12 cm
Motor Rotated
Distance: 14 cm
Motor Rotated
Distance: 17 cm
Motor Rotated
Distance: 15 cm
Motor Rotated
Distance: 15 cm
Motor Rotated
Distance: 12 cm
Motor Rotated
Distance: 33 cm
Motor is at orignal position
Distance: 30 cm
Motor is at orignal position
Distance: 30 cm
Motor is at orignal position
Distance: 31 cm
Motor is at orignal position
Distance: 31 cm
```

Python 3.9.2

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R - Vcc
B - GND
O - O/P

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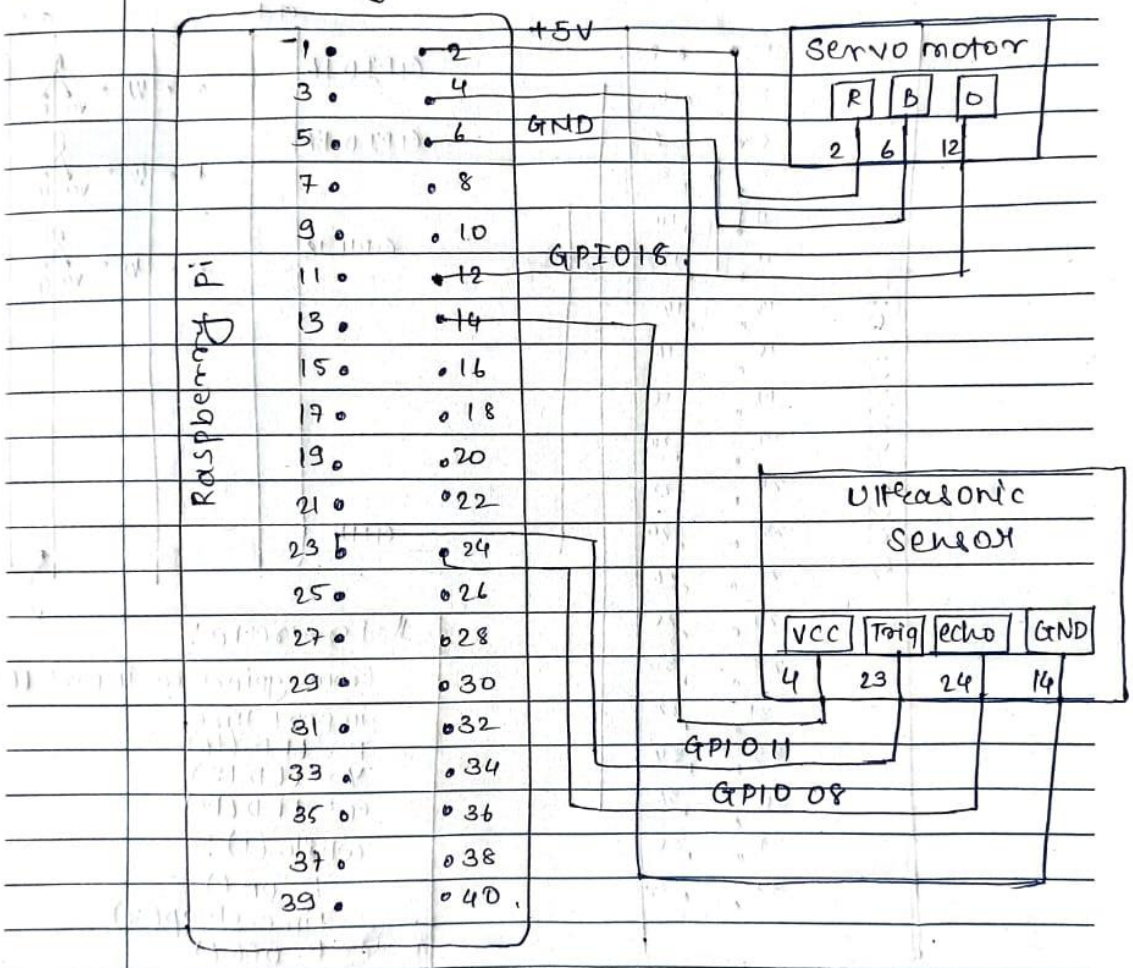
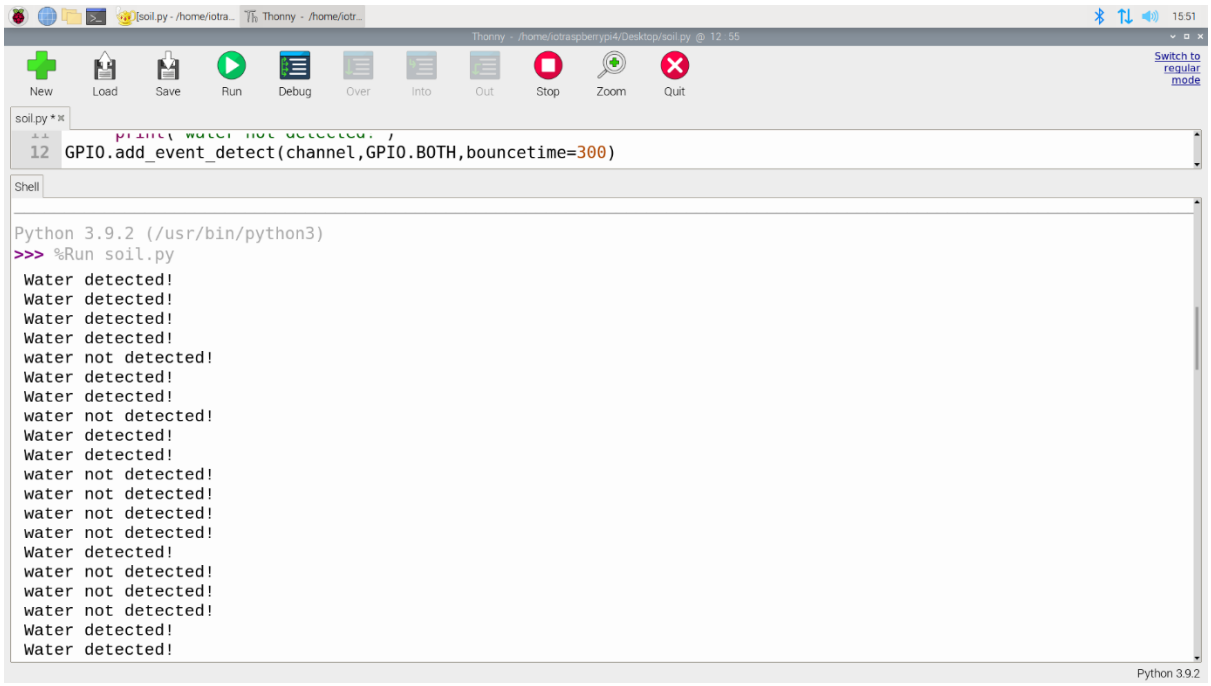
Circuit Diagram:



*** 23 = GPIO 11
24 = GPIO 08
12 = GPIO 18

```
import RPi.GPIO as GPIO
import time
#GPIO SETUP
channel = 4
GPIO.setmode(GPIO.BCM)
GPIO.setup(channel, GPIO.IN)
def callback(channel):
    if GPIO.input(channel):
        print ("Water Detected!")
    else:
        print ("Water Detected!")
GPIO.add_event_detect(channel, GPIO.BOTH, bouncetime=300)
GPIO.add_event_callback(channel, callback)
while True:
    time.sleep(0)
```



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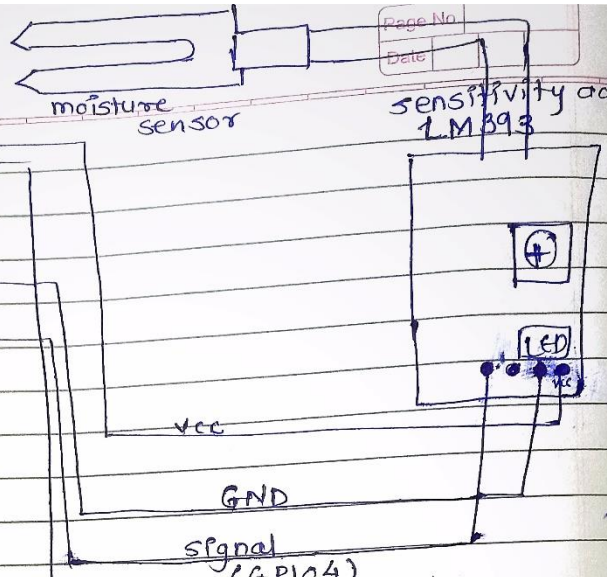

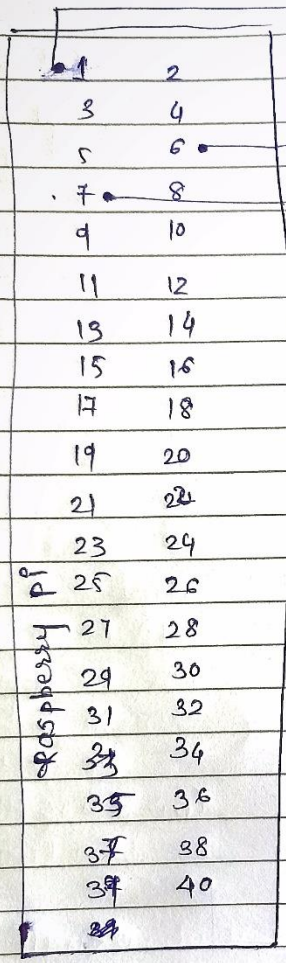

1 = VCC
6 = GND
7 = GPIO 4 (signal)

```
import RPi.GPIO as GPIO
import time
# GPIO setup
channel = 4
GPIO.setmode(GPIO.BCM)
GPIO.setup(channel, GPIO.IN)
def callback(channel):
    if GPIO.input(channel):
        print("Water detected!")
    else:
        print("Water not detected!")
GPIO.add_event_detect(channel,
    GPIO.BOTH, bouncetime=300)
GPIO.add_event_detect(channel,
    callback)
while True:
    time.sleep(0)
```

```
from gpiozero import LED
import time
R=LED(16)
Y=LED(18)
G=LED(17)
while(1) :
    R.on()
    time.sleep(3)
    R.off()

    Y.on()
    time.sleep(2)
    Y.off()

    G.on()
    time.sleep(3)
    G.off()
```

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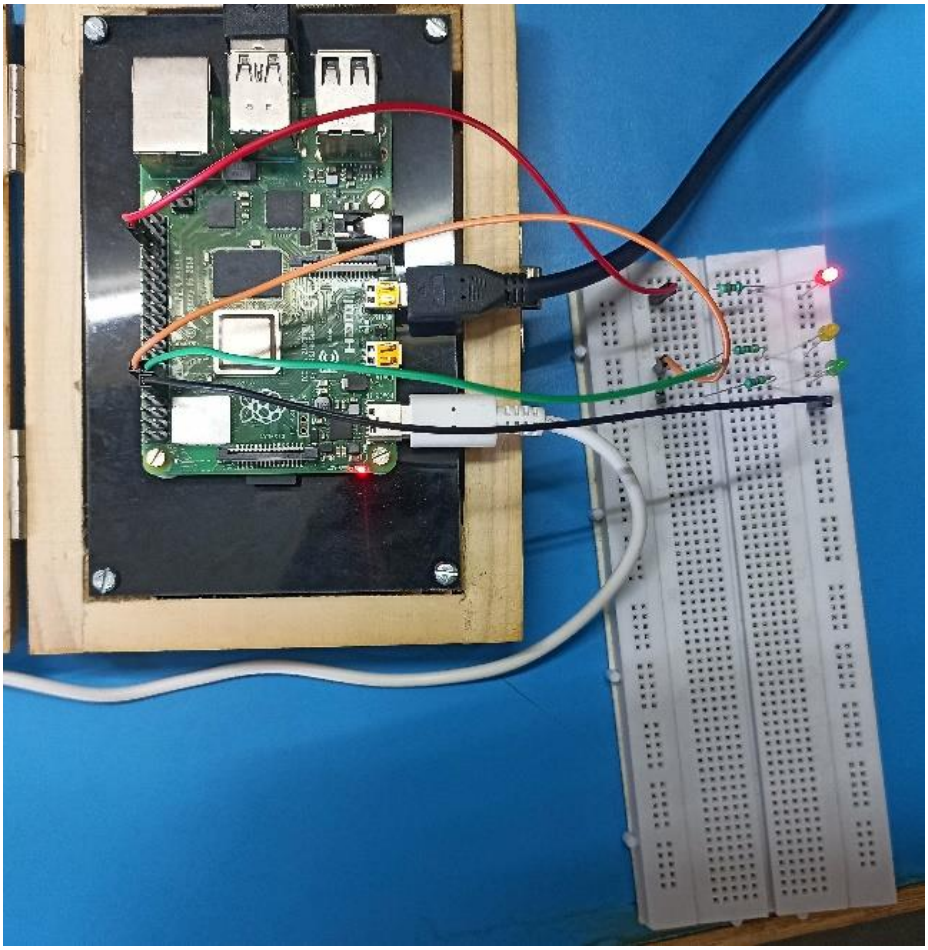

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G → R,

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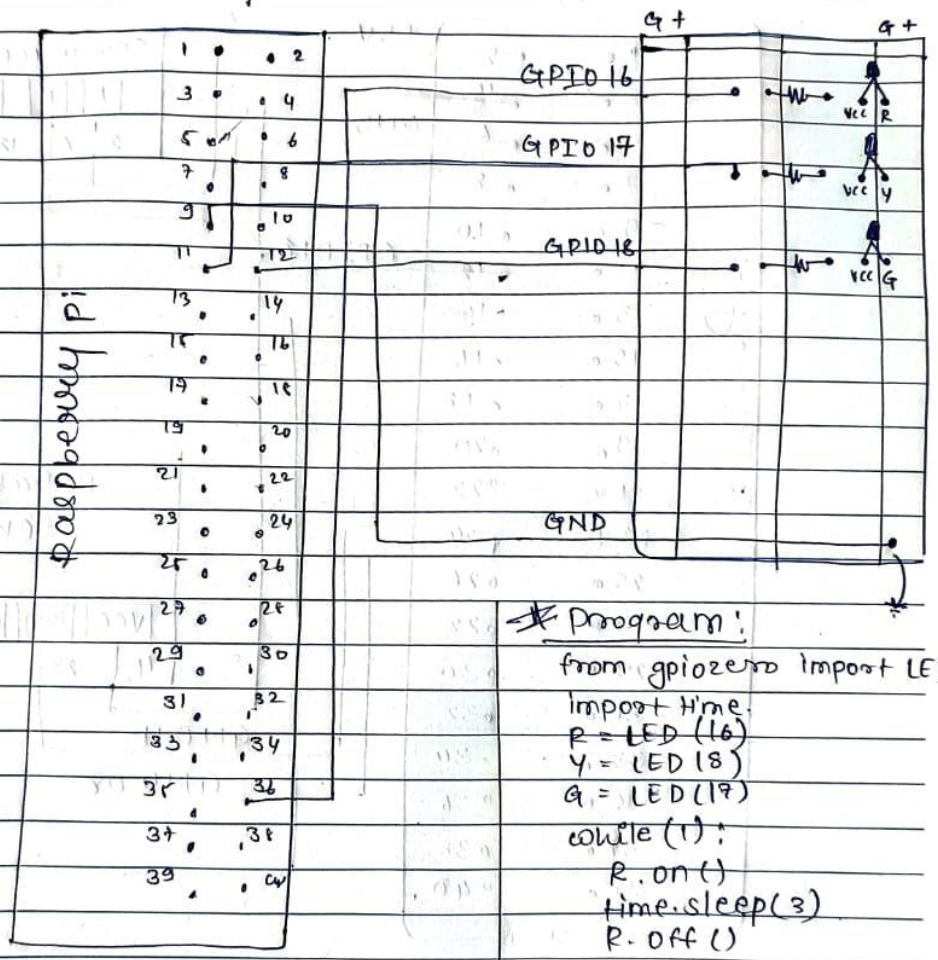
Circuit diagram:



* 36 = GPIO 16 (R)
* 11 = GPIO 17 (Y)
* 12 = GPIO 18 (G).

Program:

```
from gpiozero import LED
import time.
R = LED(16)
Y = LED(18)
G = LED(17)
while(1):
    R.on()
    time.sleep(3)
    R.off()

    Y.on()
    time.sleep(1)
    Y.off()

    G.on()
    time.sleep(2)
    G.off()
```