Aim:

To implement an efficient iot model for drip irrigation system

Description:

Saving water is one of the most important responsibility of today's citizens.Soil moisture sensors measure the volumetric water content in soil. Since the direct gravimetric measurement of free soil moisture requires removing, drying, and weighting of a sample, soil moisture sensors measure the volumetric water content indirectly by using some other property of the soil, such as electrical resistance, dielectric constant, or interaction with neutrons, as a proxy for the moisture content.

Hardware requirements:

1)Soil moisture sensor
2)Rasberry pi
3)jumper wires
4)driver
5)Rain sensor
6)LED

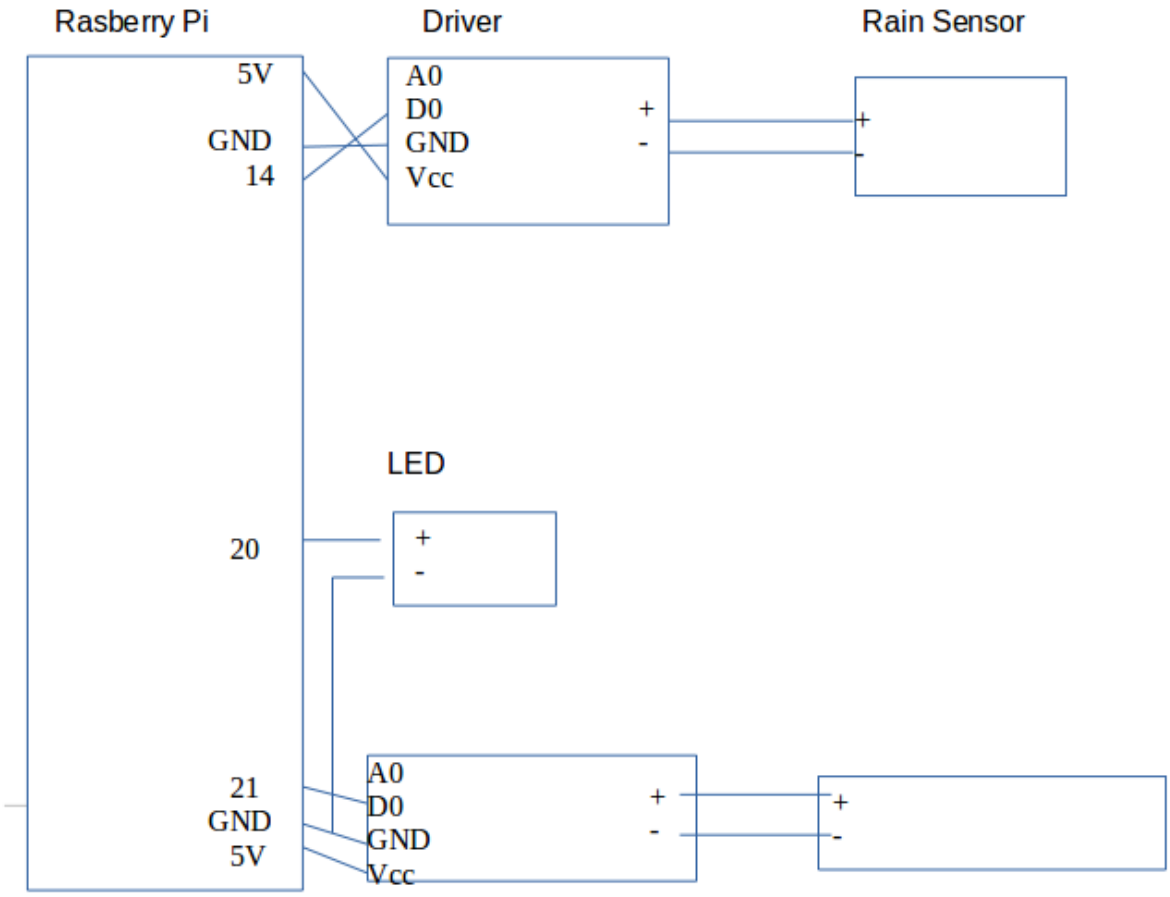
Working Principle:

Our project is intended to implement automated drip irrigation system . The soil moisture sensor is used to monitor the levels of water in soil. If the moisture content is less, rain is to be checked. If theres no rain alert is to be given .

Steps:

1)Connect LAN,HDMI , power supply, insput devices of the raspberry pi as per required
2)Connect the soil moisture sensor driver as follows:
  i)D0 - gpio 21
  ii)GND- GND
  iii)Vcc-5V
3)connect the rain sensor as follows:
  i)D0 - gpio 14
  ii)gnd- gnd
  iii)Vcc-5V
4)A LED is used to connected just as to alert (if moisture content is less)==glow
5)Execute the following .py script in the python shell

Circuit Diagram:

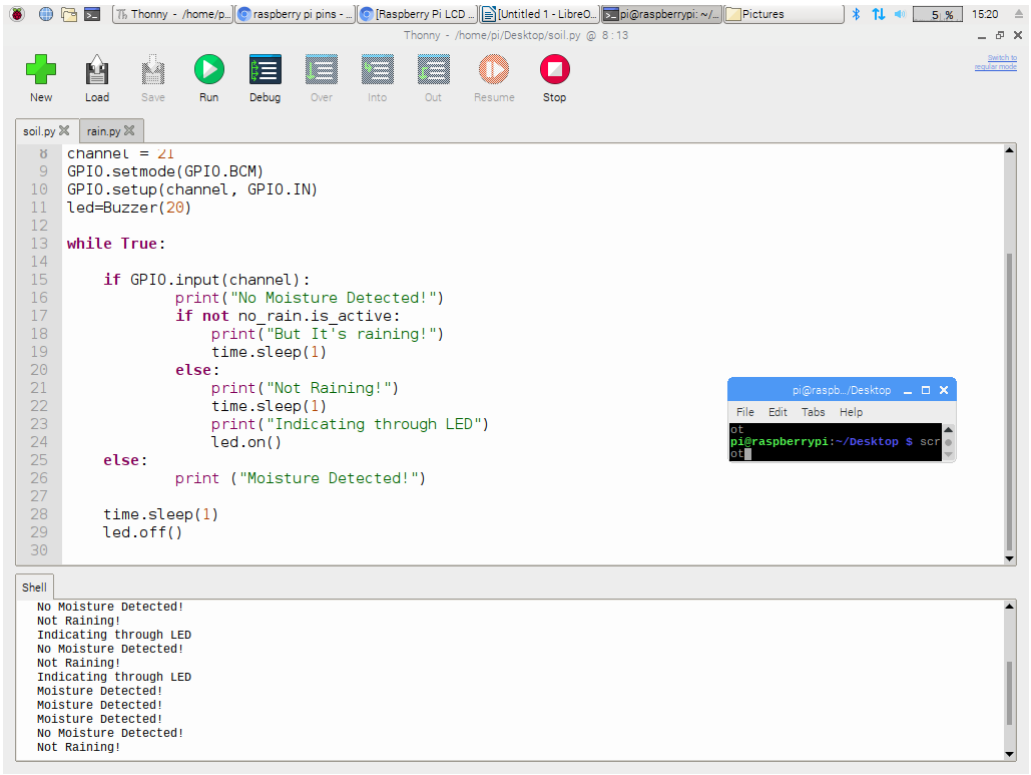


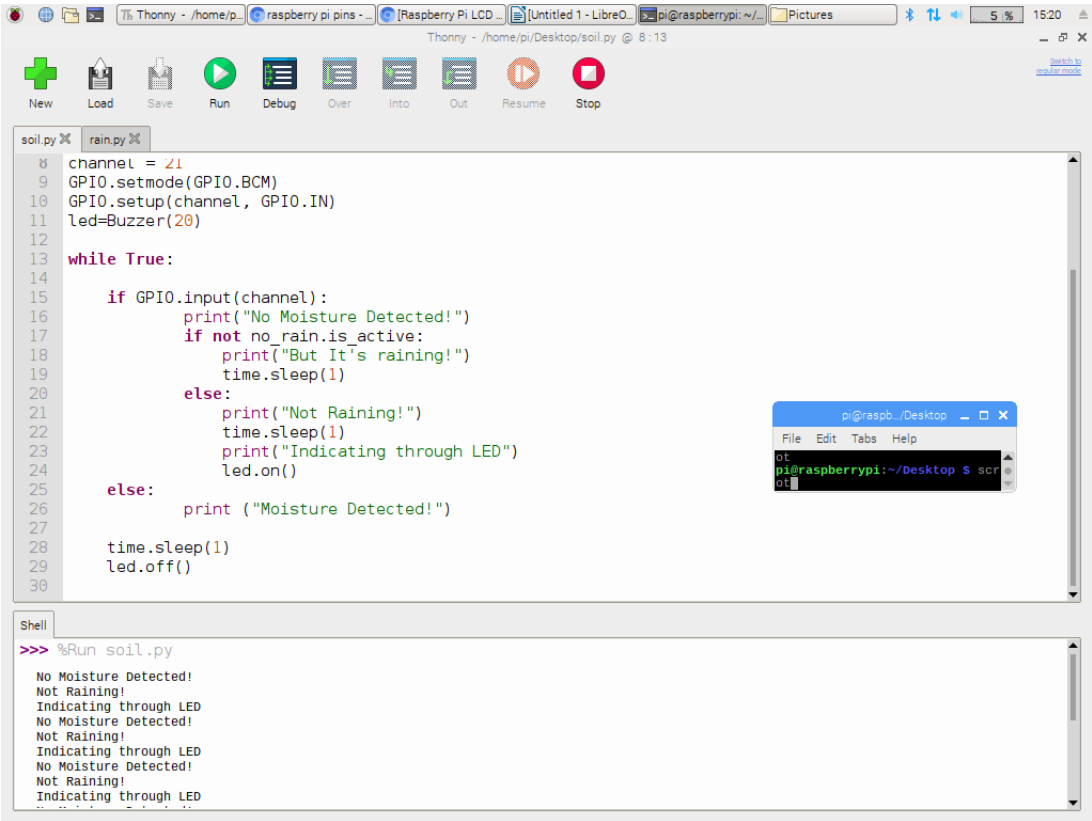
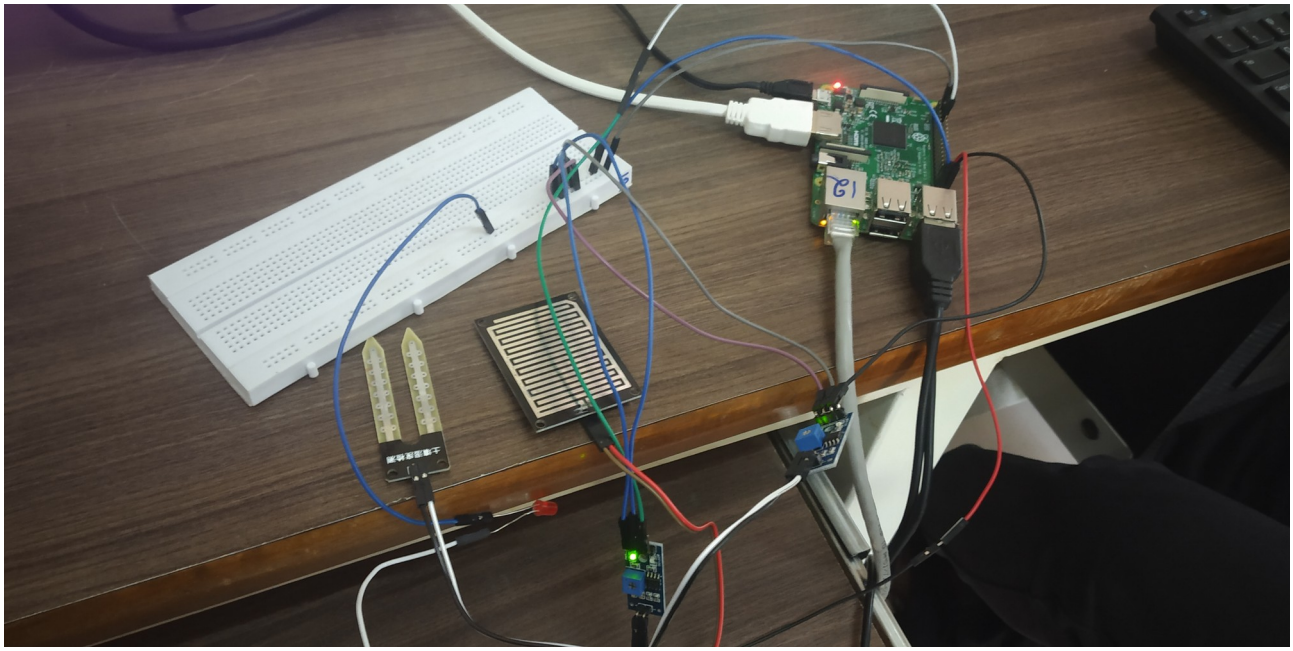
Code:

```
#!/usr/bin/python
import RPi.GPIO as GPIO
from gpiozero import InputDevice,Buzzer
import time

#GPIO SETUP
no_rain = InputDevice(14)
channel = 21
GPIO.setmode(GPIO.BCM)
GPIO.setup(channel, GPIO.IN)
led=Buzzer(20)

while True:

    if GPIO.input(channel):
            print("No Moisture Detected!")
```

```
        if not no_rain.is_active:
            print("But It's raining!")
            time.sleep(1)
        else:
            print("Not Raining!")
            time.sleep(1)
            print("Indicating through LED")
            led.on()
else:
        print ("Moisture Detected!")

time.sleep(1)
led.off()
```

Output:




Thonny - /home/pi/Desktop/soil.py @ 8 : 13
New
Load
Save
Run
Debug
Over
Into
Out
Resume
Stop
soil.py
rain.py
channel = 21
GPIO.setmode(GPIO.BCM)
GPIO.setup(channel, GPIO.IN)
led=Buzzer(20)
while True:
if GPIO.input(channel):
print("No Moisture Detected!")
if not no_rain.is_active:
print("But It's raining!")
time.sleep(1)
else:
print("Not Raining!")
time.sleep(1)
print("Indicating through LED")
led.on()
else:
print ("Moisture Detected!")
time.sleep(1)
led.off()
pi@raspb.../Desktop
File Edit Tabs Help
pi@raspberrypi:~/Desktop $
Shell
>>> %Run soil.py
No Moisture Detected!
Not Raining!
Indicating through LED
No Moisture Detected!
Not Raining!
Indicating through LED
No Moisture Detected!
Not Raining!
Indicating through LED