

IOT LAB INTERNAL-2

Aim :

1. Design and develop IOT based Smart Agriculture system to measure and monitor the soil moisture , rainfall and temperature . So as to give in-time details to farmer and Display the same on Lcd Display using Raspberrypi .

Description:

The aim of this paper is to develop a smart irrigation monitoring system using raspberry pi. Focus area will be parameters such as temperature and soil moisture. This system will be a substitute to traditional farming method .We will develop such a system that will help a farmer to know his field status in his home or he may be residing in any part of the world. It proposes a automatic irrigation system for the agricultural lands. Currently the automation is one of the important role in the human life. It not only provide comfort but also reduce energy, efficiency and time saving. Now the industries are use automation and control machine which is high in cost and not suitable for using in a farm field. So here it also design a smart irrigation technology in low cost which is usable by Indian farmers. Raspberry pi is the main heart of the whole system. An automated irrigation system was developed to optimize water use for agricultural crops

DHT11 Sensor

The DHT11 temp/hum sensory is a standard sensor that does not need to be in any particular location, besides being in the same environment as your plant. Since temperature and humidity do not vary greatly within a 5 ft radius, it's okay to just leave the sensor plugged into the RPI and not right next to the plant.

Soil Moisture Sensor

The soil moisture sensor is a standard moisture sensor that outputs a voltage when wet, and none when dry. You can adjust the sensitivity of the sensor with the potentiometer located on the sensor.

Rain sensor

A rain sensor or rain switch is a switching device activated by rainfall. There are two main applications for rain sensors. The first is a water conservation device connected to an automatic irrigation system that causes the system to shut down in the event of rainfall.

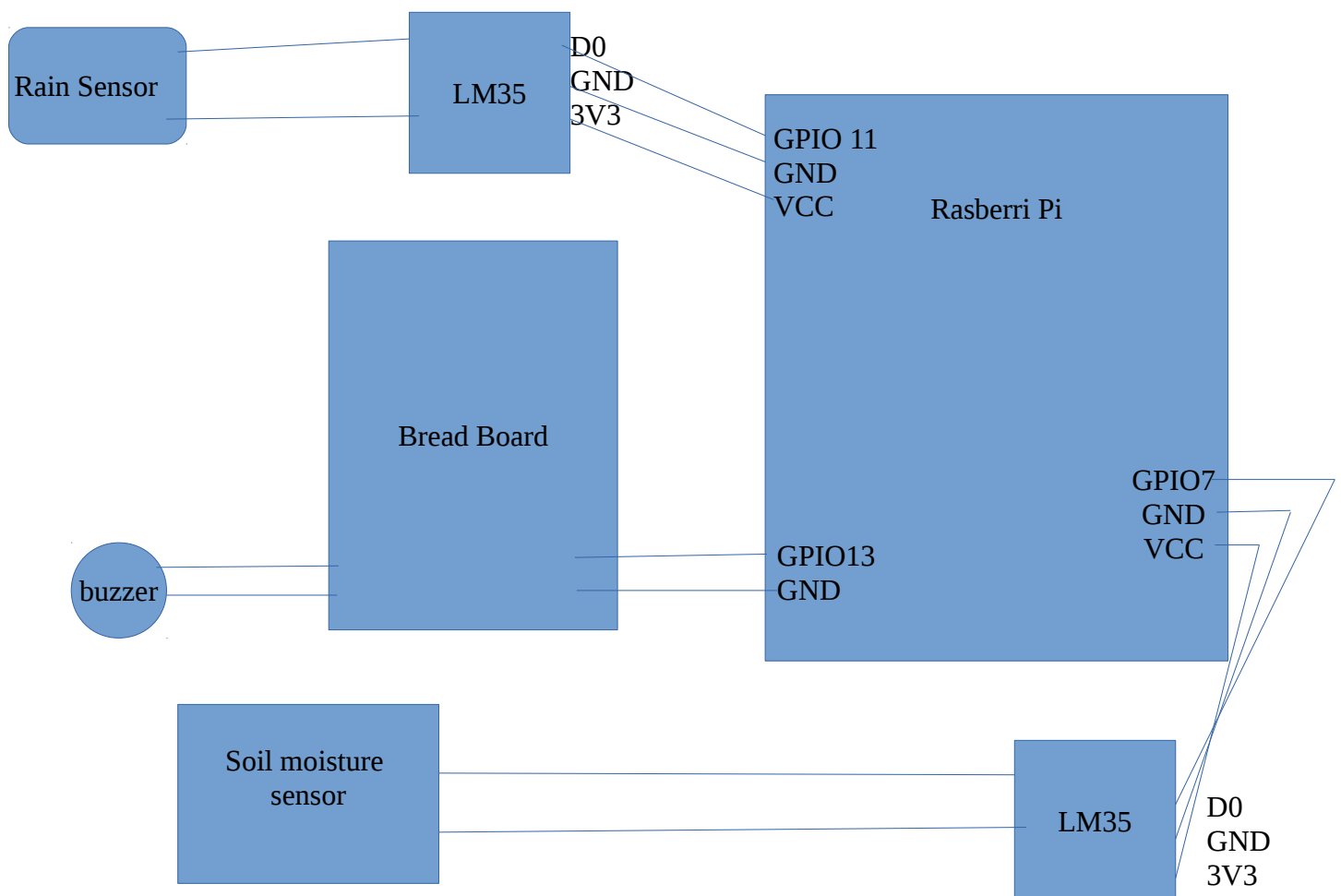
Raspberrypi

The **Raspberry Pi** is a low cost, credit-card sized computer that plugs into a computer monitor or TV, and uses a standard keyboard and mouse. It is a capable little device that enables people of all ages to explore computing, and to learn how to program in languages like Scratch and Python.

Hardware components

- DHT11 Temperature/Humidity Sensor
- Soil Moisture Sensor
- 5V Power Supply (Phone Charging Cable)
- Raspberry Pi 3
- Rain sensor

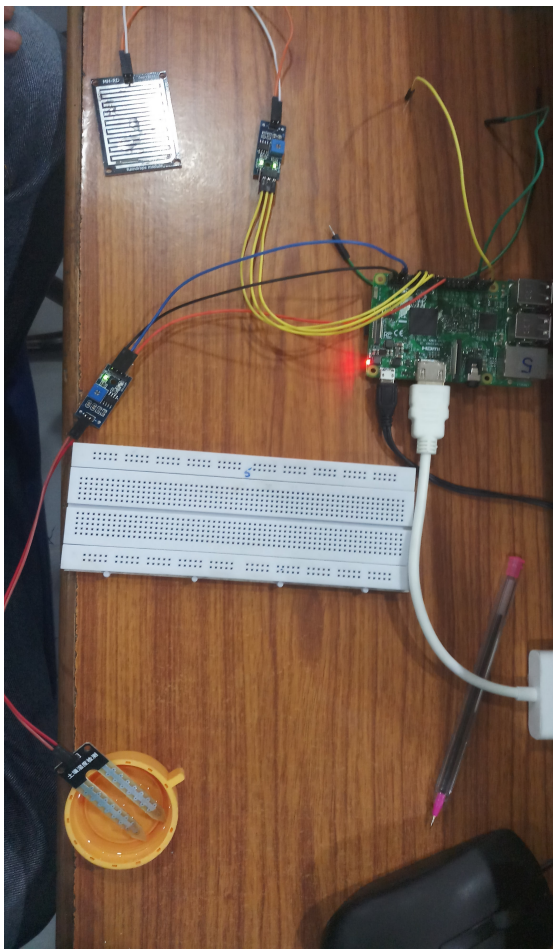
Circuit Diagram:



Code:

```
import RPi.GPIO as GPIO from gpiozero
import Buzzer, InputDevice
from time import sleep
GPIO.setmode(GPIO.BCM)
```

```
GPIO.setup(7,GPIO.IN)
while True:
    inp=GPIO.input(7)
    print(inp)
    if (inp):
        print("Moisture not Detected")
        sleep(1)
    else:
        print("Moisture Detected")
sleep(1)
GPIO.setmode(GPIO.BCM)
GPIO.setup(7,GPIO.IN)
while True:
    inp=GPIO.input(7)
    print(inp)
    if (inp):
        print("Rain not Detected")
        sleep(1)
    else:
        print("Rain Detected")
        sleep(1)
```



Output :

We have successfully monitored the time-to-time sensor data of sensors like moisture sensor ,rain sensor and temperature sensor and developed IOT based Smart Agriculture system .

160116733116

