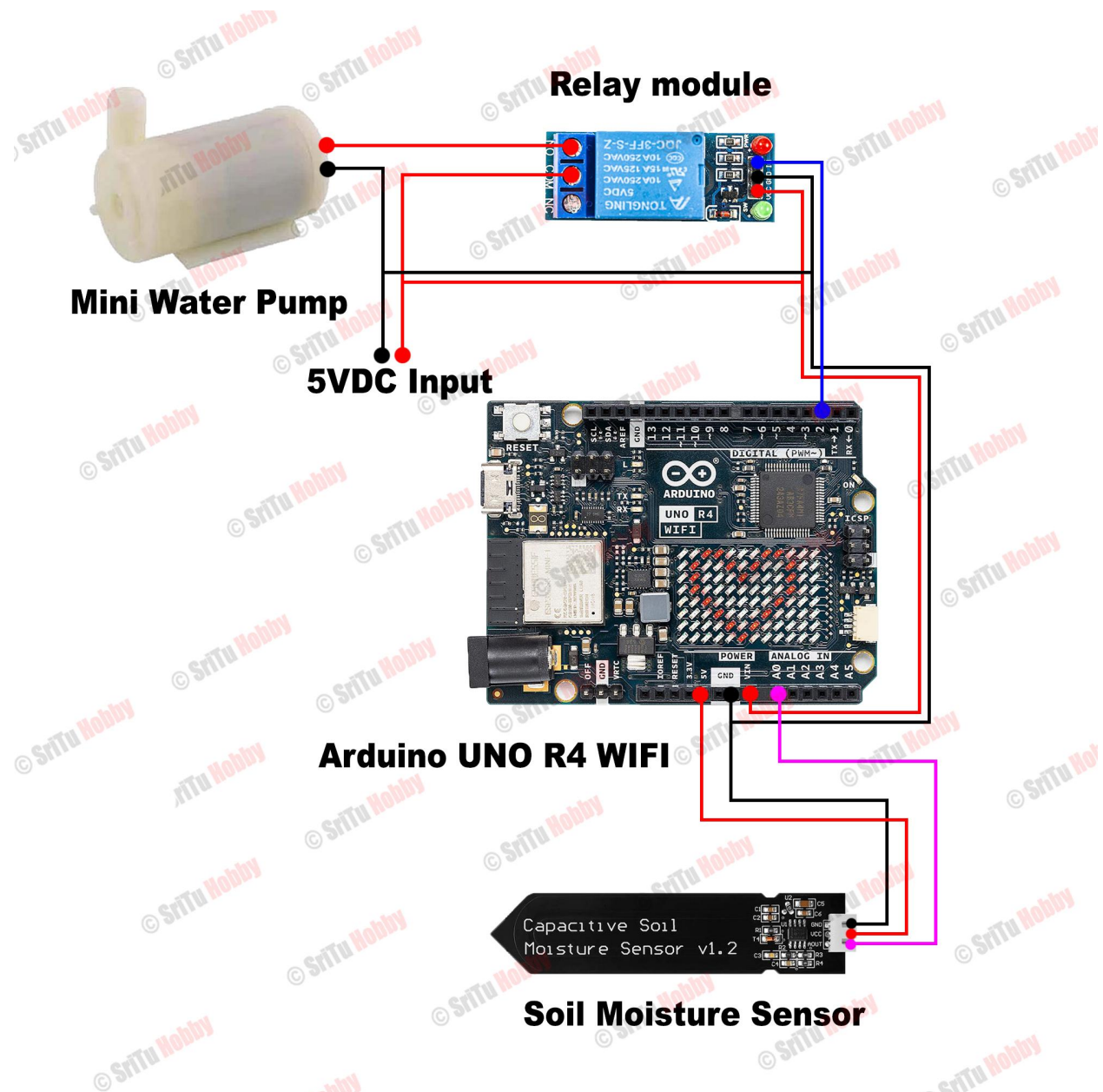


Smart Water Management

Circuit Diagram:



Working explanation:

Firstly, identify these components.

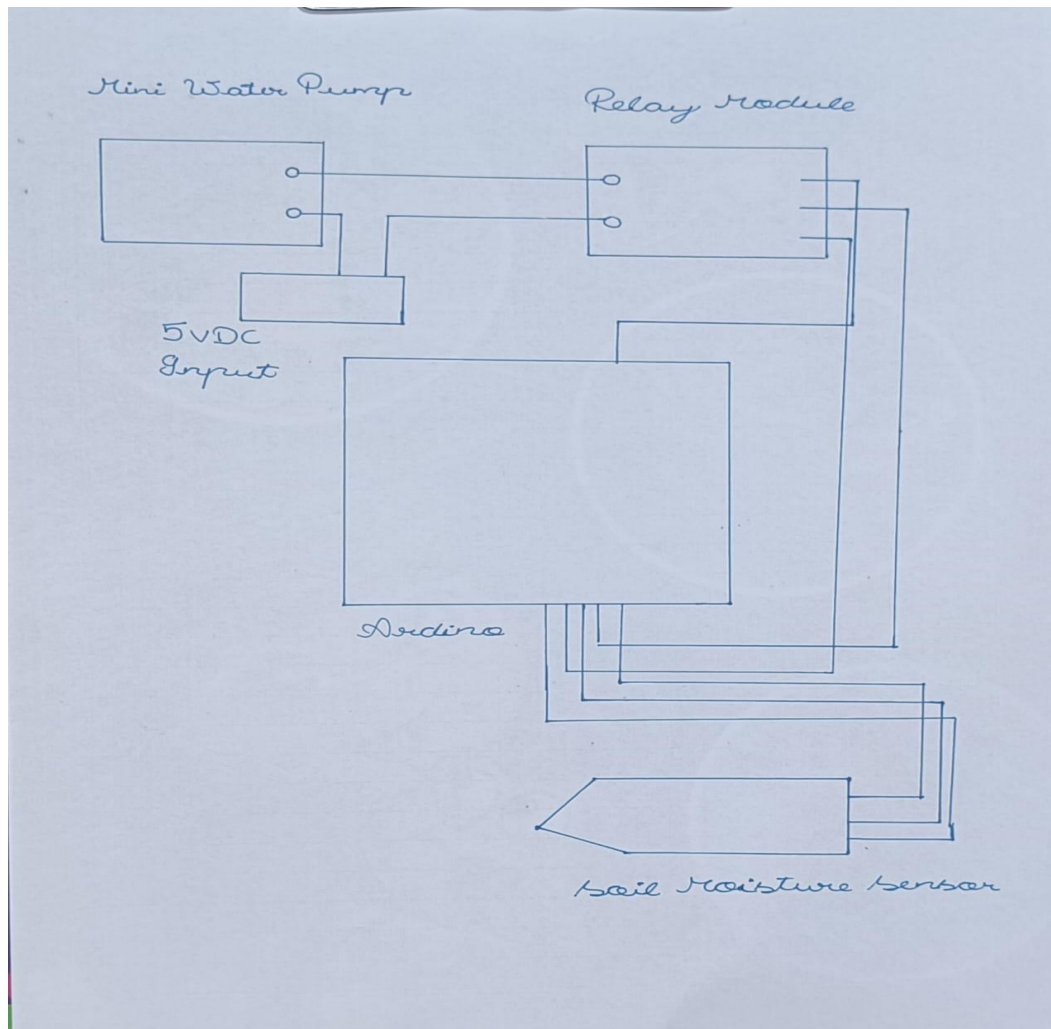
- 1.Arduino UNO R4 Wifi
- 2.Soil Moisture Sensor
- 3.5v Relay module
- 4.Mini Water Pump
- 5.Mini Water Pipe
- 6.Jumper Wires

Then connect the relay module and soil moisture sensor to the Arduino UNO board.connect the Arduino board to the computer. And then, set up the Arduino Cloud. For that, follow the instructions below.go to the Arduino Cloud website and create a new account using your email. Then, log in to your account

- Now, click the “Get started” button and select the IOT cloud.
- Then, add your device to the cloud. For that, download and install the Arduino agent program. At this time, please remove other USB devices. Now, you can see the Arduino UNO R4 WIFI board.
- Next, you can rename it as you like. Then, download the device ID and secret key PDF.
- Now, download the latest firmware and run it on your computer. At this time remove the other USB devices. (except Arduino UNO R4 WIFI board)
- OK, now click the “Things” tab and create two variables.
- Name — “relay” / boolean / Declaration — “bool relay”

- Name — “sensor” / Integer Number / Declaration — “int sensor” / Variable update policy — Periodically(1S)
- Then, connect your device and enter your network details. Open the PDF for the secret key. (which you previously downloaded)
- Next, click the sketch tab and delete this code. And then, copy and paste the following code on this sketch.

Block Diagram:



Code:

```
/*
  Sketch generated by the Arduino IoT Cloud Thing "Untitled"

https://create.arduino.cc/cloud/things/1ec5753c-648f-41d5-af31-9d5e97d6b133

  Arduino IoT Cloud Variables description

  The following variables are automatically generated and updated when
  changes are made to the Thing

  int sensor;
  bool relay;

  Variables which are marked as READ/WRITE in the Cloud Thing will also
  have functions
  which are called when their values are changed from the Dashboard.
  These functions are generated with the Thing and added at the end of
  this sketch.
*/

#include "thingProperties.h"
#define relayPin 2
#define wet 210
#define dry 510

void setup() {
  // Initialize serial and wait for port to open:
  Serial.begin(9600);
  // This delay gives the chance to wait for a Serial Monitor without
  blocking if none is found
  delay(1500);

  pinMode(relayPin, OUTPUT);
  digitalWrite(relayPin, HIGH);

  // Defined in thingProperties.h
  initProperties();

  // Connect to Arduino IoT Cloud
```

```

ArduinoCloud.begin(ArduinoIoTPreferredConnection);

/*
  The following function allows you to obtain more information
  related to the state of network and IoT Cloud connection and errors
  the higher number the more granular information you'll get.
  The default is 0 (only errors).
  Maximum is 4
*/
setDebugMessageLevel(2);
ArduinoCloud.printDebugInfo();
}

void loop() {
  ArduinoCloud.update();
  // Your code here
  onRelayChange();
  onSensorChange();
}

void onSensorChange() {
  // Add your code here to act upon Sensor change
  sensor = analogRead(A0);
  sensor = map(sensor, dry, wet, 0, 100);
}

void onRelayChange() {
  if(relay) {
    digitalWrite(relayPin, LOW);
  } else {
    digitalWrite(relayPin, HIGH);
  }
}

```