

### ***Arduino UNO CODE:***

```
int MOISTURE_SENSOR_PIN = A0;
int RELAY_PIN = 13;
int MOISTURE_THRESHOLD = 500;
bool automode = true;
bool manualmode = false;
bool on = false;
bool off= true;
bool isPumpOn = false;
void setup() {
  pinMode(RELAY_PIN, OUTPUT);
  digitalWrite(RELAY_PIN, LOW);
  Serial.begin(9600);
}
void loop() {
  int moistureValue = analogRead(MOISTURE_SENSOR_PIN);
  char serialData = Serial.read();
  if (serialData == '1'){
    automode = true;
    manualmode = false;
  }
  else if (serialData == '2'){
    automode = false;
    manualmode = true;
  }
  else if (serialData == '3'){
```

```
    automode = false;
    manualmode = false;
    //Serial.println("pump on");
    digitalWrite(RELAY_PIN, LOW);
    isPumpOn = false;
}
else if (serialData == '4'){
    automode = false;
    manualmode = false;
    //Serial.println("pump off");
    digitalWrite(RELAY_PIN, HIGH);
    isPumpOn = true;
}
// Check moisture level and control pump
if (automode && moistureValue < MOISTURE_THRESHOLD) {
    digitalWrite(RELAY_PIN, HIGH);
    isPumpOn = true;
}
else if (automode && moistureValue > MOISTURE_THRESHOLD){
    digitalWrite(RELAY_PIN, LOW);
    isPumpOn = false;
}
else if (manualmode){
    digitalWrite(RELAY_PIN, HIGH);
    isPumpOn = true;
}
// Print pump status and moisture value in the format "moistureValue,pumpStatus"
```

```
String pumpStatus = isPumpOn ? "off" : "on";  
Serial.print(moistureValue);  
Serial.print(",");  
Serial.println(pumpStatus);  
delay(1000); // Wait for 1 second  
}
```