**💧 IoT-Based Irrigation Management System (Code)**

**Hardware:**

* ESP8266 or ESP32
* Soil Moisture Sensor
* Relay Module + Water Pump/Valve
* DHT11/22 (Optional for climate condition)
* Web interface (or Blynk/ThingSpeak)

**Arduino Code (ESP8266 + Soil Moisture + Relay):**

**CODE**

#include <ESP8266WiFi.h>

#include <ESP8266WebServer.h>

const int soilPin = A0;

const int relayPin = D1;

const char\* ssid = "Your\_SSID";

const char\* password = "Your\_PASSWORD";

ESP8266WebServer server(80);

void setup() {

Serial.begin(115200);

pinMode(relayPin, OUTPUT);

digitalWrite(relayPin, HIGH); // Relay OFF

WiFi.begin(ssid, password);

while (WiFi.status() != WL\_CONNECTED) {

delay(1000);

Serial.println("Connecting...");

}

Serial.println(WiFi.localIP());

server.on("/", []() {

int soilValue = analogRead(soilPin);

String status = (soilValue < 600) ? "Dry - Watering ON" : "Moist - Watering OFF";

String page = "<h1>Irrigation System</h1>";

page += "<p>Soil Moisture Value: " + String(soilValue) + "</p>";

page += "<p>Status: " + status + "</p>";

server.send(200, "text/html", page);

if (soilValue < 600)

digitalWrite(relayPin, LOW); // Relay ON

else

digitalWrite(relayPin, HIGH); // Relay OFF

});

server.begin();

}

void loop() {

server.handleClient();

}

Circuit Diagram

