

ESP32 Plant Watering System

Hardware & Wiring Guide

Hardware Components

- ESP32 Development Board – Main controller with Wi-Fi capability
- Soil Moisture Sensor (Analog) – Measures soil moisture level
- Relay Module (Active-HIGH) – Controls the water pump
- DC Water Pump – Used for watering plants
- DHT11 Temperature & Humidity Sensor – Measures ambient conditions
- External Power Supply – Powers the water pump safely
- Jumper Wires – Used for all electrical connections

Wiring and Connections

- ESP32 GPIO 34 → Soil Moisture Sensor AO (Analog Output)
- ESP32 GPIO 26 → Relay Module IN (Active-HIGH control)
- ESP32 GPIO 4 → DHT11 DATA pin
- ESP32 3.3V → Soil Moisture Sensor VCC and DHT11 VCC
- ESP32 GND → Soil Moisture Sensor GND, Relay GND, and DHT11 GND (common ground)
- Relay COM → Pump positive terminal
- Relay NO → External power supply positive
- Pump negative terminal → External power supply GND