HARDWARE AND SOFTWARE COMPONENTS REQUIREMENT

1. Soil Moisture Sensor:

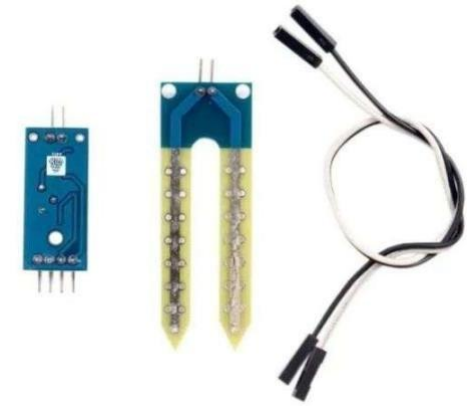


Fig.1 Soil Moisture Sensor

1. Accuracy: Measures soil moisture levels with high accuracy (typically, ±5%).
2. Resolution: Provides high-resolution measurement typically (0.1-1%)
3. Range: Measures soil moisture levels over a wide range (typically 0-100%).
4. Sensitivity: Detects small changes in soil moisture levels.
5. Calibration: Some sensors require calibration for specific soil types.
6. Temperature compensation: Some sensors have built-in temperature compensation to ensure accurate readings.
7. Durability: Designed to withstand harsh environmental conditions
8. Low power consumption: Suitable for battery-powered applications.

2. DHT11 Sensor:

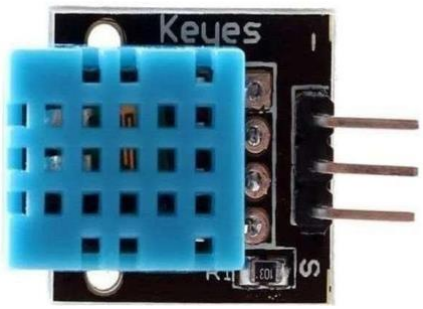


Fig.2 DHT11 Sensor

1. Temperature Measurement: Measures temperature from 20°C to 50°C (-122°F) with an accuracy of ±2°C.
2. Humidity Measurement: Measures relative humidity (RH) from 20% to 90% with an accuracy of ±5% RH.
3. Digital Output: Provides a digital signal to the microcontroller or other control device.
4. Low Power Consumption: Typically consumes 2.5 mA of current.
5. Small Size: Compact design with a 4-pin TO-92 package.
6. Easy to Use: Simple to integrate into projects with a single-bus communication protocol.
6. Low Cost: Affordable and cost-effective solution for temperature and humidity measurement.

OTHER FEATURES:

1. Operating Current: 2.5 mA (typical).
2. Temperature Range: -20°C to 50°C (-4°F to 122°F).
3. Humidity Range: 20% to 90% RH.
4. Accuracy: ±2°C (temperature), ±5% RH (humidity).
5. Operating Voltage: 3.3V to 5.5V.

3. NODE MCU (ESP8266):

Hardware Features:

1. ESP8266 Microcontroller: 32-bit RISC CPU with 80 MHz clock speed.
2. Wi-Fi Connectivity: 802.11 b/g/n Wi-Fi with WEP, WPA, and WPA2 encryption.
3. UART, SPI, I2C, I2S, and GPIO: Multiple interfaces for connecting peripherals.
4. ADC and DAC: 10-bit ADC and 10-bit DAC for analog-todigital and digital-to-analog conversion.
5. PWM and Timer: Hardware PWM and timer for controlling and timing events.

Software Features:

1. Lua Scripting: Node MCU firmware supports Lua scripting for programming and automation.
2. API and Libraries: Extensive API and libraries for Wi-Fi, TCP/IP, HTTP, and other protocols.
3. OTA Updates: Over-the-air (OTA) updates for firmware and application updates.
4. mDNS and DNS: Multicast DNS (mDNS) and Domain Name System (DNS) support for device discovery and naming.

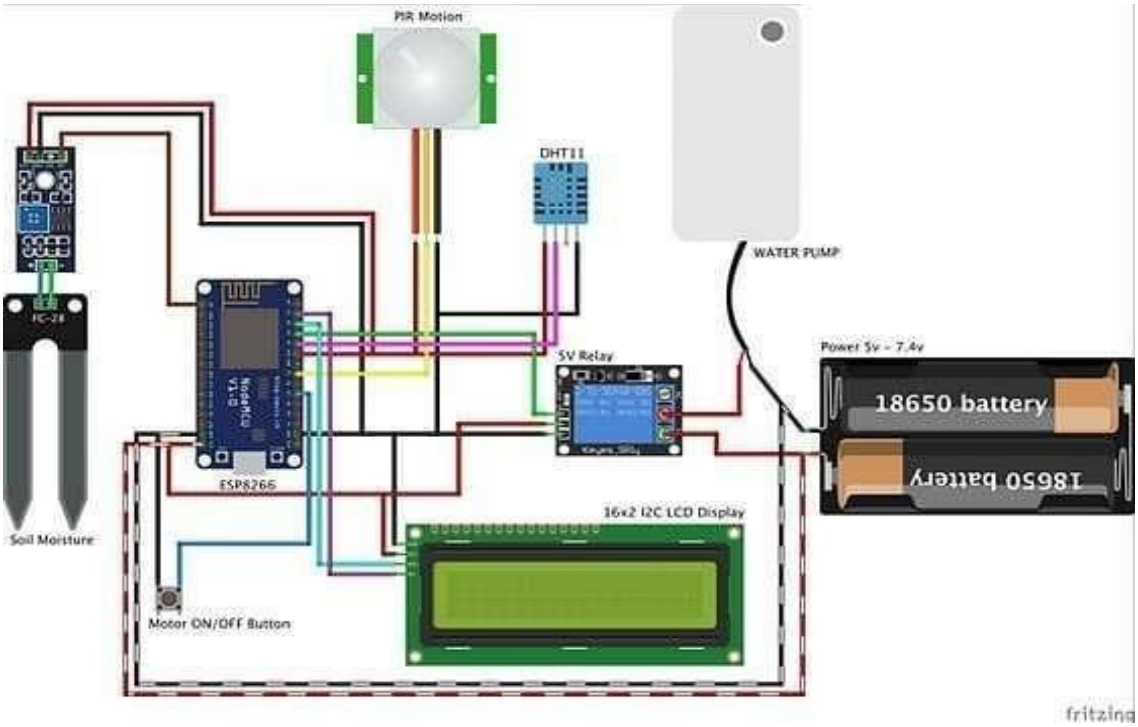
4.BLYNK IOT Based Software:

Fig 4. BLYNK IOT Based Software

Core Features:

1. Drag-and-Drop Interface: Create custom dashboards and interfaces without coding.
2. Cross-Platform Compatibility: Supports iOS, Android, and web platforms.
3. Real-Time Data Streaming: Stream data from devices to the cloud and visualize it in real- time.
4. Device Management: Manage and monitor multiple devices from a single dashboard

CIRCUIT DIAGRAM



Circuit diagram