**Introduction:**

For healthy plant growth, keeping ideal soil moisture is essential in both home gardening and modern agriculture. This project uses the ESP32 (WROOM-32) microcontroller to present a Smart Soil Moisture Monitoring System. A sensor in the system measures the soil moisture content in real time, and a 0.96" OLED display and LED indicators are used to show the results.

Users may monitor moisture levels straight from their smartphones due to this system's integration with the Blynk mobile application, which improves accessibility and remote access. While LED indicators (white for wet and red for dry) provide a rapid visual status, the OLED screen displays the percentage of water in the soil. The project is an effective option for intelligent irrigation or plant care systems since it integrates automation, wireless monitoring, and easy to use reporting.

**Block diagram:**

Power supply

Water pump

ESP 32

LED Status indicator

Buzzer Alert system

OLED display

WiFi +

Bluetooth

Module

Blynk App

Humidity sensor

Moisture sensor