



Transform Yourself

# IoT Project Title

## DEPARTMENT OF INFORMATION TECHNOLOGY

**22GCL12 – FOUNDATION LAB – Electrical, IoT and Web  
(Internet of Things)**

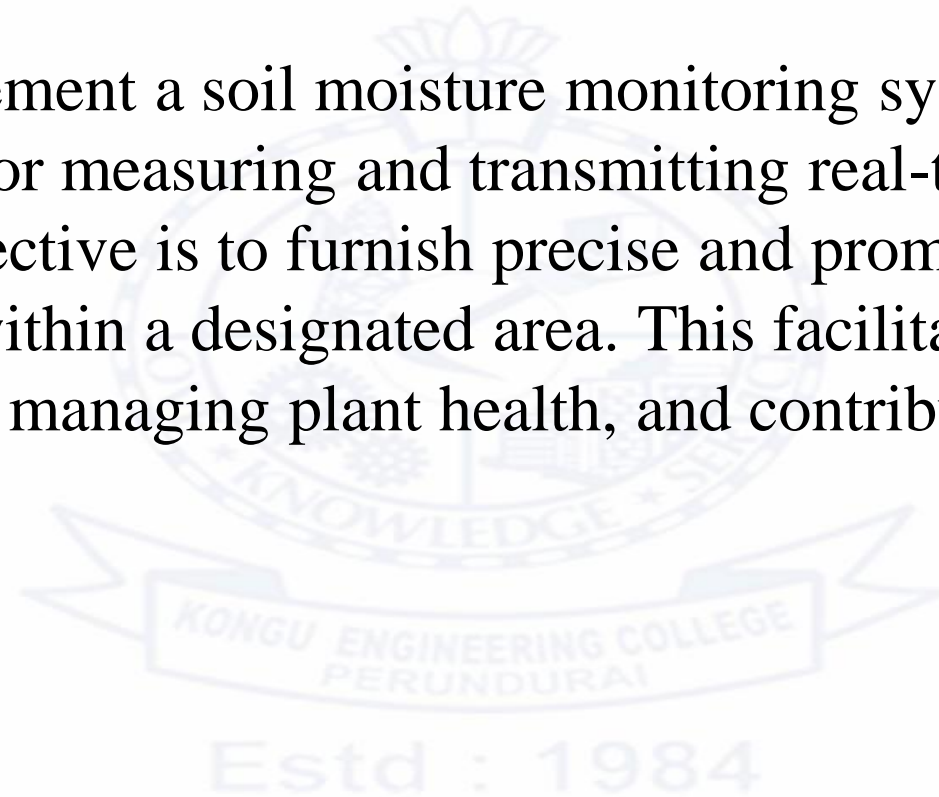
**PRESENTED BY**  
23ITR028 – Dharanya A

DATE: 29.05.2024



# OBJECTIVE

- Design and implement a soil moisture monitoring system utilizing an ESP32 microcontroller for measuring and transmitting real-time soil moisture data. The project's objective is to furnish precise and prompt insights into soil moisture levels within a designated area. This facilitates effective control over irrigation, aids in managing plant health, and contributes to water conservation efforts.



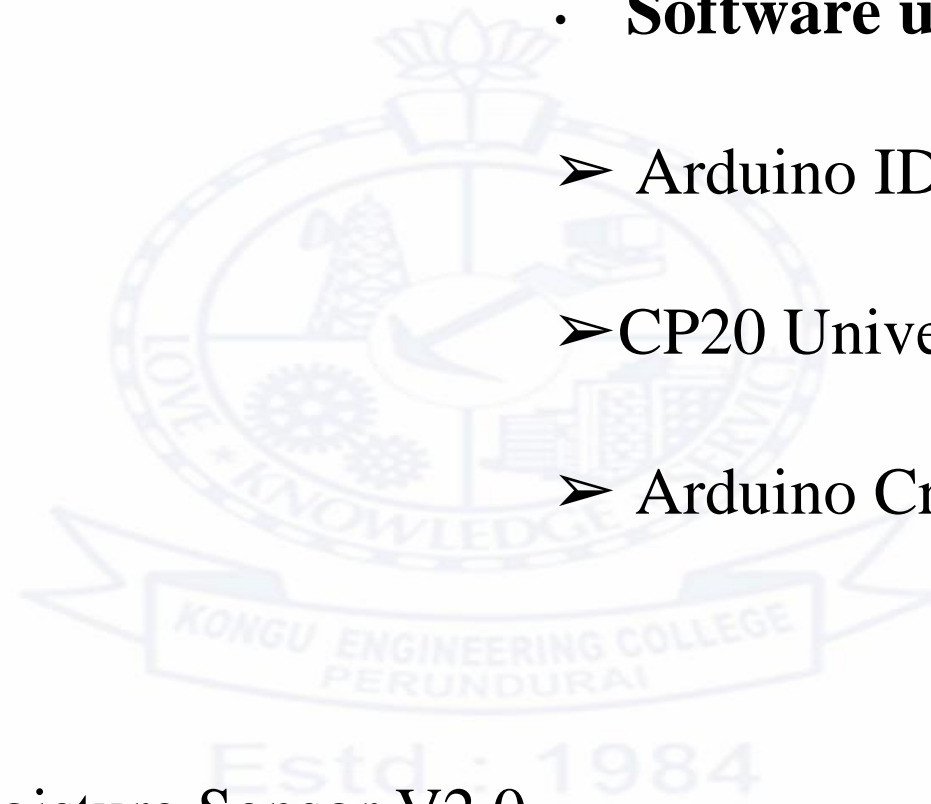
# HARDWARE AND SOFTWARE REQUIREMENTS

## • Hardware used

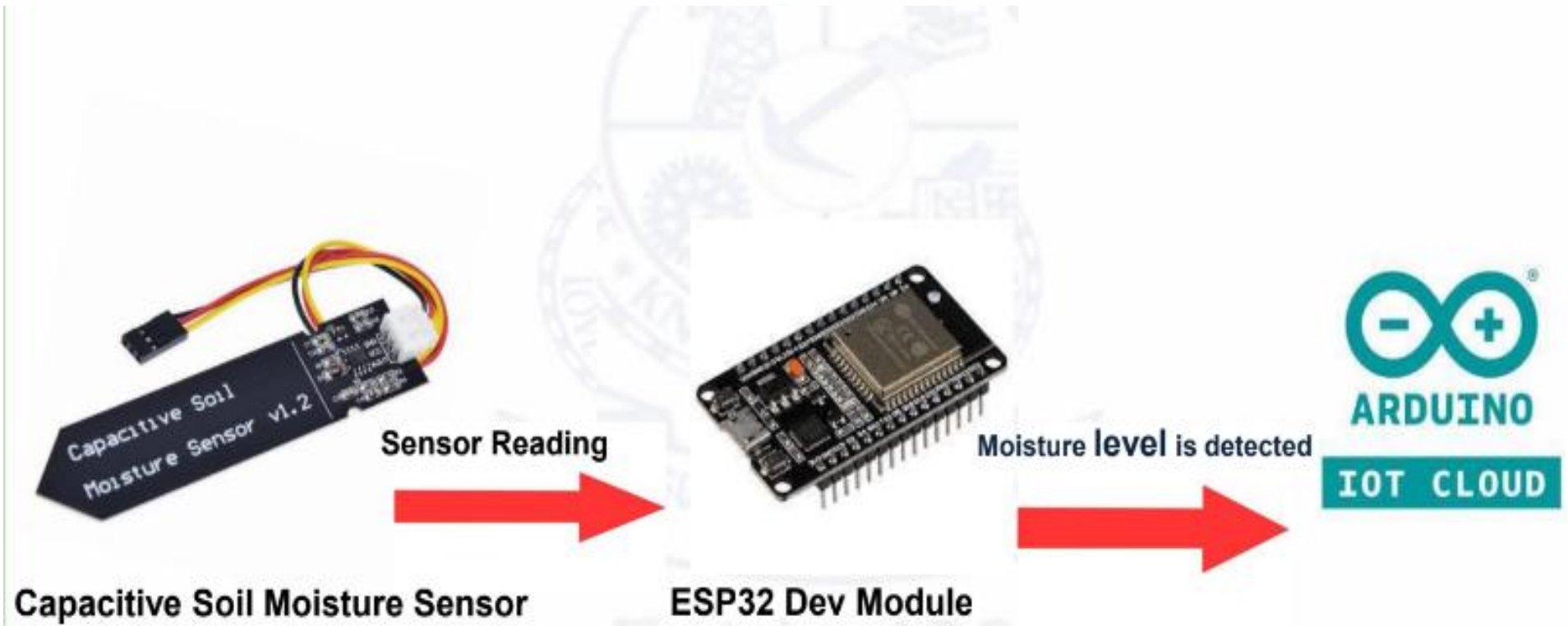
- ESP32
- BreadBoard
- USB cable
- Jumper Wire
- Capacitive Soil Moisture Sensor V2.0

## • Software used

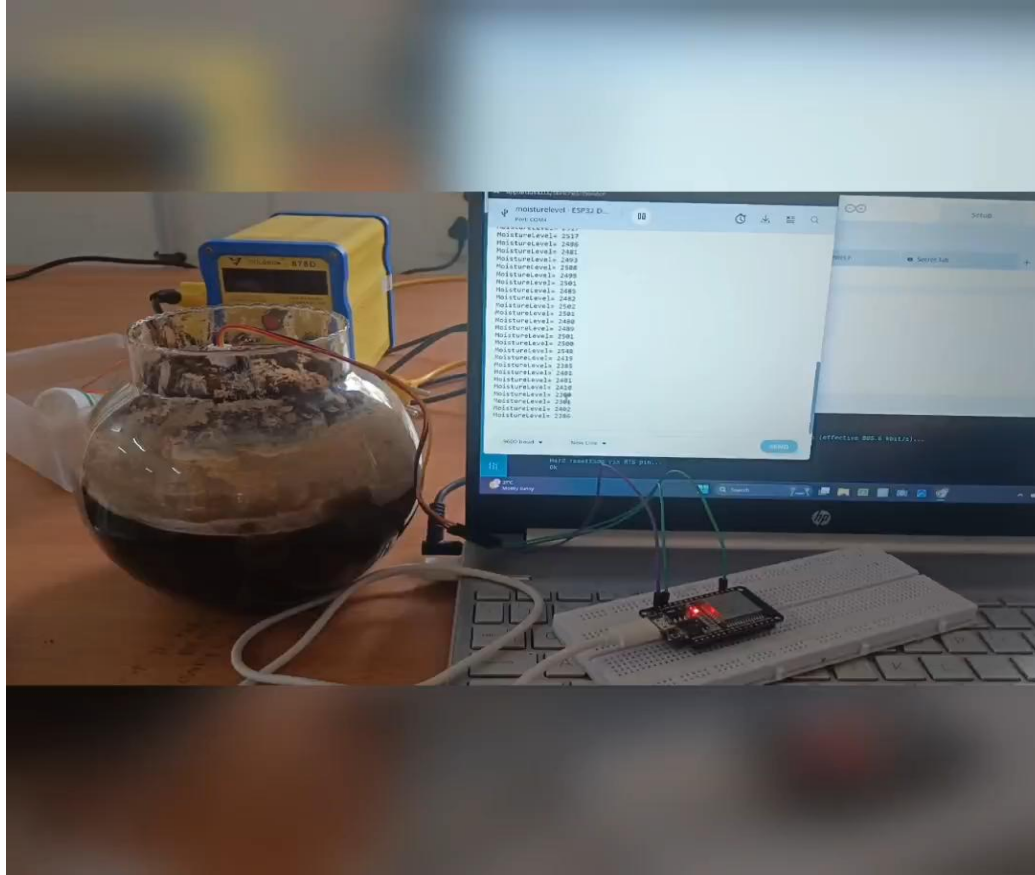
- Arduino IDE/Arduino Cloud
- CP20 Universal Windows Driver
- Arduino Create Agent



# BLOCK DIAGRAM



# SERIAL MONITOR OUTPUT



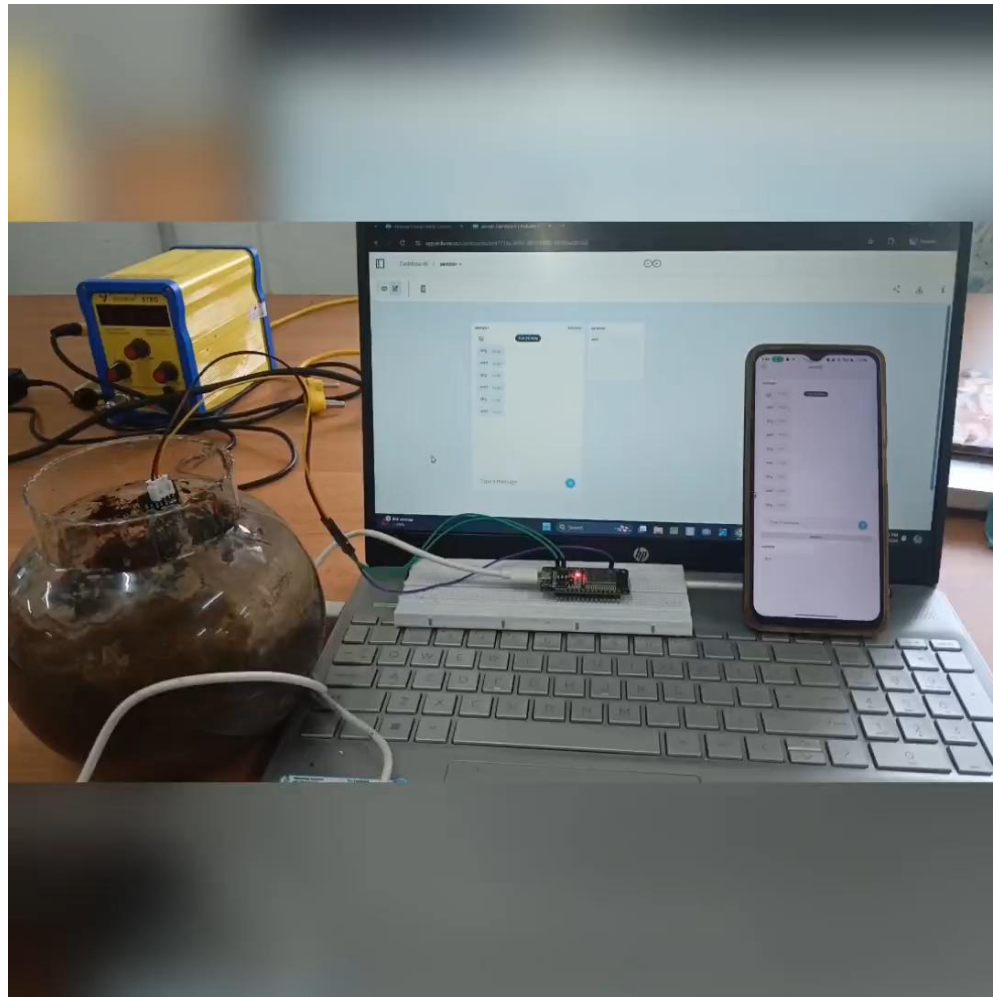
```
moisturelevel - ESP32 Dev Module - Google Chrome
app.arduino.cc/sketches/monitor

moisturelevel - ESP32 D...
Port: COM4

MoistureLevel= 2812
Soil is wet
MoistureLevel= 2823
Soil is wet
MoistureLevel= 2810
Soil is wet
Connected to Arduino IoT Cloud
Thing ID: 373e0d63-aa9d-49ea-9152-1fb098e346a5
MoistureLevel= 2810
Soil is wet
MoistureLevel= 2816
Soil is wet
MoistureLevel= 2843
Soil is wet
MoistureLevel= 2829
Soil is wet
MoistureLevel= 2769
Soil is wet
MoistureLevel= 1183
Soil is dry
MoistureLevel= 1983
Soil is dry
MoistureLevel= 1353
Soil is dry
MoistureLevel= 1949
Soil is dry
MoistureLevel= 1851
```



# DASHBOARD



## Messenger

ury 11:41

wet 11:41

dry 11:41

wet 11:41

dry 11:41

wet 11:41

dry 11:41

wet 11:41

dry 11:41

wet 11:41

dry 11:45

Type a message



# CONCLUSION

The soil moisture monitoring system, powered by ESP32, presents a compelling and budget-friendly solution for tracking soil moisture in real-time. This innovative technology not only contributes to water conservation efforts but also enhances plant health management, thereby establishing itself as an indispensable tool for agricultural and landscaping endeavors.

