GOVERNMENT COLLEGE OF ENGINEERING ERODE

அரசினர் பொறியியல் கல்லூரி, ஈரோடு
Government College of Engineering, Erode
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

B.E Electronics and Communication Engineering

SMART PLANT MONITORING BY WATER MANAGEMENT SYSTEM

Name of the Students:	University Register no:
Team Leader:	
Subhasree S	731121106047
Team Members:	
Yashica S	731121106055
Kaviya T S	731121106025
Shobana C	

Under the mentor of

Dr.M.Poongothai

Department of Information Technology (IT)

Department of Electronics and Communication Engineering

Government College of Engineering
Erode, PO, near Vasavi College, TamilNadu-638316,
Affiliated to Anna University, Chennai.

INTRODUCTION:

Smart plant monitoring by water management systems involves the use of advanced technologies to efficiently and effectively manage water resources for plant growth in various agricultural and horticultural settings. These systems integrate sensors and automation to optimize water usage, conserve resources, and enhance crop yield and quality. Here are some existing ideas and components commonly found in smart plant monitoring systems for water management.

SOIL MOISTURE SENSORS:

These sensors are placed in the soil to measure the moisture content at different depths. They provide real-time data on soil moisture levels, enabling precise irrigation control.

PIR MOTION SENSOR:

Passive Infrared (PIR) can help to make the sensor more immune to temperature, humidity and noise. PIR sensors are commonly utilized in security alarms. They pick up on the heat signature of the warm bodies, such as humans or plants that are warmer than their surroundings

REMOTE MONITORING AND CONTROL:

Farmers and growers can remotely monitor through mobile apps or web interfaces. This allows for real-time adjustments based on plant needs and weather conditions.

MACHINE LEARNING:

Advanced machine learning algorithms process data from various sensors to optimize schedules. They can predict soil moisture trends and optimize water usage over time.

WATER QUALITY MONITORING:

Monitoring the quality of water sources like salinity, is essential to ensure that irrigation water is suitable for plant growth and doesn't cause soil degradation.

WIRELESS CONNECTIVITY:

Smart plant monitoring systems often rely on wireless communication technologies like Wi-Fi or cellular networks to transmit data and receive commands from users.

MOBILE ALERTS AND NOTIFICATIONS:

Users receive alerts and notifications about critical conditions, such as low soil moisture or equipment malfunctions, allowing for prompt intervention.

ENERGY-EFFICIENT PUMPS:

Smart systems may include energy-efficient pumps that can be controlled based on real-time data, reducing energy consumption.

HISTORICAL DATA AND REPORTING:

Storing historical data enables users to analyze trends, evaluate the effectiveness of past irrigation practices, and make informed decisions for the future.

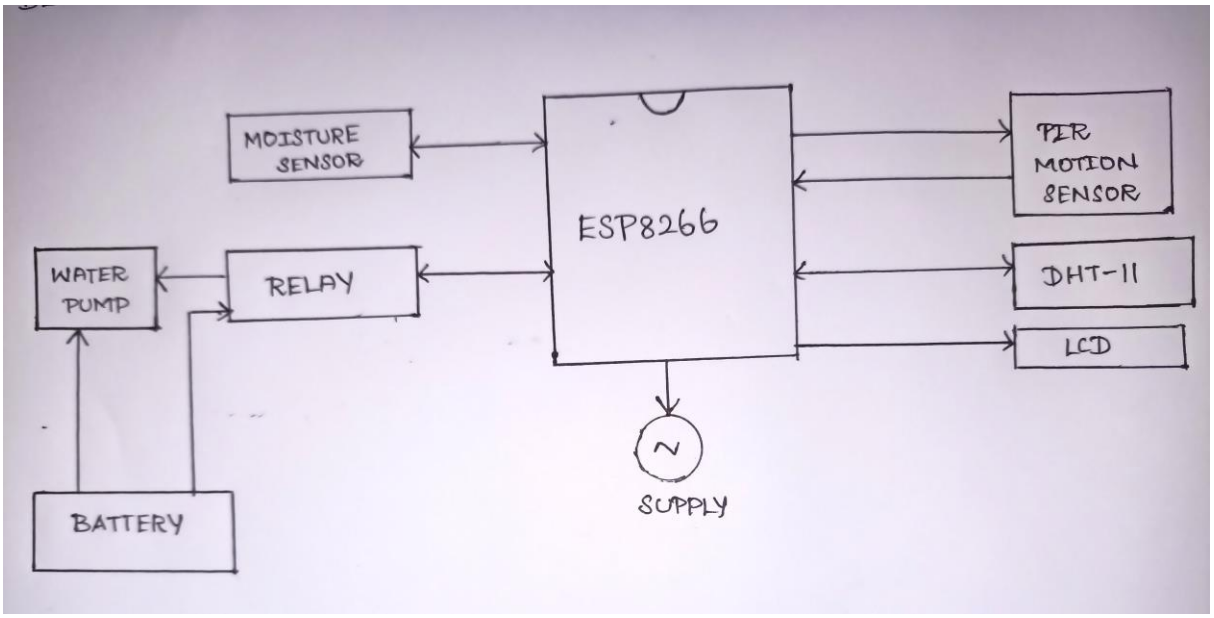
SUSTAINABILITY CONSIDERATIONS:

Many modern systems aim to minimize environmental impact by conserving water, reducing energy consumption, and promoting sustainable agricultural practices.

OUR INNOVATION:

- The system integrates with the help of nodemcu ESP8266 which have 32 bits microcontroller with Wi-Fi controller, soil moisture sensor, 18650 battery last by 100 watts per hour, DHT-11 that shows humidity and temperature.
- The range of humidity, temperature and soil moisture lies between the range of minimum 0 to maximum 100.
- The proposed water monitoring system can generate warnings when the moisture content exceed beyond a predetermined threshold value.
- The designed system allows us to monitor soil moisture, humidity, temperature condition on a desktop/laptop computer/mobile with the help of blynk software.

BLOCK DIAGRAM:



CONCLUSION:

The smart plant monitoring by water management systems leverages technology to optimize water usage, increase crop yields, and promote sustainable agriculture. These systems combine various sensors and control mechanisms to efficiently manage water resources while considering plant needs and environmental factors.