

SMART HOME IRRIGATION

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AGENDA:

- Problem Statement
- Objectives
- System Requirements
- Functional Description
- System Architecture
- Benefits
- Future Enhancement
- Conclusion

PROBLEM STATEMENT

- Design a smart irrigation system utilizing IoT technology to efficiently manage water usage in agricultural fields or urban landscapes.



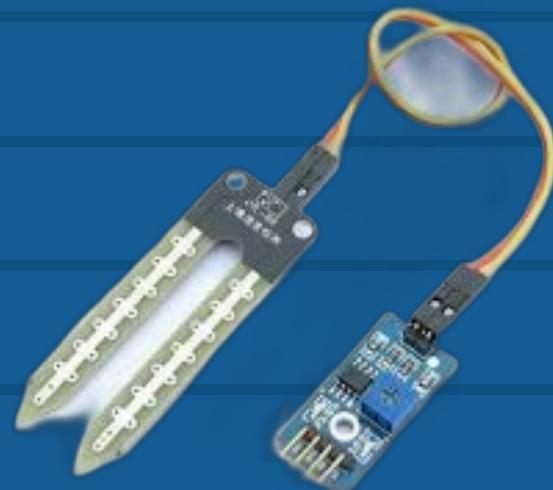
OBJECTIVES

- Optimize water usage through real-time data analysis.
- Minimize water waste with automated shut-off mechanisms.
- Enhance crop yield and quality through precise irrigation timing.
- Enable remote monitoring and control via user-friendly interfaces.

COMPONENTS REQUIRED

SENSOR

Soil moisture sensor



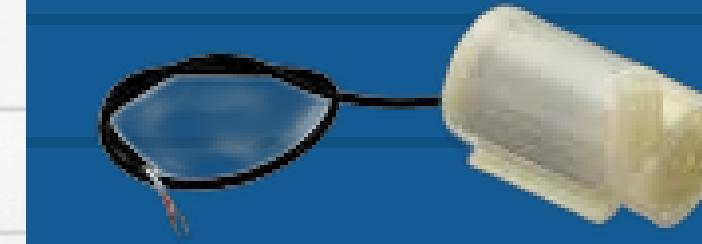
PROCESSOR

ESP 32



ACTUATORS

Motor



RELAY MODULE



FUNCTIONAL DESCRIPTION

1

SENSING

2

DATA
TRANSMISSION

3

PROCESSING

4

ALERTING

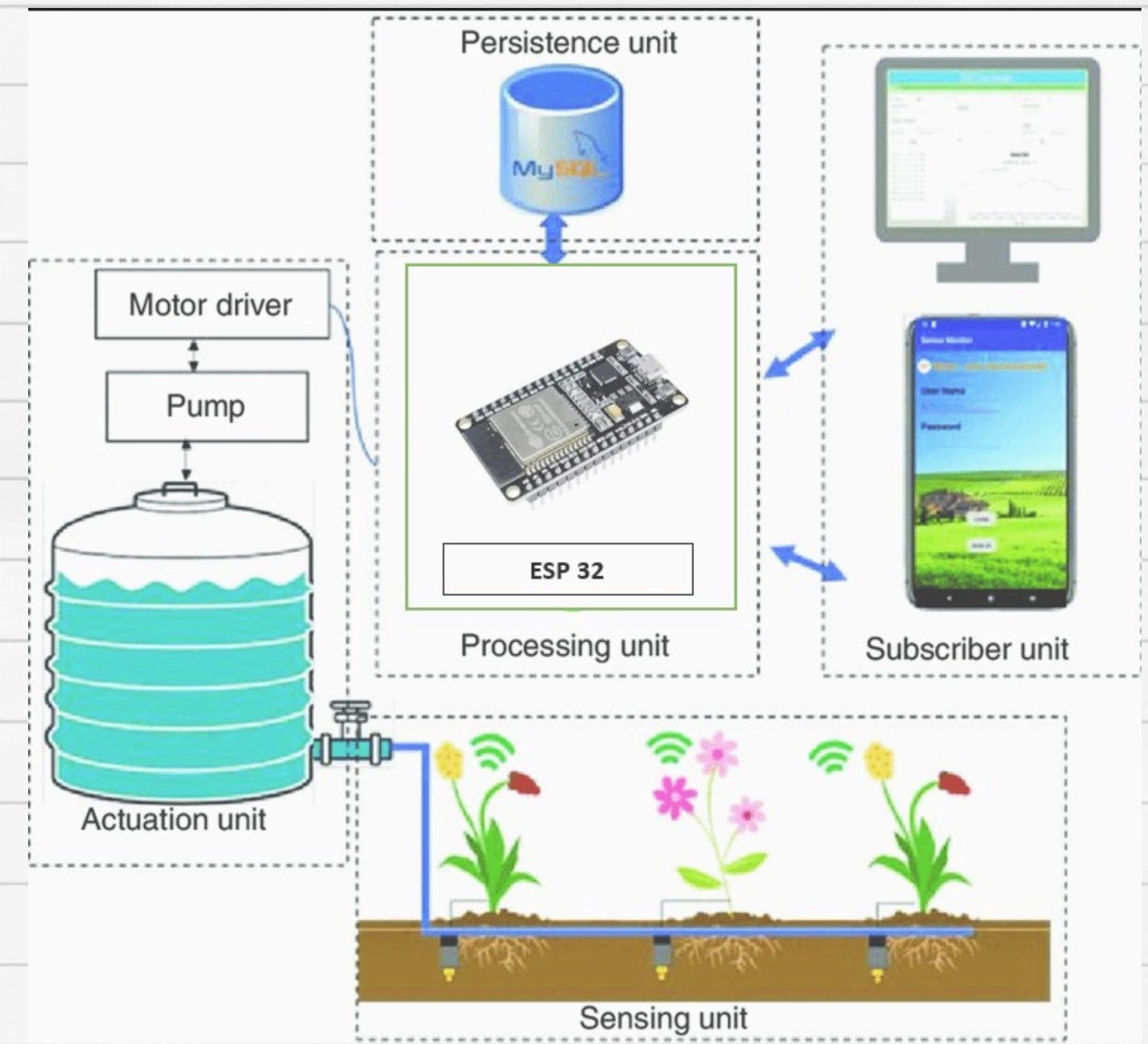
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RESPONSE

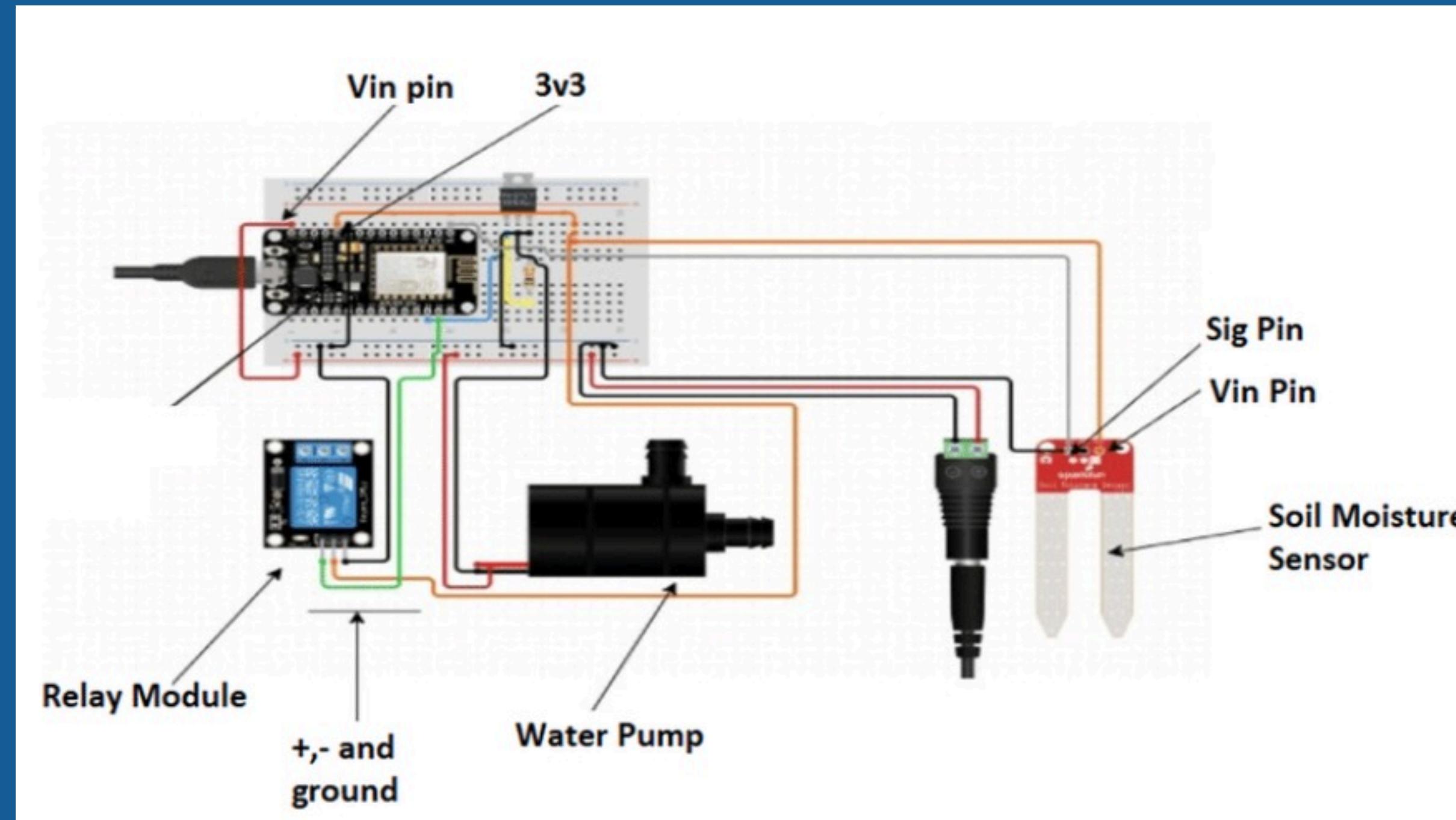
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MONITORING

SYSTEM ARCHITECTURE



CIRCUIT DIAGRAM:



BENEFITS

- Water Conservation
- Improved Crop Yields
- Energy Efficiency
- Remote Monitoring and Control

FUTURE ENHANCEMENT

- Future enhancement of this project is to control the water supply depends upon the plant type.
- To implement this, a camera sensor should be mounted in the agricultural area, these camera captures the pictures of plant in agricultural land and send these pictures to the backend, where a deep learning model is trained to identify the plants based on these images.
- Once, the image is identified the water will supply to the plants based on the program written in the IDE.

BENEFITS

- Water Conservation
- Improved Crop Yields
- Energy Efficiency
- Remote Monitoring and Control

CONCLUSION

- The smart irrigation system leverages IoT technology to gather real-time data on soil moisture levels.
- This data is then processed by a central controller, which employs sophisticated algorithms to determine the precise irrigation requirements for optimal plant growth.
- By integrating moisture sensor to monitor soil moisture levels based on the moisture levels, the system automatically adjusts irrigation schedules and controls water flow to minimize wastage and ensure efficient water usage.
- Through remote monitoring and control capabilities, users can access system status and make adjustments as needed, enhancing convenience and operational efficiency.

THANK YOU

