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Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

SCHOOL OF MECHANICAL ENGINEERING AND BUILDING SCIENCES

MEE3999 - Technical Answers For Real World Problems

First Review

Title of the Project

Automatic Irrigation System using hybrid system.

Team Members

Sn.No.	Reg. No.	Name	Signature
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Name of the Guide **Signature of the Guide with Date**

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Objective of the Project

To create an automatic irrigation system for farming.

Methodology:-

An automatic irrigation control system has been designed to facilitate the automatic supply of adequate amount of water from a reservoir to field or domestic crops in all agricultural seasons. One of the objectives of this project is to see how human control could be removed from irrigation and also to optimize the use of water in the process. The method employed is to continuously monitor the soil moisture level to decide whether irrigation is needed, and how much water is needed in the soil. A pumping mechanism is used to deliver the needed amount of water to the soil. The work can be grouped into four subsystems namely; power supply, sensing unit, control unit and pumping subsystems which make up the automatic irrigation control system. A moisture sensor was used to measure the electrical resistance of the soil; a regulated 12 volts power supply unit was constructed to power the system; the control circuit was implemented using an arduino and a relay switch; and the pumping subsystem consisting of a submersible low-noise micro water pump. System response tests were carried out. The results obtained showed that sandy soils require less water than loamy soils and clay soils require the most water for irrigation.

Project Milestone: -

To reduce wastage of water by accurate cut-off of water supply and reduced runoff water and nutrients resulting in reduced costs of vehicles used for irrigation and farm laborers with high farm productivity.

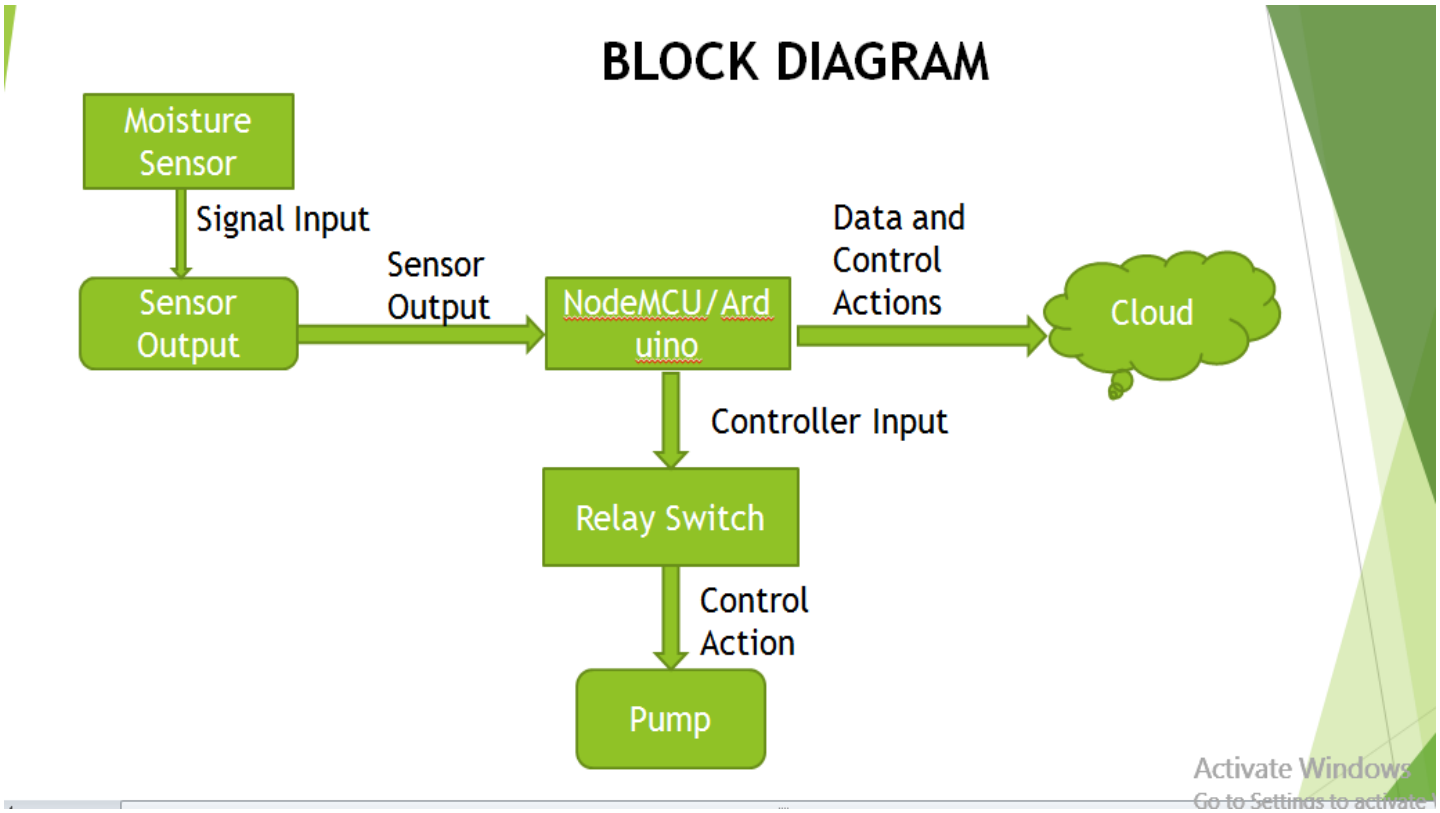
Design Requirements:-

Purchase of materials required for the experiment.

- Experimental setup of the system.
- Composing the circuit on the PCB matrix according to the schematic drawings provided.
- Assembling Relay, Sensor Arrangement, Assembling the pump and Stringing DC motors.
- Testing of the system in field.

Description of prototype:-

This project is paradigm shift from manual irrigation to automatic irrigation. Sensors are used to monitor humidity level in the soil and the water level in the tank which are processed by the microcontroller indicating ON or OFF condition of the system.



Milestones to be achieved:-

Review 1:-

1. Methodology.
2. Analyzed Data.
3. Implementation of our analyzed data.
4. Basic Description of the prototype.

Review 2:-

1. S.W.O.C. analysis.
2. Solid works model.
3. Modeling and parts specification.
4. Pump calculations.
5. Presentation of single axis working solar panel.

Review 3:-

1. Working prototype.
2. Cost analysis report.
3. Final Report.