

SMART IRRIGATION SYSTEM WITH SUN TRACKING SOLAR PANEL

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1. ABSTRACT

Designing Arduino and solar panel based project which can help farmers, home gardens to supply water automatically and its send a message via gsm800l module to the farmer when pump will be on and off. This system completely free of electricity. Power will be supply from solar system. Solar power stored in battery. By this project farmer save Wastage of Water and Electricity. So this is project deals with smart Irrigation system.

2. INTRODUCTION

Whenever we go somewhere for few days, we always think about our plants as they need water on regular basis. So we make Automatic Plant Irrigation System using Arduino, that automatically provides water to your plants and updating all time by sending a message to your mobile via GSM module. In This irrigation system, Soil Moisture Sensor checks the moisture level of the soil and if moisture level is low then Arduino switches on a water pump to provide water to the plant. Water pump automatically off when systems find enough moisture of the soil. Whenever the pump switched on or off, a message sent to the user by GSM module, updating the status of soil moisture level and water pump. This system is very profitable for farmers, home gardens .To controlling this system there is no need electricity. We use solar panel that store power in battery. This system is completely automated and there is no need for any human interaction. The main concept of this project is no physical effort here, farmers can save the waste of water, and it's totally free of electricity.

3. HARDWARE

The project has been developed using

- Arduino UNO
- Soil Moisture Sensor
- GSM Module
- LCD
- Water cooler pump
- Relay
- Transistor
- Resistor

- Variable Resistor
- Capacitor
- DC battery
- Solar panel
- Dc gear motor
- Motor driver
- IR sensor
- LDR

4. WORKING PRINCIPLE

In this plant watering system, Soil Moisture Sensor checks the moisture level in the soil and if moisture level is low then Arduino switches on of water pump to provide water to the plant by solar power using relay. Water pump will automatically off when system finds enough moisture in soil. Whenever system switched on or off the pump, a message is sent to the user by GSM module (8001), updating the status of soil moisture level and water pump. To controlling this system there is no need electricity .We use solar panel that store power in battery. Also solar panel moves with the sun by its panel when it gets enough sunlight and the power will be stored in battery. This system is very useful for farmers, home gardens etc. This system is completely automated and electricity free.

5. CIRCUIT DIAGRAM:

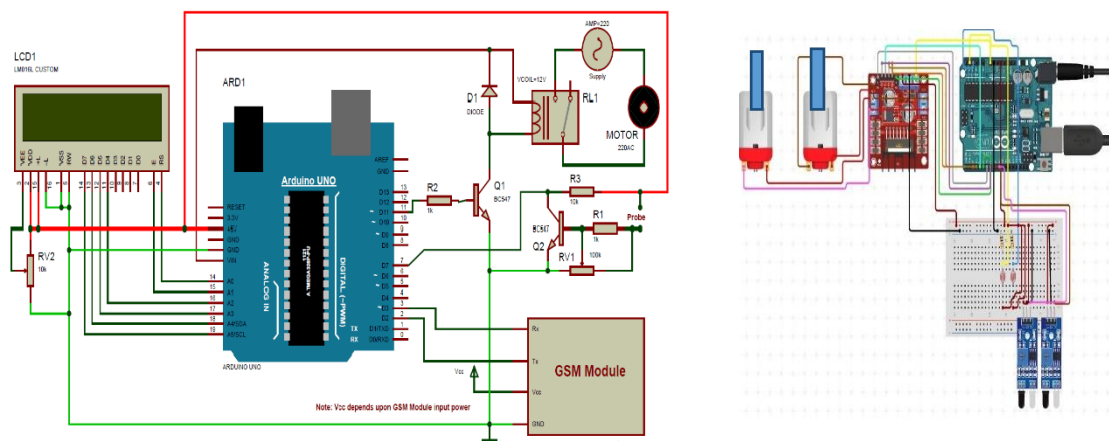


Fig-1

6. FLOW CHART:

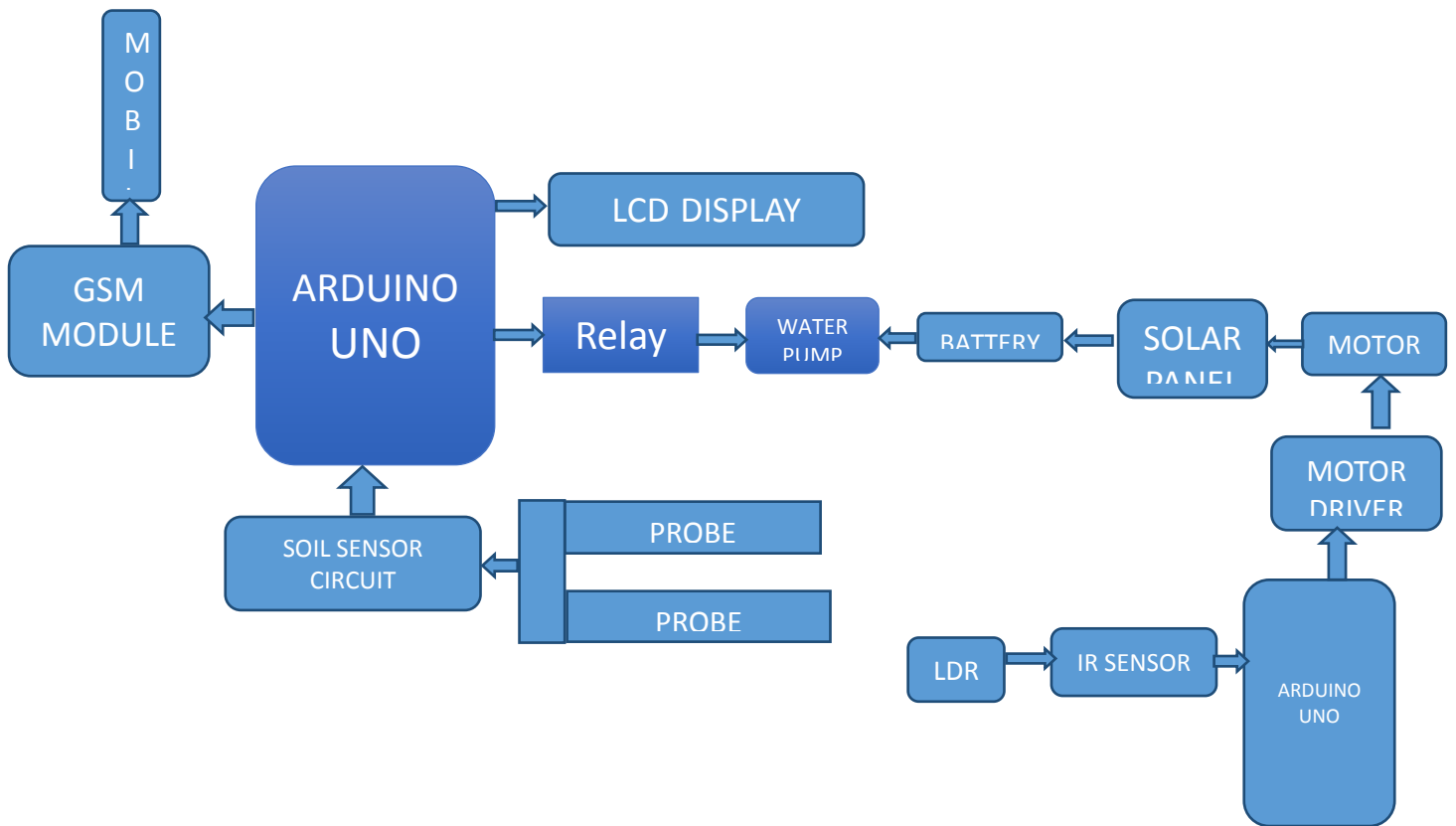


Figure-2

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