

Automatic Solar Irrigation System.

About This Project:

The main goal of this project is to develop an irrigation system in the field of agriculture by using Solar Energy and it has many advantages. In the trial of solar based automatic plant irrigation system using pumps, PV cells are used to generate electricity, which is stored in rechargeable batteries. These batteries produce power for the system operation. We used an inverter circuit the main function of the inverter is that it converts the battery's voltage to AC voltage in order to activate then loads. An Arduino in this project is used to control the whole system by observing the sensors. When the sensors sense the soil condition as dry, then the comparator sends the command to the microcontroller, and also it sends instruction to the relay-driver IC then, it reminds the motor to pump water to the crops. Here comparator acts as an interface between the sensing arrangement and the microcontroller the status of the soil and the water pump is displayed on the LCD which is interfaced to the microcontroller. In the same way, when the sensor senses the soil condition as wet, then the microcontroller sends instruction to the relay to switch off the motor.

Block Diagram:

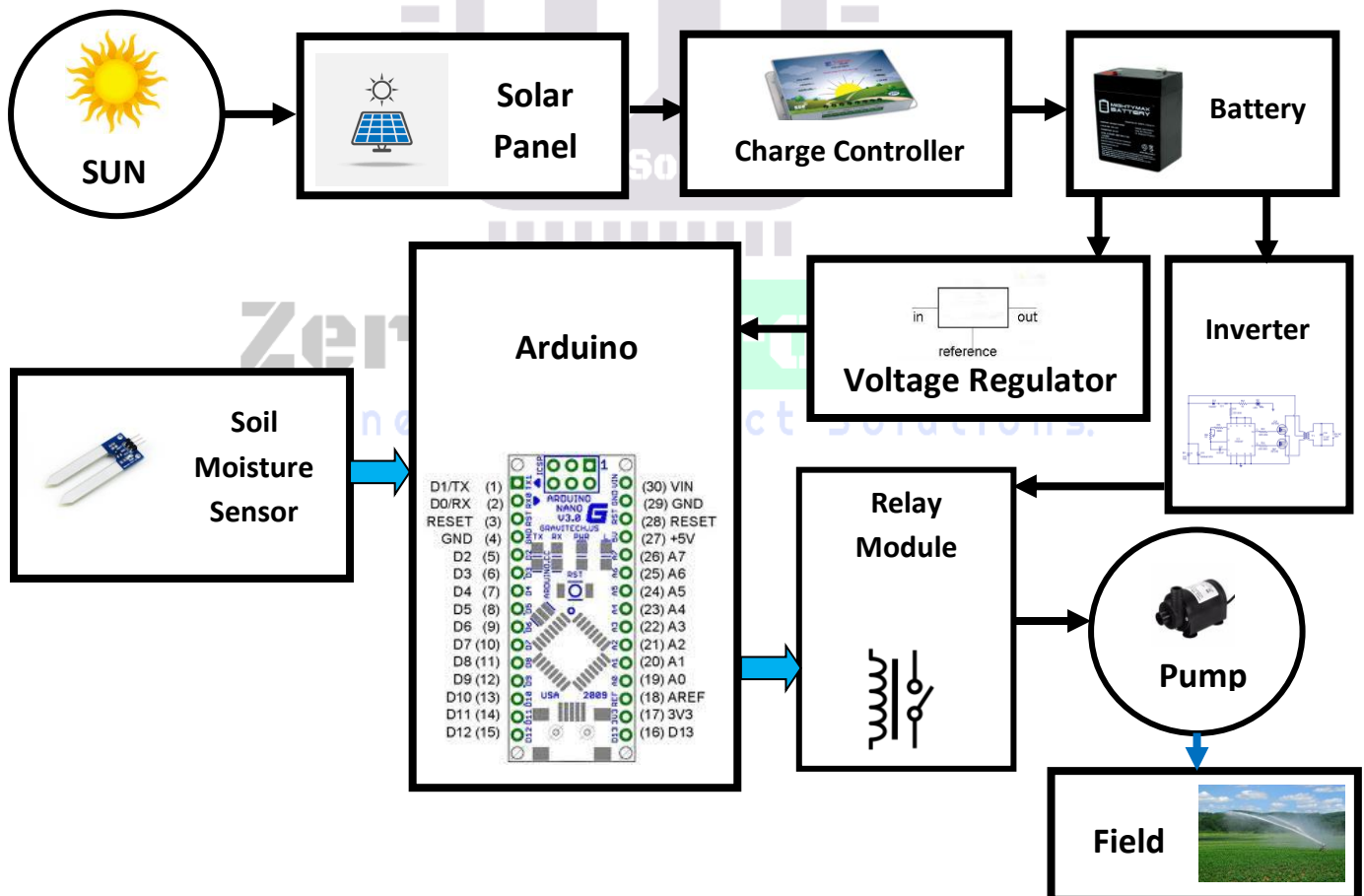


Figure: Block Diagram of Automatic Solar Irrigation System.

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Required Instrument:

- Arduino Nano.
- Solar Panel.
- Soil Moisture Sensor.
- Pump Motor.
- Battery.
- MOSFET.
- IC CD4047.
- Relay.
- Transistor BC547.
- Transformer.
- Voltage Regulator.
- Switch.
- Resistor.
- Capacitor.

Advantages:

The development of Automatic Solar Irrigation System are economically benefits.

- Power Savings.
- Economic Profits.
- Reduce of Water Dissipation.
- Water Is Supplied Automatically as Required in The Field

Applications:

The project has a major application in the

- Any Type of Irrigation.
- Agriculture Field.
- Where The Power System Is Not Available.
- Reduce OF Power & Water Dissipation.
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N.B: Any modification of this project can be done as per your requirement. We will make the project according to your needs. Contact us with your any innovative engineering projects idea. We will help you to implement your project.

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