Solar Powered Wireless DC Valve Controller

Unintrusive, self powering, automatic watering system built for small hobby farms or gardens.

**SUMMARY**

→ Compact, automated method for watering land
→ Website allows users to create and manage watering schedules and read info about the system
→ The Control Node passes signals between blocks and stores system information
→ The Watering Node reads scheduling information and controls the watering valve

**COMPONENT BREAKDOWNS**

Programmable Control Nodes - Handler for the long range communication between nodes, controls the solenoid, and receives watering schedules.

Power - Powers the system via a battery pack being continually charged by a solar panel.

**NODE CONSTRUCTION**

The watering and control nodes are made of smaller blocks coming together. Both nodes have a radio board, used to communicate with each other.

The control node also has a wireless board, which connects to wifi in order to read schedules from the website, and a control block, which connects the two boards and powers them.

The watering node comes with a solar panel for power and it’s own control block, this one has built in systems to allow the board to control the solenoid easily as well as provide power.

**Engineering Requirements**

1. The system shall be powered directly by batteries and the batteries will be charged via a solar panel.
2. The system can communicate at least 600 ft.
3. The system creates customizable automatic watering schedules through a web interface.
4. The system adjusts the valve within 5 seconds of the scheduled time.
5. The system comes with a user guide.
6. The system sends messages through nodes with wireless communication systems that will successfully transmit 80% of sent messages.
7. The system records messages sent and received by the system to an internal data backup, holding at minimum 1 month of messages.
8. The system circuitry will be protected by an enclosure that is water and dust proof.

**The Team**

Salem Almazrouei
almazrsa@oregonstate.edu
Short Range Communication, User Guide.
Focused on Integrated Systems. Interested in Wave Power.

Orion Hollar
hollaro@oregonstate.edu
Watering Node Control, Main Node Control.
Focused on Communication Systems.

Isaac Goshay
goshayi@oregonstate.edu
Enclosure, Programmable Control Nodes.
Focused on Power Systems and Sustainable Energies.

Ekaterina Rott
rottek@oregonstate.edu
Solar Charging Power, Website.
Focused on Power Systems and Energy Generation.