SE 101 – PROJECT PROPOSAL

AUTOMATED IRRIGATION VALVE SYSTEM BASED ON WEATHER DATA

Description

An automated system for controlling an irrigation valve based on weather and crop data. It can be used to conserve the amount of water and electricity wasted in agriculture and make the entire process of irrigation automatic. It can also be used to prevent over-irrigation and optimize the entire process.

Major Software Components

Use an Arduino to control and pass electrical signals to the solenoid valve to shut off/start the flow of water

Use Weather API data, and data based on the crop type and soil to calculate the amount of water that will be required

Create a database of the daily requirements of different crop types

Get soil moisture level details from a moisture sensor connected and use that data to understand when to stop the flow of water

Prototype Plan

Evolutionary Prototyping – we will build a robust initial build and keep making small changes to our main prototype

Challenges Anticipated

Getting accurate data from the sensors and Weather API and predicting the appropriate amount of water required

Getting the right amount of water to flow through the valve before stopping it

Hardware Required

Arduino Uno, Solenoid Valve, Moisture Sensor, Breadboard, Jump Wires

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