Name(s)	Project Number
Ankita B. Deep	**J1006**

Project Title

Feed-O-Meter: A Smart Watering System that Detects and Responds to a Plant When It's Thirsty

Abstract

Objectives/Goals

Wouldn't it be cool to have our plants talk to us just like how we interact with each other?

Well here you have it # Feed-O-Meter, a project using a moisture sensor to tell you if your plant is thirsty, feeling good, or drowning in water.

My engineering objective was to devise an inexpensive and a smart watering system that waters the plants only when the moisture level in the soil is really low, at other times it should be able to bypass the watering cycle.

Methods/Materials

Materials:

Arduino, Computer, ProtoPalette Kit, Jumper wires, Mini USB Cable. Moisture Sensor, Servo motor, Plant with varying levels of soil moisture.

Method:

I am using an Arduino micro-controller, to read the moisture values from a moisture sensor to detect how wet or dry the soil is. These values were calibrated with a single plant over a period to understand what is needed for a healthy, over watered, and a dry plant. I used these ranges to power LEDS to tell us when to water the plant and when to stop watering the plant. This also powers an LCD screen where a message is displayed as if the plant were talking to us. I then connected a servo motor and attached it to a watering drip to control the amount of water that is used to get the plant from a dry state to a healthy state.

Results

The circuit I devised allowed me to water the plant only when the soil was really dry, by finding out the values I should use for a dry soil using the moisture sensor. The water system is based on a rotation of the motor which is attached to a drip. In addition, the plant is able to communicate its soil state to the circuit by using a message in the LCD panel and the LEDs on the Protopalette kit.

Conclusions/Discussion

Its fairly easy and inexpensive to create a smart watering device using components and sensors to detect when the plant is thirsty or need to be fed. I believe that this will help in conserving water and keeping plants healthy.

In future, I would like to extend this project to include different plant types and their water needs, weather conditions and harness rainwater to use for watering plants.

Summary Statement

I created a smart watering system using a micro controller and sensors for both indoor and outdoor use. The system detects the moisture state for the soil before triggering or cutting off the irrigation cycle.

Help Received

I studied the different sensors and components required to make the circuit. I sought help from my father to understand how the wiring for the LCD panel works and took some help in configuring the Arduino Yun to work on the wifi