CSC 473 Sensors/IoT

Proposal

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Self-Watering House Plant

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1. **Introduction**
2. **Description**

We propose to design and implement an enclosure that holds a potted plant, and which houses an automatic watering system for the plant.

1. **Inspiration**

After passing many ideas back and forth and investigating many other ideas online, we discovered this one and truly appreciated it. Its implementation is highly practical, and we will likely use it in our own homes. One of us owns a plant that is difficult to water properly. This device could solve that problem.

1. **Goal**

The goal of our project is to implement a system that is effective, cleanly built, aesthetically pleasing, and mostly independent. The completed system should require no maintenance, apart from occasionally refilling a water receptacle.

1. **Background**

We do not have any particular research to show. We discovered self-watering planters online. They can be purchased through Amazon, IKEA, and other online stores. In this case, we will be making our own. We have verified that water pumps and soil moisture sensors do exist for the Arduino kit. That is all we need to know to have confidence in this project.

1. **Proposed Idea**

This system will utilize these physical materials:

* Wooden enclosure
* Soil moisture sensor
* Arduino Uno with breadboard circuit
* Power cable for Arduino Uno
* Water receptacle
* Tubing
* Water Pump

Image 1 offers a graphical overview of the system, apart from the enclosure and alarm system.

Diagram

Description automatically generated

**Image 1.**

When the soil moisture sensor detects that the soil’s moisture content has fallen below a set threshold, the Arduino controller will activate the water pump, which then pumps water from the water receptacle to the plant. Additionally, a sensor in the water receptacle will detect when the water is depleted, and sound an alarm, notifying the user that it is time for a refill.

1. **Plans**

Table 1 displays a tentative schedule for this project.

|  |  |
| --- | --- |
| **Task** | **Completion Date** |
| Purchase supplies | 10/07/22 |
| Build circuits with Arduino, moisture sensor, and pump | 10/14/22 |
| Write the initial program | 10/28/22 |
| Test the system to determine correct settings to maintain proper moisture level | 11/11/22 |
| Construct the enclosure | 11/18/22 |
| Install the system in the enclosure | 11/25/22 |
| Troubleshoot any remaining issues | 12/02/22 |

**Table 1.**