

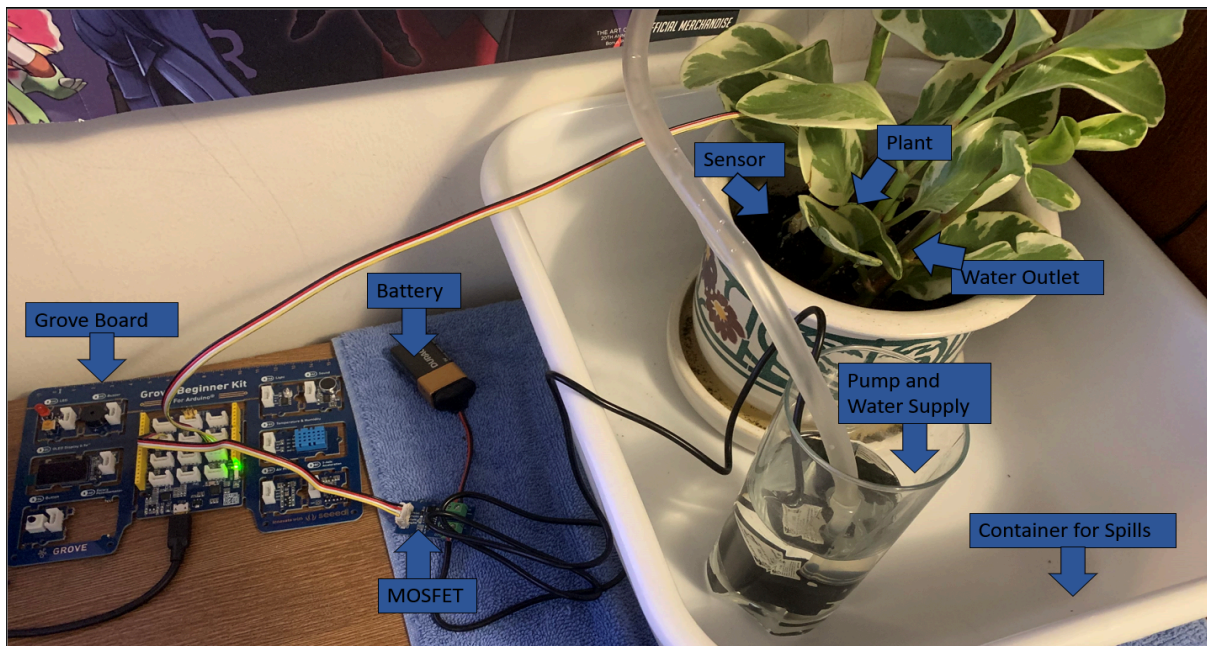
Jonah Ottini  
ID: 218945030  
EECS 1011  
DECEMBER 7, 2021  
MINOR PROJECT

---

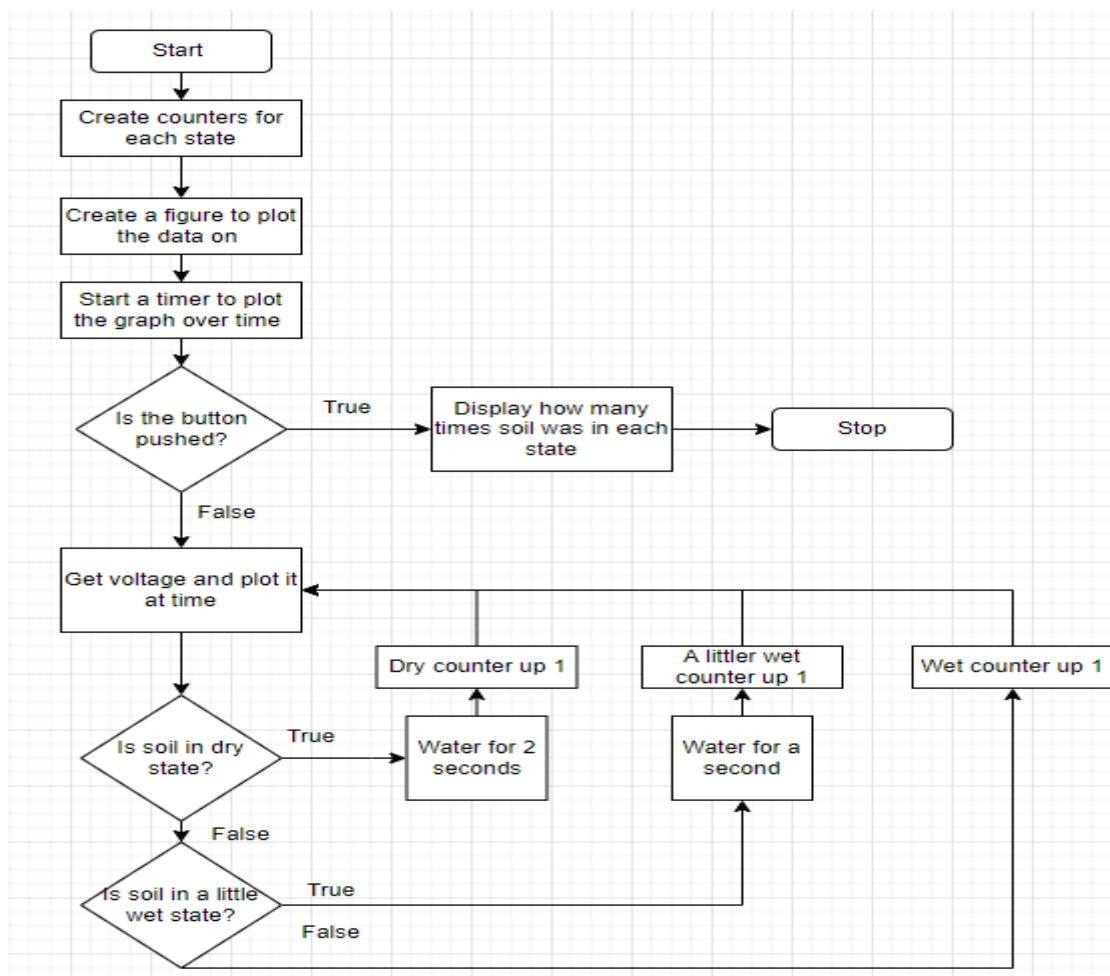
## Abstract

**Introduction:** This is the Minor Project for EECS 1011. **Objective:** The objective of this project is to use the arduino grove board, in tandem with MatLab to monitor and maintain the growth of a plant. **Design Analysis:** To complete the plant setup I purchased the grove kit from the York University Bookstore, and small house plant from the local supermarket. **Procedure:** Using the voltage sensor from the Grove board kit, you can run a command in MatLab to check the voltage in the soil. You can create a loop to constantly check the voltage of the soil so you know when the voltage is too high, it needs to be watered. You can use a series of if statements to tell the system how much it needs to water the soil, depending on the voltage reading. Then you can use the MatLab command to run the water pump from the grove board kit, when the set voltage is reached, and for the set amount of time. **Results:** After much trial and error, a MatLab script has been created. It is able to run at all times and water (or not water) the plant the specified amount, depending on the state of the soil, as well as create a graph of the soil voltage over time. **Conclusion and Recommendations:** In conclusion, the MatLab script can effectively maintain the plant, but it is recommended to take caution when working with water, as an accidental spill can be very destructive to electronics, and the surrounding area.

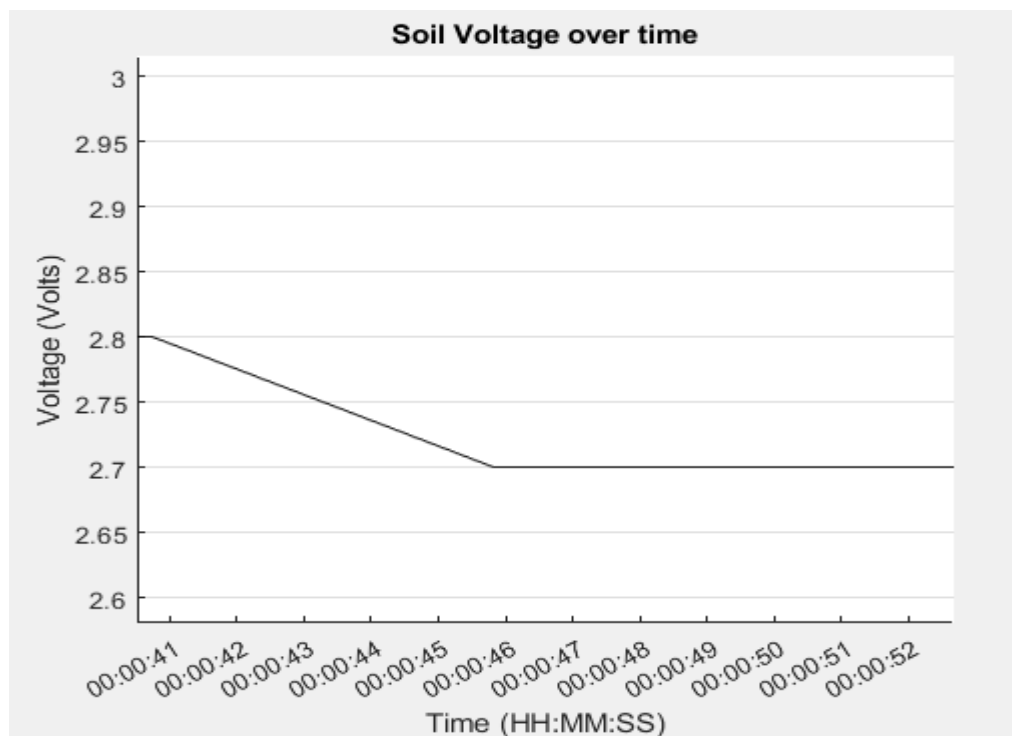
# Plant and Hardware



## Flow-Chart



# Graph of Voltage



The screen shot of the matlab graph shows the voltage of solid over time. The first point on the graph is taken at 41 seconds, and the voltage is at 2.8. Since the graph updates every 5 seconds the next point is at 46 seconds and the voltage has dropped to 2.7 as the plant was watered. The script sees that the a voltage of 2.8 is within the 'A little wet state' range, and waters it for 1 second, resulting in the change of voltage