SMART IRRIGATION SYSTEM

EE171 PROJECT

INTRODUCTION

- Since physically watering crops requires a lot of time and cannot account for changes in the weather or soil conditions, traditional irrigation technologies in our planet are in dire need of an upgrade.
- As a result, smart irrigation systems prove to be a useful tool for us in this situation because they define their watering procedure according to the fluctuations that occur in the potential measured by these sensors.

METHODS

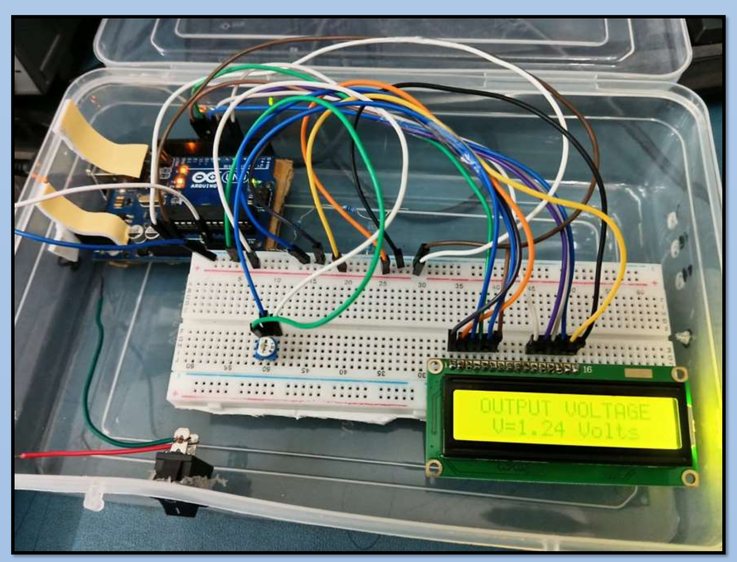
DC POWER SUPPLY AND SOIL MOISTURE SENSOR

ARDUINO

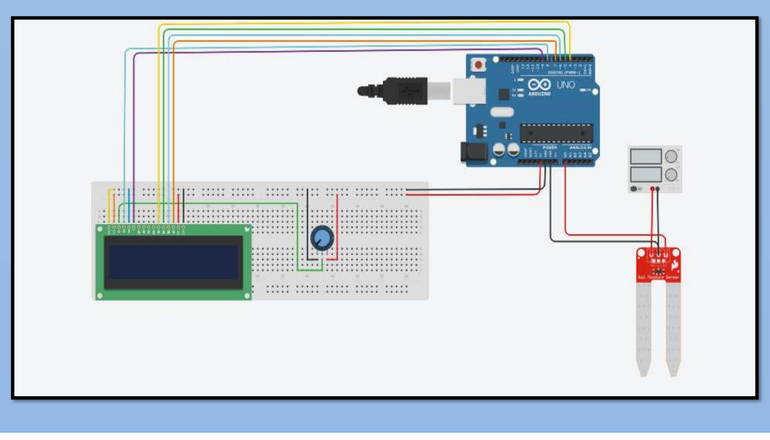
LCD DISPLAY

RESULTS

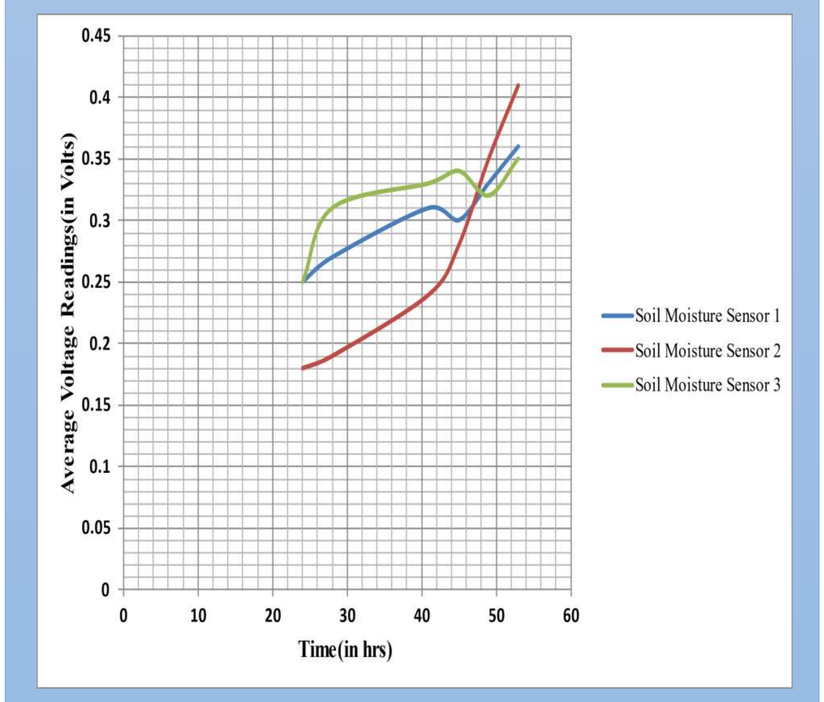
GLIMPSE OF WORKING PROTOTYPE



- ***CIRCUIT DIAGRAM***



Time (in hr)	*Soil Moisture Sensor 1*	*Soil Moisture Sensor 1*	*Soil Moisture Sensor 1*
24	*0.25*	*0.18*	*0.25*
28	*0.27*	*0.19*	*0.311*
41	*0.31*	*0.24*	*0.33*
45	*0.3*	*0.28*	*0.34*
49	*0.33*	*0.35*	*0.32*
53	*0.36*	*0.41*	*0.35*



- The above values are a result of the process of calibration of all the three soil moisture sensor simultaneously.
- Calibration refers to the method of recording voltage readings through these sensors .

DISCUSSION

Time(in hr)	*Average Voltage Reading(in Volts)*
24	*0.31*
28	*0.42*
32	*0.55*
48	*0.58*
52	*0.6*
56	*0.62*
72	*0.62*
76	*0.8*
80	*1.04*

- The results infer that as the moisture contain of the soil decreases , the voltage measured by the soil moisture sensor increases as the resistance of the probes of the sensor are designed in such a way that their resistance is inversely proportional to the moisture contain of the soil. The values recorded above are a result of the calibration which was performed with only one soil moisture sensor just for the purpose of testing.
- The future goal of the project is not limited to this but taking this project to a whole enhanced level. We look forward to also display humidity and moisture content of the soil at any time according to our choice. A GSM module would also be a great idea to infuse in this project so that anyone can get to know the conditions of the soil even if they are out of station.

REFERENCES

- Article on “An overview of smart irrigation systems using IoT” by panel of authors: Khaled ObaideAlmallahien , Bashria A.A. Yousef , Maryam, Nooman and many others.(https:\\www.sciencedirect.com)
- Article by Abhimanyu Pandit on designing smart irrigation system using soil moisture sensors.(www.circuit digest.com)