AUTOMATED PLANT IRRIGATION WITH MESSAGE ALERT

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ABSTRACT

It is timely that today's generation is up to new innovations. High-end technologies and growing community of artificial intelligence, and automation in the field of Agriculture is not new to this. Agriculture, and most commonly pertaining to plants and irrigation is before of manual planting and watering, farmers spend most of their time checking and watering their fields. Making it hard for them because it requires a lot of effort just to secure the soil is well moisten for not enough moisture to the soil can lead to plants not having enough water which will result for it to die. Automated Plant Irrigation with Message Alert is the next generation of farming techniques, now it would automatically be operated depending on the need of the soil. As soon as the Soil Moisture senses that the soil is not moisten enough, the water pump will automatically turn on until the desired moisture is reached then it will also automatically turn off after. It is executed by the Arduino Uno, power source is not a problem because it can be of any source of direct current voltage. Let us not forget the function of the Message Alert System, from the word itself "message" it will send the owner a message of update when the water pump turns on and off. Generally, the status of the plants irrigation can be monitored away from the site and will no longer have to stay long outside under the heat of the sun, and for sure will lessen the burden of work for the owner. Also included is the LED Display that shows the status of the soil. All of these are being operated by the Arduino Uno in association with relay and of course the sensor itself. The benefits of automation is boundless. It can help ease burdens and purposively works to the extent of every user's comfort.

PROJECT BENEFITS

- To display the prototype by the use of the soil moisture and water pump.
- The prototype will feature how it will be able to help farmers and home owners.
- For easier convention of the owner.

PROJECT FEATURES

- By the use of the Arduino, it will demonstrate how the sensor signals the different components.
- The prototype will guide how the components will work.

PERFORMANCE REQUIREMENT

This project requires the components to work easily and efficiently. The main purpose of this project, is to simulate how the project will work. When the Soil Moisture Sensor senses that the moisture is not enough, it will send a signal that will let the water pump proceed in watering.

TESTING PROCEDURE

a. First to check all the components if it's working.

b. Check that the water pump wiring is connected to the power source and Arduino.

c. Check the motor driver wirings is connected to the Arduino common ground and power source

d. Check the relay module is connected to the breadboard for ground, VCC and input.

e. Check the Soil Moisture Sensor is connected in Arduino specifically in VCC to 5v, AO to pin 7, and ground to the right side pin of pin 13.

f. Making sure that all of the components are well connected and of good condition.

TOLERANCE ANALYSIS

Automated Arduino based Irrigation System can work rain or shine. The materials used are durable to fit in any environmental condition. Water Pump works perfectly and is of low maintenance.

## COST AND SCHEDULE

1. COST ANALYSIS

PARTS	SOURCE	COST
Arduino Board	MAKERLAB	450
Arduino Case	MAKERLAB	100
Relay Module	MAKERLAB	300
Water Pump	LAZADA	445
Jumper Wires (16)	DEECO	80
Solid Wires (2)	DEECO	80
Soil Moisture Sensor	DEECO	400
LED Display	ALEXAN	350
12V 1A ADAPTOR	ALEXAN	250
GSM MODULE 800L	LAZADA	685
CONNECTING WIRES	DEECO	322
TOTAL:		3462.00

2. SCHEDULE:

| Week	Task to complete
JAN 2018	Thought of what our project we can make, plan some ideas and designs and make some revisions.
JAN 2018	Finalized our project and list down the materials we need.
JAN 2018	Bought the materials needed.
JAN 2018	Began to assemble the components
FEB 2018	Started making the chassis
FEB 2018	Continue making the output of the project.
FEB 2018	Improved the project
MAR 2018	Finished the project.

OUTPUT PROPER

**1. CIRCUIT DESIGN**
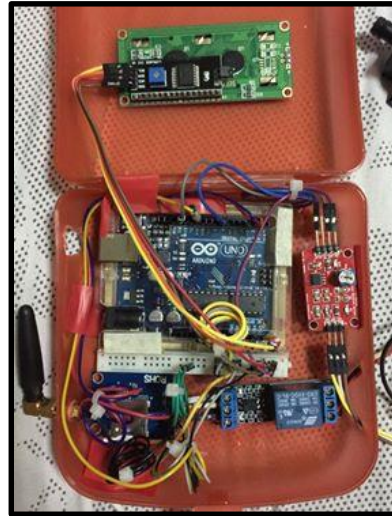
2. PROCEDURE IN DESIGN

- First connect the Soil Moisture Sensor in the Arduino specifically in pin 3 and breadboard.
- Connect the relay module in the Arduino pin 11 and breadboard.
- Connect the water pump negative on the negative of power source 12v 1A and positive to the normally open of the relay module.
- Connect the breadboard in the Arduino in ground and 5v.
- Connect the LCD display positive, negative to the bread board and to A4 and A5 of the Arduino.
- Connect the Arduino in power supply.
- Connect the GSM Module power to source and pin 2 & 3 of the Arduino.

DOCUMENTATION
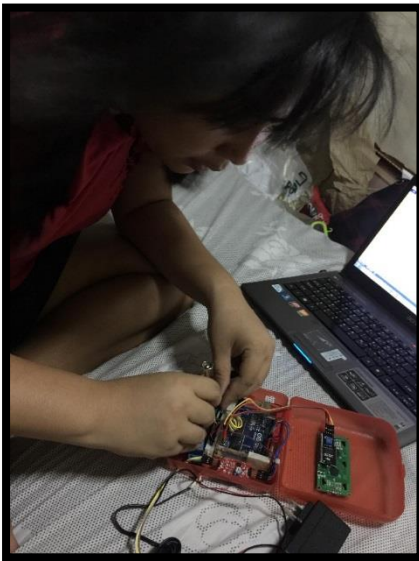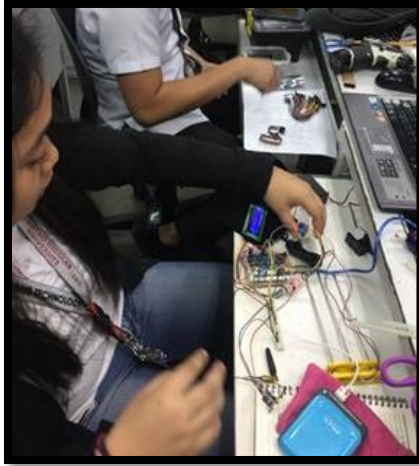
Program execution using
Arduino Uno

FINAL DESIGN
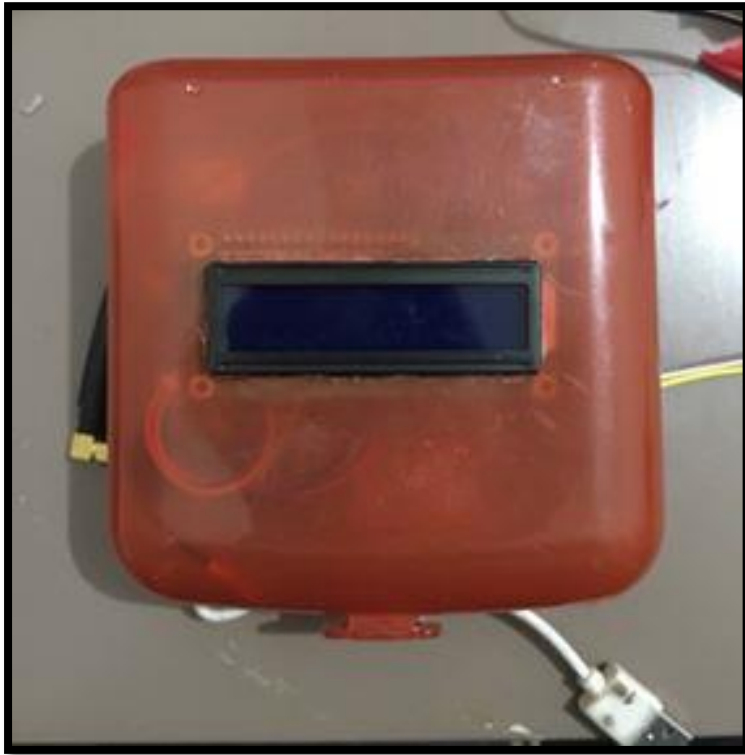
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