

## ECET 430 Project Logbook

### Project: Smart Plant Care

Group Members: Natwarin Padtha, Jonathan Jou

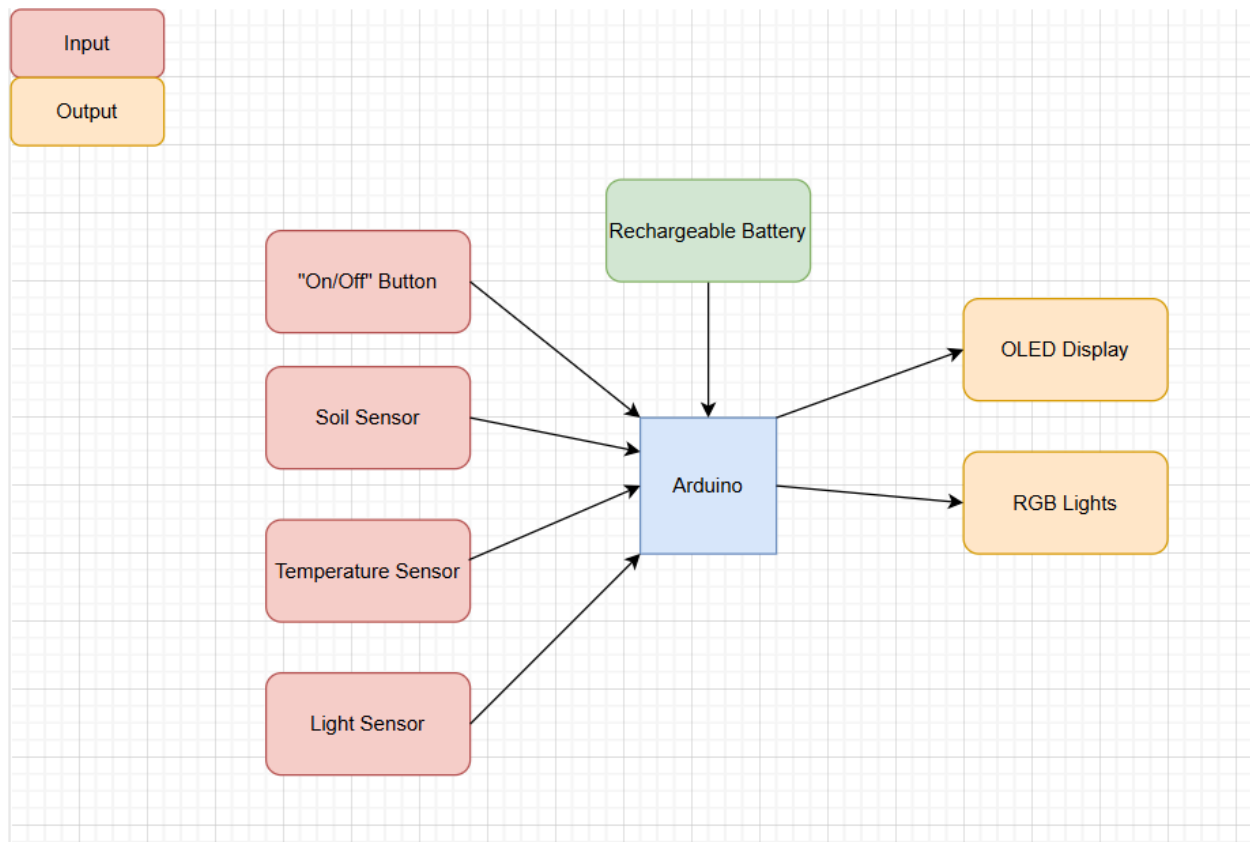
Github repository link: <https://github.com/jonjonjou/Smart-Plant-Care>

#### Major moving parts:

- Sensors: Soil moisture, light intensity, temperature, and humidity sensors continuously collect data.
- Battery & Charging System: This keeps the device powered on for extensive usage.
- Wireless Communication Module: This allows for Bluetooth/Wi-Fi connectivity.

#### Sections:

##### - Block Diagram



### Priority items:

- Accuracy: It ensures reliable plant monitoring
- Battery Life & Power Management: Keeps the device running for extended periods
- Electrical Hazard: Avoid any safety risks
- Water Resistance: Prevent the environmental exposure

### Dependant tasks:

What will require additional research? What needs to be completed before something else can be started? What feels unclear or not obvious?

- The appropriate soil moisture, humidity, and light intensity ranges for different types of plants
- At what moisture level should the device trigger a watering alert?
- How do environmental conditions affect sensor accuracy?
- The best microprocessor that balances power efficiency, processing capability, and connectivity
- How will the design prevent electrical hazards, such as short circuits from moisture exposure?

### Architecture:

Options to implement the project:

I chose a Li-ion 14500 battery or a Lithium Polymer (LiPo) 3.7V battery because they are both 3.7V and can output 5V with a voltage regulator, which is what an Arduino, sensor, and display need. Secondly, they are small enough to fit into the smart plant device.

List major components:

- Microcontroller: Arduino UNO
- Sensors: DHT11 Temperature and Humidity Module, Digital LDR Photosensitive Light Sensor Module, LM393 3.3V-5V Soil Moisture Detect Sensor Soil Moisture
- Actuators: None, the device is stationary.
- User interaction:
  - User places the device in a plant pot.
  - The sensors collect environmental data.
  - The output alerts the user about the plant's needs, e.g., "Water needed" or "Too much light."
- Interfaces: OLED screen and Mobile Application

- Anything external: None at the moment
- Specific to this design: None
- Hard to get or expensive items: the most expensive item for this project is the Arduino.
- Others components: None

Write goals for three possible prototypes!

- Temperature sensor
- Soil sensor
- Light sensor