**PROJECT PROPOSAL (SMART GARDEN)**

**By Riya Shrestha and Zoe Yang**

We plan to develop a smart garden that will record the surrounding temperature, humidity, light level and soil moisture of the plant. We plan to build an automated system that waters the plant using a water pump when the soil is too dry and switches on the light when it is too dark. The soil moisture sensor will measure the amount of water in the soil and maintain an ideal condition for the plants. We will be using Raspberry Pi to receive data from different sensors and control different actuators. The readings will be displayed on an LCD screen. When the soil moisture sensor detects the moisture level to be very low, it will signal the Raspberry Pi. LED lights will turn on as an indication of low moisture level. Raspberry Pi then turns on the water pump to water the plants until a sufficient soil moisture level is achieved. For the automated light, when photoresistor detects low level of light present, it will turn the yellow LED light on that will act like sun to allow photosynthesis to occur. We will be using fans to bring in fresh air regularly and a camera to monitor the plant remotely. We also plan to use a phone app or a web page to view real-time data of environmental conditions and also able to control the system manually.

We will be working on CoAP, HTTP protocol.

**What we will use:**

* Raspberry Pi
* DHT11 Sensor
* Soil Moisture Sensor
* Photoresistor
* LEDs, breadboard, jump wires, resistors
* Fan
* Camera
* Water pump
* LCD
* Plants
* Phone App/ Web page to get readings and control the system

**References:**

1. <https://www.hackster.io/mokxf16/smart-garden-raspberry-pi-arduino-65c7b7>
2. <https://www.instructables.com/Raspberry-Pi-Powered-IOT-Garden/>
3. <https://www.hackster.io/mtechkiran/smart-home-gardening-system-using-raspberry-pi-1570a7>