For section 3 of this project, a Web Client will be set up to receive, list, and handle the data that uploaded by hub.

User can view the status of valve on the Web Client, and change the detail setting of each mode and change the mode of each valve as well.

Web Client will connect with Adafruit throught IFTTT. Adafruit dashboard will receive the data from hub, and transmit them to Web client through IFTTT.

Web Client will send control signal to Adafruit, which will be transmitted to hub, base on the mode of each valve and the current status of each valve.

**Web Client (java? Php? C?)**

**List the data of each sensor.**

summary on one page, separate page for each sensor for mode control and condition setting?(Maybe can be done on the same page)

**View Status**

1. As a user, I want to view the overall data of all sensors on one page so that I can know the situation of each valve.

Data include **Time**(Can get without IFTTT, for ex. Currentdate() ), **sensor ID**(unique ID for each sensor), **soil moisture data**(single value,VWC), **Current status of valve** (On/Off), **current mode of valve**

**Mode change and condition setting.**

**Mode change**

1. As a user, I want to be able to change the mode setting of each valve so that I can control the mode of each valve.

**Just a button?**

**Condition setting**

1. As a user, I want to change the condition setting of each mode which will base on the VWC value.

If soil moisture higher or lower than some value(VWC), then turn On/Off the valve

Mode change

**Date setting**

1. As a user, I want to change the Date setting for each mode so that the valve can change its behavior base on the date.

**Control Signal**

1. As a user, I want the Web Client send control signal to hub base on the mode of each valve.

Mode 1: Valve opens and closes valve on **soil moisture data** alone.

Mode 2: Valve opens and closes based on **the time of day**, in **Real Time,** where real time will be a value **within 5 seconds of actual real time.**

Mode 3: Valve opens and closes based on **both time of day and moisture data.**

**Web client communicate with hub through IFTTT and Adafruit**

**Adafruit data transmit with hub**

**MQTT set up**

1. As a programmer, I want to set up the Adafruit and MQTT so I can start to test the data transmit between Adafruit and hub.

Simple information such as a text file should safely arrive from an external system, to the HUB, using Long Range radio frequency.

**Ethernet shield/wifi**

1. As a programmer, I want the Adafruit can send data to hub though Ethernet shield/wifi so that Hub can receive the appropriate data from web Client.

Data include **sensor ID**(unique ID for each sensor), **Control signal** (On/Off)

**Web client send valve control signal through IFTTT to Adafruit**

If any change made, send control signal to Adafruit

1. As a programmer, I want the IFTTT can sent control signal to Adafruit when a change of mode has been made on the web client so that it’s possible for web client to transmit the data to hub.

(Adafruit control the behavior of Arduino board) => send signal to hub?.

Through ethernet shield or wi-fi

**Web client receive data from hub.**

**Hub upload data to Adafruit**

For each sensor? Or all sensors at one time

Use ethernet shield

1. As a programmer, I want the hub send data to Adafruit when new data come in so that Adafruit can keep tract of each sensor.

**If any new data come in, Adafruit send data to Web client**

IFTTT can send short value, need test the exact amount

For each sensor?

1. As a programmer, I want to IFTTT can send data to Web client when any data has been uploaded to Adafruit so that user can view the current status of sensors.

App……