EE/CprE/SE 492 WEEKLY REPORT 2

2/8 – 2/22

Group number: 11

Project title: Smart Water Leak Shutoff Valve

Client &/Advisor: Cheng Huang

Team Members/Role: Matthew Brandt, Curt Kissel, Cody Juracek, Wolfgang Morton, Grace Wilkins

- Weekly Summary – Software team worked on establishing communication between the android studio application and the spring boot application. A new 'device' entity was created and tested with CRUD api methods. Development of a line graph feature was started for when we want to start displaying data received from the flow sensor. Hardware team got the water flow sensor to properly detect and measure the rate of water passing through it. Now, we just need to figure out how accurate the sensor is. One such way is testing the sensor with another known working flow sensor, but we are not entirely for sure what would be the best way to go about it. As the team waits on parts being delivered, we analyzed alternative methods used for controlling the solenoid control valve - such as, integrating a transistor into the design. Originally, we were using an NPN PN2222A transistor which kept being overloaded due to the amount of current flowing through the circuit. After discovering this, we analyzed and chose another transistor - MJE180 - that is able to operate on a higher current flow. The 2222 operates on 600mA, whereas the 180 operates up to 3A. Our circuit operates at about 1A, which is well within the 3A margin. Now all that is left for the control valve is to have it operate through the serial monitor which would, then, interact with the backend of our application.

- Past Week Accomplishments
    - Matthew – Created entity for devices and associated api methods. Allowed users to add devices to their accounts. Worked with Curt to connect Spring Boot application to android studio application. Worked with Curt to establish a schedule for the software team for the rest of the semester.
    - Cody – Investigated the use of a NPN transistor to act as the voltage regulator for the water control valve. Acquired certain lab equipment for the team to use at home.
    - Curt – Worked with Matthew to connect Spring Boot application to android studio application. Worked with Matthew to establish a schedule for the software team for the rest of the semester. Finished creating the app homepage and login page.
    - Wolfgang – Successfully got the water control valve to function. Discovered that the transistor was drawing too much current and replaced it with a higher rated transistor.
    - Grace – Came up with the idea of using a transistor as a voltage regulator. Successfully got the water flow sensor to detect water flow in gallons per hour.
- Pending issues

    - Currently having an issue receiving a response from the web api when the android studio app makes a JSON Request. Hope to resolve this within the week.
- Individual Contributions

Name	Contributions	Hours this Week	Cumulative Hours
Matthew	Back end development, testing existing entities	6	13
Curt	Front end Development	9	15
Cody	Tested hardware. Researched in networking and WiFi.	6	12
Wolfgang	Tested water control valve and adjusted other circuit elements.	5	13
Grace	Tested water flow sensor. Code wifi module.	6	14

- Plans for upcoming week
    - Matthew – Establish connection between frontend and backend application. Test users ability to add/remove devices. Start designing ‘data’ entity to receive from arduino
    - Curt – Finish creation of the statistics page. Get the line graphs working with data from the backend. Begin development of the settings page.
    - Cody – Develop a great understanding of how WiFi works. Set up the device’s network card for the software team to utilize.
    - Wolfgang – Assemble hardware components as they come in; test components with flow sensor and solenoid.
    - Grace – Operating solenoid through the serial monitor; modify and update wifi module programming.