sddec18-17: IoT Remote Monitoring Mobile App for Commercial Appliances
Week 10 Report
April 17 - April 27

Team Members
John Fleiner — *Android Development Lead*
Ben Young — *iOS Application Lead*
Thomas Stackhouse — *Backend Lead*
Hongyi Bian — *Hardware Test*
Yuanbo Zheng — *Meeting Facilitator*
Casey Gehling — *Meeting Scribe / Backend developer*

Summary of Progress this Report
As the semester comes to an end, our team is in the preparation stage for our Senior Design 1 Panel Presentation. To best prepare for our final, the team spent majority of the week developing a Powerpoint point presentation to reflect our accomplishments and contributions over the course of the semester. That also required that we improve upon our project plan and design documentation. In addition, our team began researching the next phase of our project. The hardware team looked into options for attaching a keypad and LCD display to a single board computer. The mobile team looked into different iOS and Android libraries that can be utilized to implement charts and graphs. Our backend team researched Spring security which is built into the the spring Boot framework.

Pending Issues
During our previous status report, we mentioned that our team was looking to obtain a portable washing machine before our team's Panel Presentation. The portable washing machine is an important asset to our project as it best highlights our projects end goal. We received the portable washing machine on Monday, April 23, 2018.

We do have one remaining issue that is pending and that is the purchase of a keypad and LCD screen. Our hardware team is conducting research to determine the best option for connection to our Raspberry Pi. Once a decision has been made, our client's will be informed so that an order can be made.

Plans for Upcoming Reporting Period
This will be our last status report for the first semester of senior design. However, there are still some minor details that need to be addressed within our project plan and design documentation. Those changes will occur throughout Dead Week

Summary of Weekly Adviser Meeting
To prepare for our Panel Presentation, our advisor asked to critique our PowerPoint slides. During the meeting, several minor issues were found within our slides that needed to be adjusted. We thought that including additional text on the slides would be beneficial for panel members to review our slides if any information was missed. However, the extra detail cluttered the screen so it was asked that we simply our slides. We also had resolution issues with several of our images. The issues were increased in size which caused them to pixelate. We went back and modified the pictures to be readable from further sitting distances. After the presentation

rehearsal, our advisor provided us with feedback regarding our project plan and design documentation. Lastly, it was asked that we consider writing a thesis regarding our project as one of Goce's 492 teams received an opportunity to travel to Denmark to present their work. It could be a great addition to our team's resume and is definitely something to consider.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
John Fleiner	To prepare for the next section of the mobile application, I spent the week researching different Android Chart libraries that can be utilized for displaying washing machine power statistics to our clients. The highly recommended MPAndroidChart library created by Philipp Jahoda is regarded as the #1 chart library for the Android platform. The library includes horizontal and vertical bar charts, bar charts with grouped datasets, line charts, combination charts, pie charts, scatter charts, candlestick charts, bubble charts, and radar charts. Furthermore, the library supports an online video tutorial series and includes developer documentation. The library can be found at: https://github.com/PhilJay/MPAndroidChart. Currently, our mobile team is looking at bar charts to display comparisons between several machines, and line charts to display power usage over time per machine. Our advisor has given us a selection of material to review so that we can best present data.	3	103
Ben Young	For this final week of work for this semester on our senior design project I researched different graph libraries that I can use to display the data that we collect from the washing machine next semester. The first graphs library that I looked at is called Graphs (https://github.com/danielgindi/Charts). One main reason for potentially using this library is because there is an Android version which would make making both Android and iOS applications look the same a whole lot easier. Another graphs library that I have looked at is Awesome-iOS-Chart (https://github.com/ameizi/awesome-ios-chart). This library has a lot of the same	3	74

	functionality with the previous but doesn't not have an Android counterpart. Throughout the summer I will continue to look into graph libraries for iOS, implement them and decide on which one the mobile teams will go with.		
Thomas Stackhouse	This last week I have been working on prepping for the senior design presentation and researching more about AWS. I also started looking into configuration options for Spring security, and how this would work with different authentication methods. I'm thinking of using Basic authentication headers for API requests, but I will need to look more into that. Over the summer, I will continue working with Spring Boot and AWS to keep learning for next semester.	3	68
Hongyi Bian	This week is mainly about wrapping up the semester regards to what we have been doing. We as a team took time to prepare for the presentation since last week, this includes making the slides, going over details, practicing flows, etc. In order to better prepared for the presentation, our hardware team went for some more researches on the security aspects. The SSH and MQTT security were the parts that we've been looking into. We found a couple of techniques regarding the security solutions. Besides these, we also roughly made some plans for next semester so that we could transit to 492 smoothly.	4	81
Yuanbo Zheng	This is the last week of this semester, I was preparing for our final senior design presentation and research for the security and testing stuff for our hardware team's plan in the next semester. For my part in the final presentation, I will list the potential risks and mitigations for our design which is to keep our Raspberry Pi safe in the public laundry, and I will list the strengths and potential weaknesses of our design. Besides that, I will try to figure out about the security issue which are Raspberry Pi SSH security and MQTT channel security. I will continue to do further research on them this summer.	4	66
Casey Gehling	This week I made minor adjustments to our server so that it adheres to our plan for	5	70

	developing a server which is modular and maintainable. Basically what I did was move all of the processing and heavy lifting to the service layer as opposed to the controller layer. Didn't change the functionality, just made it easier to maintain and understand. Also, I worked on some documentation for our project as well as prepared for the final presentation.		