Start Date – End Date:
November 20 - December 3

Group number:
sddec18-17

Project title:
IoT Remote Monitoring for Commercial Appliances

Clients:
Taylor Greiner
Connor Jennings

Advisor:
Goce Trajcevski

Weekly Summary

Since our prototype was completed and presented to our clients during the previous reporting period, the goal of our final bi-weekly status report was to write the Final Report to meet ABET standards and to create a professional looking design for the Final Poster. ABET has requested that our final report add the following information: requirements specification, development process, design plan, test plan, testing, validation, verification, and project management. Our team created a requirements context diagram to depict the required input and output flows of our project. We also identified all product use cases. We then identified all ubiquitous requirements, event-driven requirements, state-driven requirements, unwanted functional requirements, look and feel requirements, usability and humanity requirements, performance requirements, security requirements, maintainability and support requirements, security requirements, cultural requirements, and constraints. We used the *Agile* development process throughout our semester and included our *Agile Scrum Board* or *Trello Board* and our *Daily Standup and Scrum Meeting Calendar*. Our previous design proposal was outdated, so we updated the design architecture, and included use case diagrams, class diagrams, user interface wireframes, electronic hardware diagrams, and circuit diagram. Our implementation section also lacked information that highlights our team's accomplishments throughout the semester. Finalized android and iOS class diagrams and UI were added. The backend team included an updated server layer architecture diagram and the final version of our database schema. The hardware team included code snippets for setting up our Raspberry Pi 3 GPIO pins. The testing section lacked appropriate testing procedures so we spent the last two weeks running mobile, backend, and hardware tests. The mobile team designed a usability test that was given to 4 test users. Unit tests were written for both android and iOS to test our functional

requirements. The backend team ran server layer and data access layer unit tests. The hardware team implemented onboard test scripts and circuit functionality tests. We also noticed that our proposed timeline was out-of-date so we updated our Gantt chart to match our agile sprints and increments. The final accomplishment for the final report includes an operation manual that details step-by-step processes for creating a laundromat reservation via the mobile application and powering on a washing machine. The final poster was also submitted during our reporting session. We met with our advisor, Goce Trajcevski, who provided us with wonderful advice to improve our poster so that we may better show our team's hard work and accomplishments.

Past week accomplishments

Team Member 1 - Name
John Fleiner
Team Member 1 - Role
Android Development Lead
Team Member 1 Contribution
Final Report (76 pages)
- Wrote Operations Manual for iOS and Android
- Requirements
    - Context Diagram, Product Use Cases, Functional, Non-Functional Requirements, and Constraints
- Development Process
    - Included Trello board and meeting schedule
- Design
    - Created architecture diagram, use case diagram, class diagram, user interface wireframes, hardware concept diagram, API table, database schema
- Testing
    - Designed usability Test
    - Performed usability test with four test users
    - Wrote JUnit tests to meet our requirements verification and validation
- Project Management
    - Created Gantt Charts and Roles and responsibilities table
Final Poster
- Created final poster design
Team Member 1 - Hours Worked
42 hours

Team Member 2 - Name
Ben Young
Team Member 2 - Role
iOS Development Lead
Team Member 2 Contribution
Final paper
- Created the iOS customer class diagram
    - Wrote a detailed description of all the view controllers and how they work
    - Documented how a Stripe token was created given a credit card and how this works in the flow of a user creating a reservation.
- Created the iOS administrator class diagram
    - Wrote a detailed description on all the view controllers and how they work
    - Also mentioned what libraries were used, including Charts

Final Poster
- Helped in making design and flow decisions for the poster

Team Member 2 - Hours Worked
12

Team Member 3 - Name
Thomas Stackhouse
Team Member 3 - Role
AWS & Spring Boot Backend Lead
Team Member 3 Contribution
Final Paper
- Worked on reformatting the paper to maintain consistency
- Backend proposed design
- Section on security
- Wrote about what we learned throughout the semester
- Added section on commercializing our prototype as response to the clients' request

Final Poster
- Worked on spacing and framing sections

Team Member 3 - Hours Worked
18

Team Member 4- Name
Hongyi Bian
Team Member 4 - Role
Hardware Engineering Lead
Team Member 4 Contribution
Final report
- Hardware design
    - remake the overall design diagram
    - polish the general conceptual diagram
    - fix the parts to make it consistency from previous works
- Hardware implementation
    - Working on creating detailed hardware diagram
    - Getting software diagrams
    - Analyzing the implementation details
- Hardware testing
    - Analyzing the testing works
    - Explaining the testing results

Team Member 4 - Hours Worked
10

Team Member 5 - Name
Yuanbo Zheng
Team Member 5 - Role
Hardware Engineer
Team Member 5 Contribution
- Work with hardware lead to remake the overall design diagram
- Implement the Final report for hardware section, add more details in the Final Report
- Do a final hardware testing : make sure all stuff works well in the presentation
- Work with team for Poster

Team Member 5 - Hours Worked
8

Team Member 6 - Name
Casey Gehling
Team Member 6 - Role
Spring Boot Backend Developer
Team Member 6 Contribution
- Updated implementation section for backend section of the final report
- Detailed backend test plan for the backend in the final report
- Wrote a draft for the development process section on the final report
- Created template for final presentation

Team Member 6 - Hours Worked
8

Individual contributions

Team Member	Contribution (Quick list of contributions. This should be short).	Hours this reporting period	HOURS cumulative (this semester)
John Fleiner	- Wrote the final report - Designed the final poster	42	167
Ben Young	- Create ios customer class diagram - Create ios administrator class diagram - Final poster	12	119
Thomas Stackhouse	Worked on final paper and the final poster, especially commercialization	18	91
Hongyi Bian	Worked on hardware portion of the final report	10	90
Yuanbo Zheng	- Worked on hardware portion of final report - Prepare for final presentation	8	88
Casey Gehling	- Worked on backend portion of final report - Created template for final presentation	8	89

Pending issues

There are no current pending issues related to the completion of our prototype. The remaining issues that need to be resolved including the lamination of our poster and demo preparation for the IRP panel presentation. Our team would like to perform a live demo which requires that we transport a portable washing machine. The portable washing machine weights approximately 50 lbs and has our hardware attached to it. We need to be careful during the transportation process to ensure that the hardware isn't damaged.

Summary of Bi-Weekly Advisor Meeting

The goal of our bi-weekly advisor meeting with Goce Trajcevski was to present our rough draft of the final poster and final report. Goce provided us with excellent advice for cleaning up the poster. Several areas used complete sentences that could be simplified to bullet points. Font sizes needed to be adjusted and the layout was modified to make room for images that show our final product. Our team was also selected for ABET submission. That means our final report will be submitted to ABET to show that their requested changes to Senior Design 492 have been implemented. We were given advice related to the requirements, security, process development, and operation manual. Because we were given helpful advice, we feel confident in both our poster and final report.

Plans for the upcoming weeks

Not Applicable