ECE 211 Practicum: Sprint Review & Retrospective for Team 6 - Dormice

Dmitrii Fotin
Elan Redmon
Hobie Topping
Mohamed Ashkanani

Our team, The Dormice (6), met with our Scrum Master, Manasa Jajam, on November 18th, 2021. We discussed Sprint Review and Sprint Retrospective. All team members have read this report and agree that it accurately describes our discussion.

Overall, we would give ourselves a score of 4.5 (out of 5) for how well this sprint went.

1 Sprint Review

To design and build a small functional scale using arduino components including the HX711 that reports the masses/weights up to 5 kg/11 lbs on an LCD, flags out of range scenarios, allows to pick units and turn the scale on and off.

1.1 Sprint Backlog Status

Sprint Backlog items DONE (bulleted list)	• Add spacers/acquire materials. • Find 2 rigid surfaces for the scale. • Prepare overall schematic. • Design the default circuit. • Add an LCD to display numerical weights. • Add power on/off switch. • Add button/switch for lbs/kg switch. • Scale the code to the created setup. • Add the LCD functionality (Code). • Include functionality to switch between lbs/kg. • Handle out of range scenarios: beep/LCD/LED. • Physical testing. • Resistance testing. • Voltage testing.

Sprint Backlog items NOT DONE	**Reason for NOT DONE**	**Keep in backlog (Y/N); why?**
Power source (2 batteries) in shell	Time.	Yes, It would be good to make it portable.
Create a physical shell that would hide all electronic components	Time and access to a 3D printer.	Yes, It would be ideal to have it in a saleable compact package.

1.2 Notable technical accomplishments

- Learned how to solder.
- Learned more real life applications and operation of the Wheatstone bridge/load cell.
- New applications of Arduino using the HX711.
- Applied design principles to create a product.
- Learned a new skill set with CAD software.

1.3 Technical and other difficulties

Created a 3-D model for the scale frame but could not find timely printing service given the short deadline. Physical frame could not fit a case because the tolerances were too small. The team had some issues with running the instructables code at first, which turned out to be a Serial baud issue. The team encountered minor issues with the circuit layout in comparison with the written code, but it was resolved.

1.4 New Skills

Elan Redmon

I had the chance to learn how to properly take resistance measurements of a full circuit (disassemble, measure, reassemble). I got the chance to learn how to adjust a calibration factor to quickly and effectively scale a linear voltage change to a linear change in weight.

Dmitrii Fotin

I got more comfortable with programming LCDs and using buttons. I also got acquainted with the HX711 amplifier library for sensing resistance changes and converting them to usable data. Furthermore, I was exposed to new design tools introduced by team members like Fritzing.

Hobie Topping

I worked with TinkerCAD during initial design. I also had the chance to work with new materials and got exposed to new design tools introduced by team members like Lucid Chart. This project was a chance to implement the sprint design process that was introduced in class.

Mohamed Ashkanani

I got the chance to learn more about soldering and creating circuit schematic. This project was also a good review for the coding that we learned in class, as I had the chance to look at the LCD code again. Moreover, I got small experience with the components that we have used.

2 Sprint Retrospective

The team broke the project objectives out into hardware, circuitry, software and testing stages and assigned each stage to a team member. Each stage was further broken out into tasks. Both major objectives and tasks were documented on Trello with team members assigned to each card. The team discussed due dates for each task, updated the cards as the respective tasks were completed and attached images, links and files for progress and version tracking.

2.1 Teamwork and planning - things that went well

- Setting realistic sprint goals
- Understanding strengths and capacity of each teammate
- Splitting workload among teammates
- Organizing the schedule
- Monitoring and reporting progress

2.2 Teamwork and planning - things that could be improved and suggested improvements

- Having a GIT repository for code version tracking
- More advance research on 3d printing
- More detailed initial documentation of product specifications
- Aligning design tools in advance to allow designs to be shared easily within the team.

2.3 Trello

Make the user stories more like stories or needs of the customer rather than a task list. Decompose the user stories into the task list instead. Improve visual connectivity between each level of task decomposition. Make each task more transparent, easier to see at a glance, as it is decomposed into smaller sprint items. Utilize the built in functionality that Trello offers, like automation, labels, or email-to-board.

2.4 Trello Screenshot