Executive Summary

Jonathan Phillips

1. Technical Contributions:
   1. When the design of the user interface was completed by Christian and green light by Jared, Dale and I split the responsibilities to accelerate the programming phase, due to the amount of time it took to finalize the design. I ended up being responsible for the main and save pages, which involved creating a keyboard and a number pad. The main page involved creating a number pad that the user would use to change the target weight value, which the program would then dispense. The scale the program was receiving data, in the form of the number displayed on the scale, could have different units, so I created a unit selector with which the user could change the units on the user interface to correspond to the change they had made on the scale. The reason why we did not decide to read the units sent by the scale was due to the issue that the units would not change until there was a change in weight on the scale, which could get confusing for the user seeing one unit on the UI and then a sudden change to a different one after powder dispenses. After the functionality of the main page was completed, I started to replace the temporary buttons with their proper images. However, there was a interesting issue where some of the images, those of the bottom bar, would display correctly, while the other images would not. The solution I came up with was listing every image that was going to be used in the UI and assigning each a moniker for each button or label to call.
   2. The next course of action for myself was to complete the save page, which would allow the user to input values, or notes, into a set of attributes for their reloading process and then save those values as a profile. Then they could switch between which profiles were loaded, which was implemented by Dale and Austin. However, I had to program a keyboard, with letters, numbers, and some symbols, to allow the user to input their desired values to the set of attributes. Saving their values and displaying them was a bit of a challenge, however, I was able to figure out with the help of Dale.
   3. After that, I went through the pages that Dale had completed and added the images and refined the UI design to make it look as professional and in line with what Christian had designed. I also made sure that there were comments on every page, explaining and outlining the major aspects of those pages, including a detailed description of how to add additional images to the images.py file and how the future programmers working on the project should go about doing that.
2. Team Contributions:
   1. I did my best to take on more responsibility to lessen the load of my teammate by being responsible for the team credit card and purchasing most of the parts that was used in the prototype. As well as the flash drive that would be handed off to Brother Smith at the end of the semester. There were times were the group as a whole were struggling with the project and I tried to keep a positive attitude and reinvigorate the group. Even though Austin was the group leader and had emailed Jared in the past, I somehow ended up being the person with which Jared and Christian primarily communicated with. So, I would be the one that had meetings with Jared and Christian about the UI design, however, Austin and Dale were both welcome to join in on the meeting when they wanted to. I felt I needed to know as much as I could about the user interface, because I would be the one answering questions from Jared and Christian about what the group could or could not complete during the semester.
3. Final Report Contributions:
   1. I created a simple checklist with all the requirements for the Final Documentation, so the group could visibly see the progress being made and not have to comb the repository for what was and was not done.
   2. I also created the HTML file that had all the links to the different aspects of the project and ensured that each link worked, and all the files on the flash drive could be accessed through the HTML file.
   3. I also contributed to the software section of the Final Report.
4. Ideas and Suggestions for Future Work on the Project
   1. One suggestion for the future work on the project is figuring out how to utilize the left and right arrows on the bottom bar of the user interface. Dale and I concluded that it would take far too long and the possible necessity of rewriting how the pages communicate with one another to incorporate that feature.
   2. Another suggestion would be to implement the ability for the user to change the angle of the dispenser, which could speed up the process of dispensing the powder to the scale.
5. Week breakdown on next page:

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| Week | Hours | Major Tasks |
| 1 | 8 | Created Gantt Chart. Created Flow Chart. Researched LCD Screens. |
| 2 | 8 | Reviewed Hardware from Creedmoor and Started Front end |
| 3 | 8.5 | Created UML Mockup and added more pages |
| 4 | 11 | Added Buttons proposed by Jared and Christian |
| 5 | 11 | Changed UI to what Jared proposed |
| 6 | 12 | Created raised and lowered button states and added bottom bar with home, power, and left and right arrow buttons. |
| 7 | 10 | Created Image.py for all the images and implemented Christian’s images in the UI. |
| 8 | 11 | Started save\_page.py and resized images to better fit the UI design |
| 9 | 11 | Added more images to Settings pages and started the keyboard. |
| 10 | 15 | Added unit change pop up window and added the functionality of changing between letters and symbols on the keyboard |
| 11 | 15 | Merged front end code and added the ability for the user to see the new values they inputted |
| 12 | 15 | Ensured that the code runs on every machine. Touched up images, refined fonts and sizes of buttons, added comments on every page |
| 13 | 18.5 | Replaced <,> buttons with images, Created HTML file, executive summary, Presentation, Finalizing Documentation |
| Total | 154 |  |