Senior Design Self-Evaluation

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Individually, my role in this project was to focus on the development aspects of creating our robot. I started off by developing the web application that the end user will be using to schedule medicine delivery times and/or request the robot immediately. This required me to work on front-end development as well as backend for our database. Once the web application was connected to our AWS RDS database, my next task was to move our web application to our Raspberry Pi. This allowed us to host the web application on the end user's home internet. It also allowed for our hardware elements (motors, sensors, alarms, etc...) to be connected directly to the Raspberry Pi GPIO (general purpose input/output) pins. Connecting our web application to the hardware elements and developing the functionality for these elements was my largest task.

I was able to build tremendously on my development and engineering skills. As well as, my general understanding for how large project goes from start to finish. As the only computer science major on our project's team, I was in charge of all the technically aspects of the project. This was very challenging but also very rewarding. I now know the ins and outs of our project. From the UI to the database, from the robot hardware design to the motor functionality, I know how it all works and goes together. My largest success was successfully developing the sensors, index motor and alarms for our robot. This required many hours of development and testing in order to get them working exactly how we wanted them. My greatest obstacle was working through the COVID-19 restrictions. We were not able to meet up to test the development aspects with the hardware, and we were not able to finish 3D printing vital pieces to our robot (wheels, robot tower structure, robot lid and much more).

Working with two MET (Mechanical Engineering Technology) majors allowed me to see a project will be constructed in the real world. Anthony and Kevin, worked on the robot's design and building the robot, while I worked on the development and robot's functionality. We were able to feed our ideas of each other to see what we would be able to accomplish and what might be a future design idea. It was really cool to see our ideas brought to fruition throughout the semester. For example, we discussed the best way to control our robot for months. Did we want a publicly accessible web application, where the user signs in, or do we want an app on your phone, or do we want a locally accessible web application? In the end we went with the latter, as it would be more secure, and easier to setup and maintain for our end user as they will more than likely be elderly.

My efforts for the project was very comparable to that of those of my project partners. We did a really good job of giving each other enough work each week to get the project completed on time. We also meet with our advisor Janet Dong every other week which really helped to hold each of us accountable and keep us all on track. We kept a running log that tracked every hour we all spent on the project and at the end of the project we were all within 5 hours of each other. If one member of our team deserved specific recognition it would be Kevin. Kevin was a great leader for our project, he made the phone calls to research/other parts and spent of bunch of hours working on the design of the robot to ensure no problems occurred after the parts were printed/ordered. At the end of the day I think our project was a huge success. We managed to work together to complete a project that none of had much experience doing.