CprE 4920 Status Report 2

02/14/2025 - 02/27/2025

Group number: 8

Project title: Race of Doom

Client &/Advisor: Dr Bigelow

Team Members/Role: Alex Crandall, Wesley Jansen, Elizabeth Schmitt, Ben Towle, Lalitha Vattyam

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- **Weekly Summary**

The past 2 weeks we have been working on a lot of hardware and getting everything organized for our project as a whole. We found a program that will be able to use the camera sensor and find data from that. We have also been testing the battery and working on hat development. We have also been working on the software skeleton.

- **Past Week Accomplishments**
    - Team Member 1: Alex Crandall: I have finished the training course for learning the basics of PCB design and began research on the components for our board.
    - Team Member 2: Wesley Jansen : I have written the Readme for easy access to the car and I also started researching the RP Lidar sensor and getting major progress on that front. Also met with Dr. Fila and got focused on what to do and asked questions about our issue of the motor being too powerful.
    - Team Member 3: Elizabeth Schmitt : In the past 2 weeks I have been working on transferring our work and data from one Github to the other. I have also been working through a little bit of the software and finding solutions for driving logic given my specifications.
    - Team Member 4: Benjamin Towle : Set up the configuration for librealsense, and onnx runtime and got the software to read depth frames.
    - Team Member 5: Lalith Vattyam: Finished skeleton code

- **Pending issues**

We tested the batteries voltage this week which showed some issues. The battery is emitting an unbalanced voltage. This could be potentially from misuse of the 2 cells included in the LiPo battery. The car has been going too fast. This is a motor issue. We will need to find a solution to slow it down, that may be a voltage regulator, gears, or some other solution entirely. We are currently talking through some solutions. We need the raspberry pi to be wireless, so we are debating having a separate battery for this and the ESC.

- **Individual contributions**

NAME	**Individual Contributions** *(Quick list of contributions. This should be short.)*	**Hours These weeks**	**HOURS cumulative**
Alex Crandall	Finished GTB5.0 training course	12	93
Wesley Jansen	Researched RP Lidar, ReadMe	12	92
Elizabeth Schmitt	Organized code and started software design	11	90
Ben Towle	Completed the installation of the raspberry pi 5 module	11	89
Lalitha Vattyam	Worked on creating the skeleton code and finished the design	12	91

***Starting cumulative hours count on weekly report #1**

- **Plans for the upcoming week**
  - Alex Crandall –After some setbacks with the battery, I plan to work with the team to fix that and even out the voltage. We also discussed some potential tests with Dr. Bigelow to try and fix our speed issue and I will be working on that as well.
  - Wesley – Get the RP Lidar to be up and running and scanning properly.
  - Elizabeth – Get going on the software and have the car running with that software by the next report.
  - Ben – design a software design that interprets depth and color images to differentiate between varying objects
  - Lalith – Get the RC car to start working to test skeleton code and basic movement

- **Summary of weekly advisor meeting**

  Today we talked with Dr Bigelow about a lot of the problems we are having with hardware and potential solutions. He had a lot of good ideas for us to go off of. The first was about the battery, which seemed to be working incorrectly. We talked a lot about different batteries that we may need to buy to replace ours. We did find a charger for our battery, so hopefully that works. He had the idea of a voltage reduction circuit to make it going more slowly. We

are going to look into that and hopefully it will be a good solution. We were able to get a lot of our looming questions answered, which was great. Now we just have a lot of work to do.