EE/CprE/SE 492 WEEKLY REPORT

January 28, 2024 - February 10, 2024

Group number: Sdmay24-43

Project title: ***Race of Doom***

Client &/Advisor: Prof. Bigelow

Team Members/Role: ***Peter Wissman - Computer Engineering, Gavin Petrak - Computer Engineering, Andrew Kraft - Electrical Engineering, Jack Doe - Software Engineering, Jacob Nedder - Cybersecurity Engineering***

- **Bi-weekly Summary:** These past two weeks, our team focused on individual sensor testing and configuration for the Raspberry Pi. We also made sure to list the constraints that came with the RC car our group selected and share this information with the track team. Each member also researched autonomous RC vehicle development using the website F1TENTH.

- **Past two week's accomplishments**
  - Peter Wissman: I've meet with the advisor and other team reps for the Race of Doom project. Helped to configure the rasberry pi and began creating testing code for the sensors. Took apart the RC car to plan for future
  - Gavin Petrak: Updated the Gitlab by closing/adding issues as necessary, helped find proper documentation for sensors, as well as their pin placements when connected to the Raspberry Pi.
  - Andrew Kraft: Identified what electrical components in the RC car needed to be replaced or remodeled. Started research on potential battery replacements. Finally learned the internal structure of an RC car and created a brief diagram on how each component should be able to connect to each other in the finished prototype.
  - Jack Doe: Helped configure the Raspberry Pi and began research on how we'll create autonomous driving code. Also looked into the lidar's APIs

- Jacob Nedder: Measured the capabilities of the RC car and worked to continue research on sensors interfacing with the Raspberry Pi. Researched potential batteries to power the Raspberry Pi while in motion on the RC car.

- **Pending issues**

One of the largest concerns we have is that we cannot find the USB connector for our LiDAR sensor. There are already a few of the same LiDAR sensors provided by the school; however, they are all missing this connector which would make the development of our lidar much easier. So, we are working with the university to find one of these connectors.

- **Individual contributions**

NAME	**Individual Contributions** *(Quick list of contributions. This should be short.)*	**Hours this week**	**HOURS cumulative**
Peter Wissman	Sensor software tests, Raspberry Pi Configuraton, Learned internal structure of RC car	6	6
Gavin Petrak	Gitlab Backlog Refinement, Raspberry Pi Configuration, LiDAR Testing	6	6
Andrew Kraft	Learned internal structure of RC car, Battery research, and identified components for replacement	3	6
Jack Doe	Raspberry Pi Configuraton, software research	3	6
Jacob Nedder	Battery research, Raspberry Pi sensor configuration, RC car testing	6	6

- **Plans for the upcoming two weeks**
  - Peter Wissman: Continue to work on Software tests for the sensors and communicate more with Andrew about hardware specfications
  - Gavin Petrak: Find the best way to develop the LiDAR sensor in its current state and create a pinout system that will work for all sensors at one time.
  - Andrew Kraft: Finalize battery research and order it. Finalize RC car wiring and component connections in schematic.
  - Jack Doe: Work on software tests and research automation
  - Jacob Nedder: Continue research on RobotOS and work out future solutions for RC communication hack countermeasures.

- **Summary of weekly advisor meeting** Teams meet with the advisor to discuss progress made in the past couple of weeks. All teams are making steady progress. We will be demoing our design in front of the advisor in late april. This date is almost known, just waiting for confirmation from the school for having the space.