*CprE 491 WEEKLY REPORT 03*

*9/27 – 10/03*

*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*

- **Weekly Summary**

  *This week our main objective was to obtain the code for the RC car that we want to work on and get a decent understanding of its components and how the car's components connect to the code. After discussing amongst ourselves, we have come to a conclusion about what we want our track and objectives to be. We came to the conclusion that we want to have a real-life deliverables in a small-scale simulation to conjure a working RC car that navigates around a track with obstacles that are seen in our day-to-day lives when we drive.*

- **Past week accomplishments**

  - Team Member 1: Alex Crandall: Looked into research other companies have provided on autonomous cars on a larger scale for ideas relating to our smaller scale car
  - Team Member 2: Wesley Jansen : Retrieved previous years code. Researched possible sensors and processors. Researched car bodies as well and planned out how to appropriately spend our budget. Looked into larger scale projects that have done similar things like Google and Stanford's autonomous vehicles.
  - Team Member 3: Elizabeth Schmitt : Discussed the steps moving forward with the hardware. Researched which processor to use for the new car. Found that a Raspberry Pie would be the best thing moving forward, since it has a good camera that connects to it. We have decided that photo processing would be a good option for this project.
    - Team Member 4: Benjamin Towle : Looked over the Lidar SDK used by the group that designed the smaller car. Tried to gain a high-level understanding of how

this software was designed and implemented in relation to the hardware. Also looked into potential Bluetooth modules to allow wireless connection.
- o Team Member 5: Lalith Vattyam: Finished creating 2 week sprints up until mid November in order for the group to have a set list of tasks

- **Pending issues**

    We need to have a better understanding of the code and how it connects with the components on the RC car in order for us to take the next steps in obtaining a new RC car and replicating it to the one available already so that we keep certain constraints constant.

- **Individual contributions**

| NAME | Individual Contributions<br>*(Quick list of contributions. This should be short.)* | Hours this week | HOURS cumulative |
|---|---|---|---|
| Alex Crandall | I looked into other universities and companies that have research on autonomous cars. | 4 | 17 |
| Wesley Jansen | Researched sensors and cars. Planned budget. Got previous years code | 4 | 14 |
| Elizabeth Schmitt | Researched Raspberry Pie. Discuss hardware design. | 4 | 14 |
| Ben Towle | Researched the most optimal way to implement way to implement Bluetooth communication of the R.C car -> P.C | 4 | 16 |
| Lalitha Vattyam | Organized meeting dates and times, and also figured out dates for us to look at the code and car components | 6 | 15 |

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

- **Plans for the upcoming week**
- Alex Crandall – Further look into cars and components researched by companies along with Stanford's work on the autonomous DeLorian
- Wesley – Research more on autonomous vehicles and how to get the data from the sensors to a computer for fast processing power via wifi or bluetooth.
- Elizabeth – Research the Google Autonomous vehicle to get another good perspective on what we can do.
- Ben – Research the Stanford Autonomous car to see how other experts implemented autonomous navigation.
- Lalith – Keep the group on schedule with our pipelined 2-week sprints along with being able to get an overall understanding of the RC car.

## Summary of weekly advisor meeting

*During our second advisor meeting, we discussed possible ideas for obstacles that would relate to different colored tiles (Red, Yellow, and Green) on our track.  Dr. Bigelow suggested using a camera sensor that picks up color and mapping it to a laptop for better processing speeds along with potentially filtering that color through image processing to pick up only Red, Yellow, and Green. We also discussed the cars being fully autonomous, instead of us controlling speed. This is because the obstacles may require it to stop on its own. Using this provided information along with new found research our group is starting to gather an understanding of the components that may benefit our project.*