# Individual Progress Report

# Mile Stone 1

Project Details

| | |
|---|---|
| Project name | EGEN 310 RC car Design |
| Group Number | E2 |
| Author, discipline | Aaron McCarthy E2 |
| Reporting period | January 8 2018 – January 29 2018 |
| Date Due | January 29 2018 |

# Summary

I researched all components that I will need and decided on a method of communication to support reliable and responsive control of the car. I asked my peers who took this class last semester about creating reliable systems to communicate between the GUI and the car and the overwhelming response among them was that Bluetooth was an unreliable method of communication. Many groups that used Bluetooth connections reported that the connections would drop after a very short time. With this input I have decided to communicate over Wifi. The microcontroller that I have chosen and purchased is the Raspberry Pi Zero HW which is very small, supports both Wifi and Bluetooth, and comes with a pre-soldered header.

# Activities

# Research methods of communication

| | |
|---|---|
| Status | **Achieved** |
| Objective | To decide if I will use Wifi or Bluetooth |
| My time on this task | 2 hours |
| Support team member(s) time on task | Cole Jungers , .5 hours |
| Visual Progress Update | Not applicable |
| Current Progress | I have researched the two forms of communications and have decided to use Wifi |
| Outputs created | I now know what type of microcontrollers to consider to control the car. It is only microcontrollers that have Wifi support. |
| System Integration Considerations | It is important that the microcontroller that I choose is lightweight enough for the car to be able to support its weight. Also the microcontroller must be small enough |

| | |
|---|---|
| | to fit inside the car. Also we need to be able to fit enough batteries in the body to power the microcontroller and the motors. |
| Challenges/Lessons learned | People who took the class last semester are good resources |

## Decide upon and purchase a Microcontroller to control the car

| | |
|---|---|
| Status | **Achieved** |
| Objective | Decide upon and purchase a Microcontroller to control the car |
| My time on this task | 3 hours |
| Support team member(s) time on task | Andrew Leicht, .5 hours |
| Visual Progress Update |  |
| Current Progress | I have found the optimal choice for a controller. The raspberry Pi Zero WH is a small lightweight microcontroller that supports both Bluetooth and Wifi connectivity while also being very small and very light weight. Furthermore it uses very little power and is easy to program. |
| Outputs created | We now know what microcontroller will be used to control the car. |
| System Integration Considerations | Deciding upon a microcontroller that controls the car helps move planning along for other electrical components and helps to start the group thinking about how all the pieces contained in the body should be arranged. |
| Challenges/Lessons learned | |

# Total Time On Task for this Milestone

| | |
|---|---|
| Total time spent by me | 5 hours |

| Total time spent by support team members | 2 hours |
|---|---|

# Next Steps

One of the next tasks will involve programming a GUI in Python to be used by the driver to control the car. The GUI needs to be compatible with the design of the car. Since we are doing tank steering the GUI should consist of 2 sliders to control the power output of each motor. I will also have to setup a server on the Raspberry Pi to receive information from the GUI.

### Archived Activities Reserch methods of communication

| Status | **Achieved** |
|---|---|
| Objective | To decide if I will use Wifi or Bluetooth |
| My time on this task | 4 hours |
| Support team member(s) time on task | Cole Jungers , 1 hour |
| Visual Progress Update | Not applicable |
| Current Progress | I have researched the two forms of communications and have decided to use Wifi |
| Outputs created | I now know what type of microcontrollers to consider to control the car. It is only microcontrollers that have Wifi support. |
| System Integration Considerations | It is important that the microcontroller that I choose is lightweight enough for the car to be able to pull it. Also the car has to be able to fit the microcontroller inside the body. Also we need to be able to fit enough batteries in the body to power the microcontroller and the motors. |
| Challenges/Lessons learned | People who took the class last semester are good resources |

### Decide upon and purchase a Microcontroller to control the car

| Status | **Achieved** |
|---|---|
| Objective | Decide upon and purchase a Microcontroller to control the car |
| My time on this task | 4 hours |

| | |
|---|---|
| Support team member(s) time on task | Andrew Leicht, 1 hour |
| Visual Progress Update |  |
| Current Progress | I have found the optimal choice for a controller. The raspberry Pi Zero WH is a small lightweight microcontroller that supports both Bluetooth and Wifi connectivity while also being very small and very light weight. Furthermore it uses very little power and is easy to program. |
| Outputs created | We now know what microcontroller will be used to control the car. |
| System Integration Considerations | Deciding upon a microcontroller that controls the car helps move planning along for other electrical components and helps to start the group thinking about how all the pieces contained in the body should be arranged. |
| Challenges/Lessons learned | |