EE/CprE/SE 491 Weekly Report #5

Mar 2nd - Apr 12th, 2020

Group Number: 3

Project Title: Squirrel

Client: Bob Thompson; Advisor: Gary Tuttle

Team Members: Isaac Tegeler, Devon Driscoll, Richard Cushing, Dan Gilbert, Abraham

Contreras-Ramos, Cole Patton

Weekly Summary:

Worked on lightning talk and scheduled for this semester and next. Begin ordering parts and prototyping. Broke up subsystems among group members.

Past week accomplishments

Isaac: Set up and lead team meetings with Zoom. Created parts list and started evaluating specific parts for the different systems. Determined that we should use stepper motors for the targeting system because they are small and cheap. Re-evaluated the Jevois camera after concerns were brought up by Cole that it would not be effective enough. Found a new source for the computer vision pipeline in the Nvidia Jetson Nano. Also found a motion detector. Ordered the Jetson, stepper motors, motion detector and raspberry pi camera from ETG.

Cole: Attended team meetings and helped put together the slides and voices for our lightning talk. Did some research toward the parts that we'll need for the vision system and looked into other similar projects to see what worked and what didn't work.

Devon: Found the fishing line that we are going to use first and looked into parts that could help with the reeling apparatus.

Richard: Started load list to begin making electrical requirements as parts get added to the part order list. Made extensive additions to the launch/retrieval system as well as building a flywheel prototype. The yaw-pitch mechanism now is integrated into the launcher box and moved out of the way of the retrieval system above as well.

Pending issues:

Creating a gear system will require CAD modeling the gears, fulcrum, and pieces for holding parts in place. Will have to look into CAD to even begin to 3D print a testable model.

Hours Worked

Name	Contributions	Hours this week	Hours cumulative
Isaac	Organized meetings, worked on ordering parts.	10	34
Cole	Meetings and researched vision system	4	26
Devon	Meetings, research on fishing line and reeling apparatus.	6	30
Richard	Started Load list for energy requirements, further developed launching/retrieval system	8	36

Abraham	Continued research, load list, and looked for parts.	6	18
Dan	Continued part research, began developing launching/retrieval systems. Spoke about power requirements in L3. Wrote risk identification/ response control for contingency plan	10	32

Plans for the upcoming week

Isaac: Will need to organize a meeting to go over part 5 of the design document. Need to continue working towards ordering parts. Will work with the team to find parts for the launching system and the reeling system over the next week.

Cole: Do more research. Wait for the Jetson Nano to arrive and start programming once it's delivered.

Devon: Finding a good solution to reeling the fishing line (and ping-pong ball) in and ordering the parts that are needed and getting the fishing line that we need ordered.

Richard: Start 3D printing of gears and parts for the yaw-pitch mechanism. Start putting together a moving yaw-pitch mechanism. Join Cole online when machine vision programming starts.

Abraham: Continue research and searching for parts. Finish load list energy requirements.

Dan: Continue test and development of launching/retrieval systems. Review finalized load list

and complete power system plans