

EE 491 Weekly Report

May15-27

Week 8 (10/19/14-10/26/14)

Advisors: Dr. Jones, Dr. Elia

Team Members:

Alberto Di Martino * Team Co-Web *
Dylan Gransee * Webmaster *
Robert Larsen * Team Leader *
Ian McInerney * Team Key Concept Holder *
Aaron Pederson * Team Communications *
Rohit Zambre * Team Secretary *
Fengxing Zhu * Team Comm. Co-leader *

Work Hour Totals:

Team Member	Weekly Hours	Running Total
Aaron	12.00	71.50
Alberto	12.00	66.00
Dylan	8.00	64.00
Fengxing	6.00	45.50
Ian	9.00	58.50
Robert	12.50	68.50
Rohit	9.00	49.50

Weekly Summary

Pending Issues:

1. System Delay is causing problems
2. Gimbal. Possibly with sensing capabilities.
3. Fine tuning PID is difficult to do with the delay that is present so we are unsure of the current PID values.
4. Understanding how to send PPM signal from Eris.

Next week goals:

Aaron:

- Work on getting a temporary universal joint and also research gimbal joints and possibly draw some SolidWorks prototypes.

Alberto:

- Calibrating PID constants (5hr total)
- Solve problem in C code where the change in the PID constant didn't affect the behavior of the system.

- Tuned PID constants , to have a system more stable for demo day
- Built new support structure to simulate the 1-D pendulum in a better environment.

Dylan:

- Switch gears to the networking code to get Eris communicating with the camera system

Fengxing:

- Go through Paul's paper and try to derive 2-D pendulum formulas. (2 hr)

Ian:

- Explore time delay effect on the system
- Assist Feng with 2D pendulum derivations
- Experiment with 1D model

Robert:

- Sending PWM signal from Eris.

Rohit:

- Correspond with CSG to fix installation issues with LabVIEW on the Windows 7 machine.
- Propose a plan to deal with the base joint
- Assist with testing of 1-D pendulum system

Individual Contributions:

Aaron:

- Worked on the design document signal flow diagrams for more detail (1hr)
- Calibrating PID constants (5hrs total)
- WSR (2hrs)
- Built new support structure for 1D pendulum (1hr)

Alberto:

- Solve problem in C code where the change in the PID constant didn't affect the behavior of the system (1hr)
- Tune PID constants , to have a system more stable for demo day (5hrs)
- Build new help structure to simulate the 1-D pendulum in a better environment. (1hr)

Dylan:

- Fixed the Xbox controller for Eris (1hr)
- Created new startup scripts for Eris (1hr)
- Fixed broken wheels (1hr)

Fengxing:

- Worked on old camera system and connected the webcam to Windows 7 machine with Rohit. Also finished the scripts to log the data of the signal flow. (2.5 hrs)
- Worked on design document and met with group members. (3 hrs)

Ian:

- Team meeting & Adviser meeting (3hrs)
- Added time delays to 1D model (3hrs)

- Experimented with 1D model (3hrs)

Robert:

- Looked at the PWM signals on Eris and installed LinuxCNC, the program recommended to me by Mesa (2hrs)
- Set up the new computer in the lab. (2hrs)

Rohit:

- Finished up 1-d Pendulum Data Analysis tool (1.5 hours)
- Connected camera to the windows 7 machine and discovered issues on the localization system (0.5 hours)
- Assisted with fixing of the working of the 1-D system (1.5 hours)
- Researched on gimbal (3 hours)

Total Contributions for the project:

Omnibot is now working with Xbox controller (Robert and Ian)

We are now able to run and test the 1-d pendulum system (Aaron, Alberto, Rohit, Ian, Fengxing)

Meeting Notes:

10/23/2014 –

Duration: 1 Hr. Members present: All Advisers present: All

Author: Rohit Zambre

Discussed presentation next week

-- Will discuss with the other team regarding day to present on

The PWM for Omni

-- found a couple files to play around with

-- will ask MicroCART to reuse the PWM code to work with omniBot's FPGA

Emailed with mesa

-- They said they have a linuxCNC program to work with certain packages and libraries

Vision system

-- Just needs to be hooked up to the windows 7 machine

Send email out with the git structure

Documentation is very important

-- spend a week dedicated towards documentation

Design document

- More precise than the previous project plan
- Will be tricky since the specifications haven't need to be

Trouble with small Omnibot

- build a light structure on the top of the Omni
- First need to look into the gimbal joint before even building a structure
- Need to complete gimbal joint research for sure

Cost of 3d printed materials

- \$48 on the base

Need to have the 3d design of the gimbal joint

Simulink model not cooperating

- Certain things don't make logical sense.
- Go back to the model and double check all the blocks
- Next week: get a linear model working

Inverted 1-dimensional pendulum

- Worked sort of correctly on Monday
- Unstable on Wednesday
- 1 PID Controller in the GUI
- NEED TO BUY A NEW RECEIVER to separate ours from the Microcart's receiver

Meeting Notes:

10/26/2014--

Duration: 25 min. Members Present: All except Robert Advisors Present: Paul Uhing and Matt Rich

Note Taker: Rohit Zambre

Data analysis tool done for 1-D pendulum system

- Need to make manual on how to use it.

Need to look into the issues of the localization system

- Need to contact CSG to resolve issues

A structure partially close to the final one is ready

One of the motors seems to be more powerful than the other one

Need to fine tune the 1-D system

-- Try new PID constants sent by Paul

Need to plan the timeline of tasks until dead week

Primarily work on Design Document to be submitted on Tuesday