Log of Remco Geuze

Week: 44

Moment of writing: 2-11-2015

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# What I worked on:

Following is my log of what I did during the last week, a txt version of this log will also be available.

During the beginning of last week I worked on dynamic treading, this would mean that we could adapt the priority of each sensor thread if a certain thread is ahead of the others.   
Due to the way that java works this is not really possible, I did a multitude of tests with different priorities on my personal pc (running windows) which showed that there is a large cap between the priorities of 4 and 5 in terms of performance, however between the other priorities there was little performance gain.  
For now I have put the dynamic tread scaling on a list of things we could add to the program if we end up having time to spare.

I then worked on the cue system, the idea that each sensor thread would send a command to a cue and read data from a different cue.  
I started building this from scratch, however I have found a build in function in java which I am going to try to use.  
This build in function is easier to work with since it takes care of synchronization and timing in between threads.  
However I have not yet succeeded in getting it to work smoothly, I expect that I will have that working on Tuesday of this week.

When that is done we can hook up the program that Junior is working on (which does the i2c communication) and then we can start working on implementing a Kalman filter.

During the second part of last week I worked on 2 things, I have moved the circuitry that allows for multiple GY-80's to a separate board which allows me to just use a cable to connect to everything, making things far simpler.

I also worked a lot on the Kalman filter, I helped Randy a lot with his Kalman filter which increased my personal understanding of the basic Kalman filter and I worked on the second assignment of the Kalman filter.

I continued to read and attempt to understand the Kalman-Bucy filter. Unlike the basic Kalman filter that we are being taught in the sensor data lecture (which relies on a linear assumption) this filter works on a continuous time version that does not rely on linearity.

For now I do not yet know if this will be a good alternative so I will shift my focus on understanding the Kalman filter for now.

# What I think the rest of the group worked on:

I worked together with Junior on getting the java compiler and runtime environment to the correct version in order to run the system. I helped him setup ssh access to the raspberry.

We also did some work together into sensor communication although he has done the bulk of the work on this (all I did was show him a code example that I had found and he mainly worked from there), other than helping him fix some compile errors I did not work a lot on this code.

I believe that Débora has mainly been working on understanding the Kalman filter so that we can apply it.