Fly Sense

Team C – ILR04

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Work done this week

There was a very good progress on the User interface. Nihar is doing a tremendous job with the interface and it grows "stickier" every day. I am very bullish that we will have it fully ready for FVE.

Shivang is preparing the environment for the system integration and has even thrown in a Github class to the team this week.

Nick is getting more hands on with project management and created a formal process to ensure that requirements, effort and FVE testing are well aligned.

My contribution this week was developing the first cpp code (and Excel demo) of the dynamic window code. This will select the relevant point clouds and will be later extended for coloring as per "time to impact" defining different levels of alert depending on how far objects are based on time to impact;

- Note: flying objects have high speed and low torque: when you are going "full throttle ahead" an object a few centimeters to your side or behind you is irrelevant because you don't have the control authority to reach them without first overshooting them and then turning around for a second pass/run.

Problems Faced this week

As the FVE approaches and we move ever more from concepts into "real work" we are now experiencing the normal "growth pains" of a team, trying to find a balance between what is the minimal set of requirements for having a "decent" product and how can we materialize that with the resources/knowledge we now have available.

In parallel with that we are also learning how to work with each other and the sponsor. Keeping people engaged and with expectations well managed is an art difficult to master. 😊

Individual achievements for this week

This week I was able to finalize the first version of the dynamic window on time for the PR3.

After PR3 I was able to get a speech recognition application working on Android and during next week will be adapting it to our needs. We did a quick test with the computer emulator and an Android phone, and found out that the Android phone worked much better.

We suspect it was because of the microphone of the computer and thus we are ordering a set of microphone/headphones that will arrive next week.

Milestones for next two weeks:

With Nihar:

a) Adapt SpeechToText Android code downloaded from the web into our needs
b) Integrate the adapted SpeechToText Android Code in our tool
c) Write a code for the sound warnings and integrate it into our tool

With Shivang/Hari:

    a) Segmenting the Velodyne point cloud with simple rules (to focus processing power)
    b) Using quadcopter dynamics to color the point cloud
    c) Using helicopter dynamics to color the point cloud

With the entire team: Prepare the Fall Validation Experiment (the clock is ticking!!!)