Critical Design Report

It's time to commit to what you are building, and to make sure that it fits with everything else.

This consists of 3 parts:

1) ***Part 1: System interfaces****: Does your piece fit with everything else?*
    - ***You will have to convince the integrators and they must sign-off on this.***
2) ***Part 2: Demo and evaluation plan****: Do you have a credible plan for evaluating what you are building?*
3) ***Part 3: Data collection, annotation, and analysis:*** *Do you have a credible plan for collecting, annotating and analyzing the data?*

Part 1: System interfaces

Please note that for this part it is necessary for the integrators to check off before you submit it. Also note that they are busy people, so it's up to you to coordinate.

Logical architecture

Please describe in detail what the desired functionality will be. What will happen when we click "start" or when your code starts to run?

Please describe for each quantity that you provide or consume , what are reasonable target values?

Please describe any assumption you might have about the other modules that must be verified for you to provide the functionality above.

The above must have a check-off by the integrators:

Software architecture

Please describe the list of nodes that you are developing or modifying.

For each node, list the published and subscribed topics.

For each subscribed topic, describe the assumption about the latency introduced by the previous modules.

For each published topic, describe the maximum latency that you will introduce.

Part 2: Demo and evaluation plan

Demo plan

The demo is a short activity that is used to show the desired functionality, and in particular the difference between how it worked before (or not worked) and how it works now after you have done your development.

It should take a few minutes maximum for setup and running the demo.

How do you envision the demo?

What hardware components do you need?

Plan for formal performance evaluation

How do you envision the performance evaluation? Is it experiments? Log analysis?

In contrast with the demo, the formal performance evaluation can take more than a few minutes.

Ideally it should be possible to do this without human intervention, or with minimal human intervention, for both running the demo and checking the results.

Part 3: Data collection, annotation, and analysis

Collection

How much data do you need?

How are the logs to be taken? (Manually, autonomously, etc.)

Describe any other special arrangements.

Do you need extra help in collecting the data from the other teams?

Annotation

Do you need to annotate the data?

Analysis

Do you need to write some software to analyze the annotations?

Are you planning for it?