TEAM STATUS: A5

What are the most significant risks that could jeopardize the success of the project? How are these risks being managed? What contingency plans are ready?

An outstanding risk is the need to quantify the power requirements of the system and tie them to defined performance metrics. This is more a matter of cementing the nature of the project than sheer difficulty, and so should be resolved by discussion over the next week. There're also some unknowns in terms of the software implementation, as we don't have any experience with high level synthesis. This risk can be mitigated by study beforehand and ample implementation time to cover for difficulties. Worst case scenario, we can do processing in software, but it is unlikely such a dire situation will arise.

Another matter is the possible switch to a dual camera system, detailed in depth in the next section, which would likely require utilizing MIPI/CSi cameras. Such an interface needs to be instantiated in the FPGA fabric, something that we do not have experience with, and would require studying Xilinx and 3rd party tutorials. Worst case, USB cameras could suffice.

Were any changes made to the existing design of the system (requirements, block diagram, system spec, etc)? Why was this change necessary, what costs does the change incur, and how will these costs be mitigated going forward?

A few changes have been made or are under consideration for this week. First of all, the Ultra96 board we will be using has been procured for us by the department, which frees up a significant portion of the budget for potential other uses. That leads into the second matter of discussion, the camera. We had initially intended to use a webcam with digital zoom to maintain focus on the subject. However, this decision was driven by the significant cost of systems with variable optical zoom and a focus on data savings (i.e. using less than native resolution), which made digital zoom viable. Under different use cases (e.g. a lecture or sports camera), such data savings are unnecessary, and our budget is now significantly relaxed.

While discussions are still underway, our working idea is to use two cameras, each with a different fixed zoom, and transitioning between them to maintain focus on the subject. Essentially, zoom would be digital until the limit of the low zoom camera, switch to optical via the high zoom camera, then digital from there to our specified ultimate zoom limit. This would increase our overall camera subsystem cost, and require more software work to handle the switch, but should represent a net savings combined with the board cost reduction.

Provide an updated schedule if changes have occurred.

No changes have yet been made to the Gantt chart. An updated version is maintained at [this link](#).