COSC1112/1114 OSP project 2013 - Self Assessment and Reflection

Learning Objective	Self Assessment (Circle one)	Summary of Evidence (Succinctly Summarize how you met the criteria of your assessment)
1. Design, Develop, test and debug a complex system-level program on a resource constrained device. Use of appropriate development environments, debuggers, unit testing tools and version control tools.	Fail Marginal Adequate Good **Excellent**	• built, tested and iterated/optimised face-recognition functionality on the Pi • Custom library was built for communication with an external servo controller; which among functionality included hardware-level error checking. • Majority of initial functionality was rapidly prototyped in Python then ported to C/C++ for performance optimisation • All code was kept in git, and collaborated on over Github
2. Explain how computing resources are used by the application software and managed by the software. Analyse the inherent trade-offs in complex system software design.	Fail Marginal Adequate Good **Excellent**	• A lot of time and effort (blood, sweat, and tears… lots of tears) were placed into optimising face-recognition to work at (perceived) real-time speeds. This required a lot of trial-end-error and finding the balance between speed of computation and accuracy of results. • Inter-Rpi communication was the first time any of us have implemented a client-server custom functionality for managing project system components spanning over multiple devices. • As mentioned in the final folio, a lot of work was carried out on getting smooth swing and pan motion range utilising servos. Direct control over GPIO worked however issues arising from interrupts effecting the timing resulted in us opting for an

		external servo controller for which a custom comms library was developed.
3. Construct appropriate diagrams and textual descriptions to communicate a low level system design and how it integrates on of the following key concepts: **a.** kernel and hardware interaction; **b.** processes and interprocess communication; **c.** concurrency and synchronization; **d.** preemptive and non-preemptive scheduling; **e.** memory hierarchy, management, and cost-performance trade-offs; **f.** file system design and implementation; and / or **g.** system level security **h.** other (please justify based on lectures)	Fail Marginal Adequate Good **Excellent**	• A set of diagrams and descriptions of interworking have been generated and included as part of the final folio covering all major project components. • • Additionally, hardware component diagrams have been providing highlighting the connectivity with the servos, PIR sensor, and microphone.
4. Describe the full range of considerations for effective and efficient teamwork	Fail Marginal Adequate Good **Excellent**	**The following are some areas and actions we took as a team over the course of the project that I think have ensured a smooth progression with the project components.** • **Understanding the strengths of each member in our group** • **Break up the overall projects into individual tasks and work out dependencies.** • **At the beginning of the project, having a frank discussion of the aims and what is realistically achievable in the time we have.** • **Cluster features into stages and assign priority** • **Delegate the features to each member, taking care to discuss what is realistically achievable within the timeframe** • **Have regular "standups" and maintain up-to-date development logs to ensure visibility of progress made across**

		the board, as well as flag any issues and blockers that may effect the overall project timeline. • **Block out "hack days" where all members spend a full day working together on the project, particularly on the getting all the individual components working together.**

Please answer the following questions, regarding your experiences during the OSP project.

Prompt	Your Response
1. Did you understand the project requirements? If not, what would have improved your level of understanding?	I understood the general aims of the project, however it would have been nice to have a bit more of a line in the sand to save on some confusion and discussions with the lab tutor. I would imagine next semester's intake would have a clearer understanding as the benchmark would have been set.
2. What aspects of the project did you enjoy?	The creative, open-ended nature of the project, and having the time to explorer some neat concepts/tech that I may have otherwise not find motivation for. It was great to see other team's projects, some really exciting stuff.
3. What aspects of the project did you not enjoy?	The forementioned confusion around how to achieve the objectives.
4. To what degree did the Raspberry Pi project enhanced your knowledge of OSP?	It provided a good resource constrained environment to work on when exploring the various facets of the covered material.
5. Did you find that this project prompted you to investigate the OSP learning objectives more	I guess so, I think approaching the project from a checklist of required elements to implement

thoroughly than you would expect in a standard assignment?	from the covered topics, would have made the folio and presentation easier.
6. Would the use of the Raspberry Pi in this project inspire you to take on similar developments in the future?	It has certainly provided confidence my own ability to undertake such development.
7. Were your team members chosen on the basis of friendship, skill, convenience, a combination of some of these, or some other factor(s)?	Sort of a combination, one team member, Neil, is a colleague in whom I have full confidence. The other team member, Alfred, is a wildcard but has proved to be seriously awesome.
8. In retrospect, how well do you think the skills of your team members were chosen?	Really well, I think we had a very balanced range of skills
9. How cohesively did your team work?	Like clockwork! We worked well together. I have detailed some elements of our team work above.
10. Do you think everyone contributed evenly?	I would say so, yes. I think we all pitched in here and there to ensure steady progress towards completion. Everyone went outside their immediate comfort zones and learnt something new
11. If the workload was not shared evenly, was this a management issue (i.e. objectives not clearly defined, inefficient allocation of tasks, poor communication, etc) or a team member issue (i.e not willing / capable of contributing, etc)?	n/a
12. As a percentage, what grade do you think your project / portfolio deserves and why?	I feel we deserve 90-95% as, in my mind, we have addressed all the learning objectives, and have produced a solution (in a functional prototype form) to a real-world problem, buiding on

	existing work and producing something unique.
13. What, if anything would you do differently if you were to do this project again?	In the folio I covered a number of hardware related changes I would have changed in hindsight including types of servos used, mount assembly etc. Project concept/scope-wise, perhaps implementing a checklist of required functionality/concepts used at the beginning of the project would have saved time in folio/documentation production
14. What, if any improvements could be made to the team selection process?	Take more time in profiling the students to offer an expanded range of dimensions to be used for team matchmaking
15. What, if any improvements could be made to the availability of resources for the project?	A better line-in-the-sand would have made life a bit easier during the project initiation phase.
16. What, if any improvements could be made to the prototype demonstration structure?	A more concrete template/checklist of areas to address and cover would have been nice.
17. Do you feel you received sufficient feedback on your project? If not, what type of additional feedback would have been beneficial?	I believe so.
18. Do you feel you were treated fairly by staff, team members and other students during the project?	Yes.
19. Overall, how would you rate your experience over the OSP project?	Really good, this format is a great start.

20. Any additional thoughts or comments?	