

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.	<p style="text-align: center;">Fail</p> <p style="text-align: center;">Marginal</p> <p style="text-align: center;">Adequate</p> <p style="text-align: center;">Good</p> <p style="text-align: center;">Excellent</p>	<ol style="list-style-type: none"> 1. We design a face-tracking system on resource-constrained device – raspberry PI. This is a quiet complex system that includes PIR motion sensor, face-detection algorithm, C/S communication and audio recording. 2. As role of software developer in the project, I adopt GUN tool to conduct the project. I use vim for coding, use g++ as complier and use gdb to debug. 3. In order to keep high reliability for communication part, especially in message serialization and multithread communication, I try to use CPPUNIT to conquer it. 4. Our group members are using Github to control the version. Every time we upload the code, we should write other group member about the changes you make.
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.	<p style="text-align: center;">Fail</p> <p style="text-align: center;">Marginal</p> <p style="text-align: center;">Adequate</p> <p style="text-align: center;">Good</p> <p style="text-align: center;">Excellent</p>	<p>Computing resources:</p> <ol style="list-style-type: none"> 1. As this project is consisted by several different independent parts, and each part conduct independent task. As a result of that, all these part are traded as singleton in the project and use a singleton list to manage. 2. We divide each part into different thread, and use share memory for thread communication. This is fast then messages, but it is hard to maintain and easy to have wrong overwrite. <p>Trade-offs:</p> <ol style="list-style-type: none"> 1. Singleton is on global memory, which means every thread can access the singleton at any time. It is not good for memory protection. 2. Too many threads in the project, hard to maintain.

<p>3. Construct appropriate diagrams and textual descriptions to communicate a low level system design and how it integrates on of the following key concepts:</p> <ul style="list-style-type: none"> 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) 	<p>Fail</p> <p>Marginal</p> <p>Adequate</p> <p>Good</p> <p>Excellent</p>	<ol style="list-style-type: none"> 1. I deliver the software architecture overview diagram and provide architecture decision for this project, including how to improve performance of face-detection algorithm and communication method. 2. In addition, I provide multiple thread communication diagram, which defines what the receive thread and send thread's responsibility and how to synchronise the message queue. 3. In terms of memory management, I use copy-on-write in project, because all the memory are read only until it is about to pass through the network. 4. As there are several parts in the project, and each part are consisted by more than one thread, so I trade every part in the project as singleton, and use share memory to achieve inter-process communication. 5. I use first come first sever in message queue for scheduling.
<p>4. Describe the full range of considerations for effective and efficient teamwork</p>	<p>Fail</p> <p>Marginal</p> <p>Adequate</p> <p>Good</p> <p>Excellent</p>	<ol style="list-style-type: none"> 1. We use github to control the code version, and leave comments about changes for every time updating the code. In that way, every team member can easily track the progress of others. 2. We use the developing log to communicate the progress and problem we conquer, which including the method we solve the problem 3. When the team lead publish the task, I can finish it on time and combine my work with other team members. 4. We spent several days together to debug the program, and combine all the code together and make the project run faster and faster, especially in face detection parts.

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?	Yes. Our team leader spends long time on explaining the project to me.
2. What aspects of the project did you enjoy?	Face detection. I love complex algorithm.
3. What aspects of the project did you not enjoy?	Actually nothing. This is great project, and it is quite fun.
4. To what degree did the Raspberry Pi project enhanced your knowledge of OSP?	The most impressive thing about PI is that how can I build a large system in resource constricting environment. And how to make different part work together cohesion.
5. Did you find that this project prompted you to investigate the OSP learning objectives more thoroughly than you would expect in a standard assignment?	Yes, but I am expecting build a simulator of OS
6. Would the use of the Raspberry Pi in this project inspire you to take on similar developments in the future?	Yes.

7. Were your team members chosen on the basis of friendship, skill, convenience, a combination of some of these, or some other factor(s)?	Skills, The team leader sends email, and I recruit.
8. In retrospect, how well do you think the skills of your team members were chosen?	Great.
9. How cohesively did your team work?	We divide tasks and conquer them separately, and combine the work together.
10. Do you think everyone contributed evenly?	Yes.
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)?	We work evenly
12. As a percentage, what grade do you think your project / portfolio deserves and why?	HD. It is a complex project that covers all the learning object in learning objects. In addition, every one in the lab thinks it is quiet good and interesting
13. What, if anything would you do differently if you were to do this project again?	NO

14. What, if any improvements could be made to the team selection process?	No
15. What, if any improvements could be made to the availability of resources for the project?	NO
16. What, if any improvements could be made to the prototype demonstration structure?	Make it longer
17. Do you feel you received sufficient feedback on your project? If not, what type of additional feedback would have been beneficial?	We receive feedback but it is not in time. I think if the feedback comes quick will be better.
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?	Great
20. Any additional thoughts or comments?	No