**Internship Project Summery**

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**Project Detail**

**Project name:** QSG-Topographic-Map

**Project description:** This project will create a web based map panel to show gateway devices' communication situation topographic.

**Intern student:** NG Zhao Ming

**Project tasks finished state:**

|  |  |  |
| --- | --- | --- |
| Idx | Sub-task | Finish state |
| 1 | Design a web-page to show the gateway devices’ communication situation topographic on a map. | 100% |
| 2 | Design a back-end web-server program to accept the gateways’ data from the QSG-Manage and update the related information on map webpage. | 100% |
| 3 | Re-factor the code to include database queries to retrieve and parse communication data. | 100% |
| 4 | Create program development and environment setup documents. | 100% |

**Project plan compare with the actual time line**:

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| --- | --- | --- |
| Week | Project plan time line | ZhaoMing’s progress time line |
| 1 | Improve the program design document and fixed what kind of API/Program language we will use for the program development. | Understand the project assignment document and learn how to use the *flask lib* to build a web server. |
| 2 | Pick up the related API and programming knowledge; create some simple test program during learning. | Created a test program to host a webpage use flask server with Google Map API. |
| 3 | Start programming and continues knowledge learning if needed. | Start to implement the project tasks 1&2’s basic function based on the frame work *flakMap.py* |
| 4 | Program development and improvement. | Implement the *flaskMap\_01.py* with basic function. |
| 5 | Implement *faskMap\_02.py* with multi-thread host function and added the link animation. |
| 6 | Implement the web data update function and the map control panel by using socketIO lib. Added the dummy data source provider program *qsg\_v02.py* |
| 7 | Implement the communication link highlight and search function. |
| 8 | Program improvement and add new features. | Learn how to use SQLite3 database and implement the program design document. |
| 9 | Create the database test program. |
| 10 | Debug and change based on team member’s comments. | Improve and integrate the database interface program *database\_stub.py* |
| 11 | Write program design and setup document. | Update the design document and prepare the NUS school presentation. |
| 12 | Prepare the project demo, presentation and student internship final report. | Prepare the NUS final report and improve the program based on the team demo feedback. |

**Code contribution:**



**Internship Feedback**

**General feedback:**

ZhaoMing is very a positive intern student who updates his project progress every day. He picked up the related knowledge very fast and worked very hard during his internship. He has finished all the project tasks which we assigned to him and he also added some additional function which makes the website usage more convenience. He is a very good learner who is not fear to try and test new things/ideas which he is not familiar with.

**Feedback about programming:**

ZhaoMing provided some good ideas which improved our original program design. For the web and server part he did a very quick job outstripping than the original assignment time plan. For the database part he got some misunderstanding about our design at the beginning, but he fixed his incorrect program structure after we did some discussion. For the code quality and program document part, based on this background and experience I think he did a very good job. In the future it will be better if he can pay more attention on make the program module reusable & flexible and read the framework code more carefully then follow the code stand to add the code comments and change the code format.

**Feedback about document implement:**

ZhaoMing implemented the detail program design and setup document which is very helpful for people who will take over the project in the future. As he did not learn the course about program UML diagram so some description in the document may not very straight forward for the reader, but the whole document is clear enough.

**What we may improve in the future**

For the intern project design, I think I need also do some improvements in the feature:

1. I think we need to pay more attention to what course the intern student has learned, if he didn’t leaned the knowledge about program structure I think we need avoid making the logic too complex or let them do the project with multi-thread structure.
2. Normally the intern student codes structure are not OOP modularization structure, so the code is difficult for other people to re-use or integrate, in the feature we can design a main frame first and let the intern student to fill the function inside so we can avoid let them to redo their work during the integration step.
3. For this project as we have fixed what lib will be used in the project, I think if the intern student has different idea about how he wants to implement the function we can encourage them to give more try, sometimes them may come out some good ideas which we didn’t consider at the beginning time when we design the project.
4. We may also leave one or two weeks for the intern student to prepare their NUS internship final report and presentation when we plan the internship timeline.