**Project Proposal**

Performance Testing Dashboard

Version 1.3 – Released date: 12/21/2016

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# Change History

|  |  |  |  |
| --- | --- | --- | --- |
| Version | Date | Author | Changes |
| 1.0 | 10/10/2016 | Team | Initial version |
| 1.1 | 10/12/2016 | Team | * Communication Tool change: Skype for Business. * Collaboration Tool change: Google Drive deleted. * Configuration Tool added: ILM. * Critical Computer Resource added. * Naming Convention Added. * Project Timeline fixed. |
| 1.2 | 10/13/2016 | Team | * Term of Reference added * Change History updated. * Naming Convention for Task added. |
| 1.3 | 12/21/2016 | My Dang | * Correct minor mistakes. |

# Definitions and Abbreviations:

* Deliverable - a product which will be delivered to the project client upon completion.
* PMP - Project Management Plan.
* Product - an item (document or software) which will be produced by the development team.
* SRS - Software Requirements Specification
* PTD - Performance Testing Dashboard
* Spring-WS - Spring Web Service.
* Dar - Decision Analysis and Resolution Report.
* ASAP - As Soon As Possible.
* TFS - Team Foundation Server

# Term of Reference:

Bosch of Engineering and Business Solutions Vietnam Co. Ltd (Bosch) located in Ho Chi Minh City is a regional office of Bosch Group in Vietnam of South East Asia region. In order to provide opportunities for students to enhance their skills and talents in competitive market and business, Bosch raises many Capstone projects for many universities in Ho Chi Minh City. As our client, Bosch introduces a 9-month project on Performance Testing Dashboard in order to improve their internal testing services and expanding to external on web application for students of Ho Chi Minh University of Science (HCMUS), majors in Service Science – associate with Auckland University of Technology (AUT).

With many supports and hospitality of Bosch associates and teachers from the HCMUS – AUT, the students who responsible for the Capstone project promise to realize the project goals with flying colors.

# Rationale for the Project:

## 2.1. Statement of Need

Existing in Robert Bosch Engineering and Business Solutions Co. Ltd is a desktop testing application that is used only in local network to manually input and export reports for analysis and testing services. With the extension of demand, the RBVH/ETI1 department raises an idea of creating alternative application that can serve BOSCH and customers outside of the company as well as solving inconvenient issues from the existing application. Therefore, to realize their innovation, the ETI1 wants to make an alternative performance testing dashboard that run on website.

## 2.2. Issues

The desktop application only allow testers to manually input scripts without automated concurrency and lack of script management if the numbers are counted to thousands. Besides that, the testers have to manually copy result graph to word files for manually analysis and report which takes too much time and inefficient, but, at worst, is to making mistakes in analysis or report activities.

The current testing software available in RBVH are LoadRunner and Jmeter that testers need to run their services. Jmeter is an open source testing software which can do 90% of what LoadRunner features, and, LoadRunner give a high commercial price that have to pay annually. However, LoadRunner reveal many outstanding benefits better than Jmeter. It is a mission to consider an alternative application that can reduce cost and enable great feature like LoadRunner.

To work with clients outside of BOSCH with the current situation is slow and inconvenient, previously, impossible. The ETI1 testers have to work hard and manually with desktop application to export results for clients. By creating a solution to help clients tracking and seeing the results it with real-time reports is extremely critical and urgent. The work must be shared and uploaded in the website for best communication and erased the difficulties in accessing BOSCH local network.

## 2.3. Opportunities

In order to make performance testing for BOSCH globally, it is a great opportunities to bring up desktop testing service into cloud-based testing service. Therefore, working with clients from different locations, both insiders and outsiders, are a possible solution with great capabilities and convenient for clients to follow up their requirements.

The project will fix the manual setting and report problems from the desktop application and allow real-time graph and statistics for clients to track, view, analyze the performance testing live. The system will be more accurate than the desktop version because the report must be exported automatically with forms and correct figures through automated system. The automated system will automated running scripts and report exports, real-time comparisons, etc. which help to reduce testing time and efficient, convenient to work with this dashboard.

The project will make good use of Jmeter core and plugins to meet up the functionalities of LoadRunner and eliminate the budget spending on licensing. Hence, the product could be customized by BOSCH tester’s requirements for further upgrades and give our team an opportunity to become a future performance testing service provider if the product gain popularity and efficiency.

# Scope and objectives:

## Objectives

The name of the project Performance Testing Dashboard (PTD) clearly determine its objectives. Our client needs a dashboard that can help them to manage performance testing result easily. And depending on our first meeting and our team discussion, we can find out some of this objective:

Identified Objective:

* **Objective 1:** The PTD need to have ability to show performance testing result both in offline-mode and in real-time.
* **Objective 2**: Have the ability to zoom in and zoom out, show the value at the specific point on graph when test execution is complete.
* **Objective 3:** Need to be able to manage the Report. Have some features such as report comparison, report export, etc.
* **Objective 4:** Need a user management which can be linked with Bosch user and also able to create new user.
* **Objective 5:** Need a Script management which use to manage performance script. It also need a File Uploader where user can upload their Script.
* **Objective 6:** The P.T.D also require an automation system to co-operate with. This automation system will have ability to automate run performance test from the Jmx script which user can upload from dashboard. It also have ability to automate collect performance testing report, depending on the requirement of the customer then it automate send the result back to the customer when test execution is complete.

## Scope

* As mentioned above, our project will have two system work together, that are Performance Test Dashboard and Automated System. This is quite a big Project (extremely Big) but unfortunately that we don’t have many time (Our Team Just have 8 month to develop it) and limited resources.
* So that the Scope we plan to do in this project is focus on develop the Performance Test Dashboard. Our team will trying to make a Dashboard which is clean, simple and user-friendly while Jmeter structure and all the basic functions.

## Assumptions and Constraints

|  |  |  |  |
| --- | --- | --- | --- |
| Description of Assumption and Constraint | Impact  (Schedule, Quality, Cost) | Required By | Status  (if tracked using schedule, need not be filled) |
| Availability of the hardware for the resource. | Schedule | At least 1 week before sprint Start. | Continuous |
| Availability of the required software for the task execution. | Schedule | Before project start date | Continuous |
| The development Team is work as full-time intern in 9 month to complete the project | Schedule |  | Continuous |
| The development team is working full-time in Bosch Office and always keep contact with each other. | Schedule, Cost, Quality |  | Continuous |
| We have to work 40 hours per week and not more than 10 hours per day. | Schedule | Bosch Policy | Continuous |
| Have to take 2 half-day left at Wednesday and Thursday’s afternoons to participate class in university | Schedule, Quality | School reason | Continuous |
| Have to take some days off to participate class in University | Schedule, Quality | School reason | Continuous |
| Have to complete the project before 5 – 6 June, 2017 | Schedule | School reason | Continuous |

# Project Approach:

## Project Approaches Information:

|  |  |
| --- | --- |
| **Project Approaches** | |
| **Methodologies** | |
| - **Process** | Agile |
| - **Team Management and Control** | Scrum |
| **Technologies** | |
| **Front-end** | |
| - **HTML5/CSS3 Framework** | Bootstrap 3 |
| - **JavaScript Framework** | AngularJs 2 |
| **Back-end** | |
| - **Java Framework** | Spring / Hibernate |
| - **Security Features** | Spring Security |
| - **Web Services** | Spring Web-Service (Spring-WS) |
| **Tools and Software** | |
| - **Communication Tool** | Skype for Business |
| - **Collaboration Tool** | Team Foundation Server |
| - **Source Code Management Tool** | Team Foundation Server / GIT |
| - **Document Version Control** | Bosch ILM |
| - **Development Environment** | Eclipse IDE |
| - **Designing** | Adobe Photoshop / InDesign |
| - **Office Tool** | Microsoft Office |

## Project Approaches Description:

* + 1. **Methodologies:**

**Agile process** was recommended.

- Performance Testing Dashboard is a new large project and our team was gathered from university so the project’ scope must be adjusted continuously during the development time.

- The prototype can fast delivered to our client so by receiving instant feedbacks we can make the final product more accurate with high quality.

- Every stage will be observed by client so there will be no critical misunderstanding between our team and client.

- The document work will be reduced and team can focus more on the quality of the products.

- This process will require more connection and interaction between team members as well as remaining good relationship with our client.

**For Team Management and Control:** we will use Scrum with 2 weekly sprint. Beside the benefits inherence from agile process, Scrum will help the project:

- Scrum requires members to work physically together so our team will have more time understand and work well with each other’s. Moreover, as working full-time (40 hours/ week) then we don’t have to worry about showing evident of working hours per day for our proposal at school.

- Scrum require cross-functional and self-organizing team so during the process every members can learn lots of things.

* + 1. **Technologies:**

**Front-end side:**

Bootstrap will be our main frontend framework for HTML5/CSS3 to build Dashboard. According to Product Owner’s dashboard template, Bootstrap will be used by following main reasons:

- Open Source, Twitter Bootstrap is an open source framework with a large community and rapid growth.

- Compatible with most of modern internet browsers: Google Chrome, Firefox, Safari and IE 8 above.

- Bootstrap provide many basic CSS and JavaScript libraries inside which can be inherence and customized easily.

- Time saving.

AngularJs2 will be our main JavaScript framework to use in this project. According to Decision Analysis and Resolution (DAR report) that is attached, Bootstrap will be used by following main reasons:

- Familiar syntax, with the help of Typescript the coding will easier and faster.

- Better performance.

**Back-end side:**

**Development Language**: In this project we use Java language with Spring Framework. Spring is a Java framework with largest community in the world so we can research and learn easier. Moreover, Spring provide a strong MVC structure but able to combine with other new technologies like AngularJs2.

**Backend Security:** For software’s security we will use Spring Security to provide authentication, authorization as well as other security features.

**Web services:** For further implementation and compatible with other services we will use Spring-WS. Spring-WS is one of Spring modules that also support application security with WS-Security.

* + 1. **Tools & Software:**

**Communication Tool:** In this project, our company use Skype for Business due to ISO Standard. Hence, Skype for Business will be our team’s main tool to communicate in the office (beside direct communication) and at home. Skype for Business provides video and voice call that is very essential. Skype for Business also have cache memory to store send and receive documents.

**Collaboration Tool:** Team Foundation Server (TFS) is recommend which can be used not only for Collaboration management but also source code management. TFS provides many features to manage team member work, tasks, requirements, backlog…

**Source Code Management Tool:** Beside TFS we also use GIT to control our source code when not working in the office.

**Document Version Control:** We will use Bosch ILM to manage versions of all documents.

**Development Environment:** Eclipse IDE.

**Designing**: Adobe Photoshop, InDesign.

**Office tools:** Microsoft Office.

# Configuration Management:

## Baseline Description:

According to Bosch [Guideline](http://sgpvm070:8080/pkit/main.do), the Baseline will be described by:

* First available version of any document is the "base version of the document". This version should always be 1.0.
* If it is required to change the "base version of a document" and if it is not yet baselined then changes can be implemented without change request handling process.
* If it is required to maintain the versions being reviewed, then these can be stored as V1.0r1 (first review), V1.0r2 (second review) etc.
* At the time of baselining, it should be baselined as version V1.0 and the document history should indicate that it is the initial version.
* After first baselining, the document is called "baselined document" (with version V1.0.)
* After a document is baselined, the changes to the "baselined document" can be implemented only through change request handling process.
* After the implementation of changes, version number should be changed to V1.1.
* After second baselining, "baselined version" of the document shall be V1.1.

## List of Configuration Items:

|  |  |  |  |
| --- | --- | --- | --- |
| No | Configuration Item | Trigger | Responsibility |
| 1. | Project Plan | After reviewed / approved | Product Owner |
| 2. | Requirement document | After reviewed / approved | Product Owner / Reviewer |
| 3. | Design document | After reviewed / approved | Product Owner / Reviewer |
| 4. | Prototype | After reviewed / approved | Product Owner / Reviewer |
| 5. | Source code | After development finish. | Product Owner |

## Storing and Retrieving Configuration Item:

All of Configuration Item will be stored on Team Foundation Server, the access right will follow the company conventions and approved by Product Owner.

## Version Management:

Document: For minor changes only sub number of the version would be incremented. For large modifications: new additions, major changes... The main version would be incremented.

Ex: Project Management Performance Testing Dashboard version 1.0.docx

* 1. **CM Tool:**

For CM Tool our project will use ILM tool. ILM tool is Bosch’s product to manage version of documents.

## Naming Convention:

|  |  |  |
| --- | --- | --- |
| No | Configuration Item Type | Filename |
| 1. | Text Documents | * **Proposal**: Proposal\_<ProjectName>\_v<Number> * **SRS**: SRS\_<ProjectName>\_v<Number> * **Use** **cases**: UCase\_<ProjectName>\_v<Number> * **Time** **Tracking** **SpreadSheet**:   TimeTracking\_<ProjectName>\_v<Number>   * **Guidance**: Guide\_<ProjectName>\_v<Number> |
| 2. | Task | * **Task:** [Category] - TaskNameStartWithVerb. |
| 3. | Issue | * **Issue:** [Issue] - IssueName |

# Project Plan:

## Project Deliverables

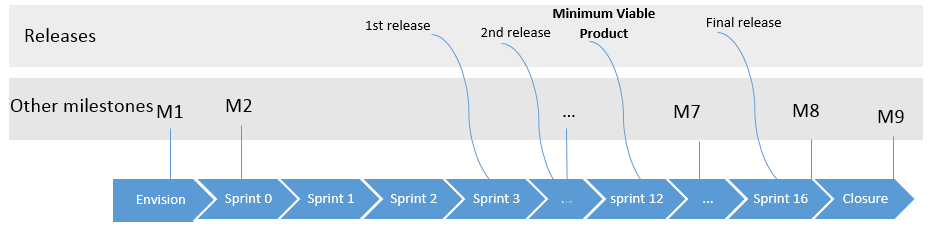
### Deliverables for HCMUS

* SRS
* Proposal
* Design
* Having UML Class Diagram, architecture of the system,
* Use cases
* Showing the functionality of the system.
* Supporting for creating test cases.
* Standards
* Making the code clean.
* Helping multiple developers understand the code to enhance maintainability.
* Time Tracking Spreadsheet
* Tracking development team tasks, estimate time and the actual time spent on each task.
* Tracking percentage of complete and time in order to keep on the schedule.

### Additional Deliverables for the company

* New Performance Testing Dashboard
* Technical documentation

## Timeline summary



### Milestones

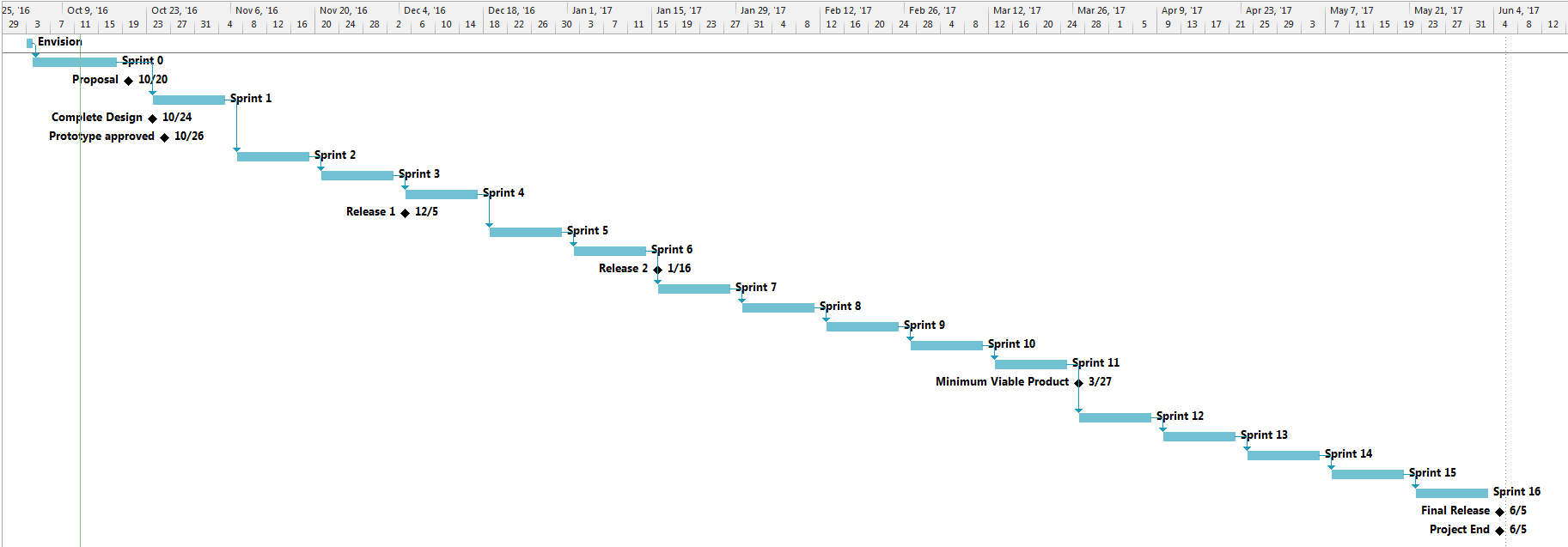
|  |  |  |
| --- | --- | --- |
| Key Milestone | Description | Planned date |
| M1 | Complete Gathering Requirements | 10/07/2016 |
| M2 | Proposal approved | 10/20/2016 |
| M3 | Complete Design | 10/24/2016 |
| M4 | Prototype approved | 10/26/2016 |
| M5 | Release 1 | 12/5/2016 |
| M6 | Release 2 | 1/16/2017 |
| M7 | MVP | 3/27/2017 |
| M8 | Final release | 6/5/2017 |
| M9 | Project end | 6/5/2017 |

**First sprint includes the below activities:**

* Write the proposal and get approval
* Become familiar the technology used for the project
* Develop prototype

**For other sprints:** client communication, planning, analysis, design, code, unit testing, and client evaluation.

The time goal of the project is to finish by the end of May 2017.



|  |  |  |
| --- | --- | --- |
| Sprint Name | Start date | End date |
| Sprint 0 | 10/10/2016 | 10/24/2016 |
| Sprint 1 | 10/24/2016 | 11/7/2016 |
| Sprint 2 | 11/7/2016 | 11/21/2016 |
| Sprint 3 | 11/21/2016 | 12/5/2016 |
| Sprint 4 | 12/5/2016 | 12/19/2016 |
| Sprint 5 | 12/19/2016 | 1/2/2017 |
| Sprint 6 | 1/2/2017 | 1/16/2017 |
| Sprint 7 | 1/16/2017 | 1/30/2017 |
| Sprint 8 | 1/30/2017 | 2/13/2017 |
| Sprint 9 | 2/13/2017 | 2/27/2017 |
| Sprint 10 | 2/27/2017 | 3/13/2017 |
| Sprint 11 | 3/13/2017 | 3/27/2017 |
| Sprint 12 | 3/27/2017 | 4/10/2017 |
| Sprint 13 | 4/10/2017 | 4/24/2017 |
| Sprint 14 | 4/24/2017 | 5/8/2017 |
| Sprint 15 | 5/8/2017 | 5/22/2017 |
| Sprint 16 | 5/22/2017 | 6/5/2017 |

### Timeline for Deliverables

|  |  |
| --- | --- |
| Deliverable | Time |
| Proposal | 10/12/2016 |
| SRS | 10/12/2016 |
| Standards | 10/22/2016 |
| Design | 10/24/2016 |
| Prototype | 10/24/2016 |
| Use Cases | 10/24/2016 |
| Code | 6/1/2016 |
| Test plan | At the beginning of each sprint |
| Go live | 6/2/2016 |
| Technical Document | 6/1/2016 |
| Final Report | 6/1/2016 |
| Time Tracking Spreadsheet | 6/1/2016 |
| Final Presentation | 6/5/2016 |

### Definition of Done (DOD)

#### Creation of the DOD

At the beginning of each spring, the development team creates their “Definition of Done” for:

- User stories

- Sprints

- Releases

##### Review of the DOD

The team will review their DOD at the end of each sprint.

## Roles and Responsibilities

|  |  |  |  |
| --- | --- | --- | --- |
| Role | Responsibilities | Person in charge | Contact |
| Product Owner | * Provide vision for the team * Represent the users of the system. * Manage stakeholders and their requirements * Prioritize work for the team * Own and maintain the product backlog * Set the acceptance criteria | To Hoa Duy Man | Bosch internal emails |
| Scrum Master | * Encourage face to face communication * Help the team reflect and review continuously * Resolve conflicts * Solve problems | Dang Thi Thao My |
| Development Team | * Be full-stack developers (Design UI/UX, front-end, back-end). * Prioritizing the sprint backlog. * Split a user story into tasks. * Complete tasks to achieve sprint goal. * Communicate the status of the work on a daily basis. | * Dang Thi Thao My |
| * Bui Nguyen Thien Khanh |
| * Le Huynh Anh Tuan |
| * Nguyen Anh Quan |

## Meetings

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Meeting | Attendees | Time | Duration | Purposes |
| Sprint Planning | Development Team, Scrum Master, Product Owner | Beginning of the sprint | 2 hours | * Prioritize the product backlog * Discuss the effort to complete. * Form the sprint backlog |
| Daily Scrum | Development Team, Scrum Master, Product Owner | Every working day morning | Less than 15 minutes | * Each team member will tell: * What they did yesterday * What they will do today * What problem they met |
| Sprint Review | Development Team, Scrum Master, Product Owner | End of the sprint | 30 minutes | * Development team show what was built. * Get feedback from Product Owner. * Keep quality of the project. |
| Sprint Retrospective | Development Team, Scrum Master, Product Owner | End of the sprint | 60 minutes | * Development team reviews and reflect what they have done and how they did it. * Suggest constructive improvement. |

## Critical Computer Resource

The software will be developed in a Windows environment with Java being the primary language.

The Company RBVH has provided four Windows machines, software, and other facilities for use in the project. We also require a server for hosting the web and a system of computers to distribute performance test script.

# Skills and knowledge involved:

## Professional Skills

* Teamwork
* Leadership
* Planning
* Researching
* Time Management
* Presentation
* Questioning Techniques
* Document and report writing
* Analytical
* Project management

## Interpersonal Skills

* Conflict solving
* Verbal Communication
* Nonverbal Communication
* Listening Skills
* Decision Making
* Negotiation

## Technical Skills

* **Programming skill**
* Using Spring Framework, Hibernate, Java, MVC, and Jmeter’s API for developing back-end functions.
* Using angular js2, bootstrap for front-end functions which display Dashboard with enough information for users and let they interact with provided features.

### Testing

* Designing test cases to verify the functional performance of our system.

### Database

* Designing database based on client's requirements by using MySQL
* Optimizing database.

### Other Tools

* Cloud Server
* TFS
* GIT

## Knowledge

* Know how to get customer requirements, analyze them, develop, test and deliver the product.
* Understand clearly about MVC model.
* Know clearly about Performance Test process.
* Know clearly about Jmeter’s Distributed Testing process. In this case, we need to how to use multiple systems to perform performance testing.

# Estimated all costs incurred:

**Client supports:** server, computer system, network, software (based on non-functional requirements).

The project is sponsored by BOSCH and resources of BOSCH can be used for free when permission granted. BOSCH supports:

* BOSCH internal server and hosting
* Computers/Laptops for Client-Slaves configurations
* Technical training/ Tool training
* Office equipment: Office computers, keyboards, mouse…
* To access data from outside of the company, they provided VPN and confidential agreement before permission.
* Software/Services that is allowed and bought by BOSCH.
* The University of Science provides computers, documentations, templates, and knowledge to manage the project via supervisors, lecturers and library.
* Our team will take responsible for fees of meetings with our clients or supervisors. We make sure that no accidental fees are occurred by mistakes.

BOSCH policy provide a internship program with allowance, estimated total cost for the project is:

|  |  |
| --- | --- |
| Number of member | 4 |
| Month of working | 9 |
| Salary per hour per member | 3.000.000 VND |
| Total cost for the project | 108.000.000 VND |

# Risk Management:

In this project, the following risk management strategy is employed:

- Assess and track the probability and impact of major risks.

- Provide mitigation solutions and contingency plans to all assessed risks.

- Risk reassessment will be done after every sprint.

- When any risk arises, an issue will be reported and solved regarding to corresponding risk response of that risk.

Several risks are listed on Risk Management Spreadsheet followed by BOSCH template.