

**American International University –Bangladesh**

**Course:** **Software Development Project Management**

Section: **A**

**Project:**

**Developing a Software Development Project Management Plan for Dhaka Subway Systems Automated Ticket Issuing System**

**Group Members List:**

|  |  |  |
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**REVIEW HISTORY**

|  |  |  |
| --- | --- | --- |
| **Version** | **Date** | **Description** |
| **1.0.0** | 25th August, 2020 | The first version of starting the project |
| **1.0.1** | 10th September, 2020 | The final version of the project with some issue solved and corrected documentation. |

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Introduction

This is software development project management document plan for the Automated Ticket Issuing System for Dhaka Subway System. This software project management plan will demonstrate the detail about the SDLC which will be detailed by individual point of discussion also the development process. This document will cover detailed information about the management plan used on the project development process. The designated audience of the document is the designers, developers, quality testers and project stakeholders. It specifies the technical and managerial approaches to develop the software product. All technical and managerial activities required to turn over the deliverables to the Dhaka Subway System for their Automated Ticket Issuing System. This includes scheduling, identification of tasks and factors that may put an impact for the project planning.

Process Model

Choosing a Model:

RAD Model is Rapid Application Development model. It is a type of incremental model. In RAD the process and the development of elements and component gets evaluated in a parallel manner. It is one of the faster software development process models. This new term recently become the marketplace buzzword that generally describes application that can be designed and developed in 2-3 months more like in between 90 days. It was intended to describe a process of development that involves application prototyping.

Why choosing this Model:

* In order to save development and deployment time within the expense of economy or product quality.
* Divert early design acceptance to the customers and make feasible converge of the product for the application developers.
* To limit project exposure to the forceful manner of changes.
* In certain situation, a useable 80% solution can be produced in 20% of the time that would have been required to produce a total solution.
* This model has the characteristics that in most of the time it prevents cost overrun.
* This model also prevents runaway schedules.
* If the project manager gets well defined requirement from the client to build the software then RAD model provides maximum percentage of project development success.

Quality Gates for Each Phase of Software Development

Rapid Application Development methodology has a primary focus on project development which is increased product quality. But the term has a different meaning which is the software development process is traditionally associated with Custom Application Development. Prior to RAD, perhaps more intuitive quality in development was both the degree to which an application conforms to specifications and a lack of defects once the application is delivered. According to RAD, quality is defined as both the degree to which a delivered application meets the needs of users as well as the degree to which a delivered system has low maintenance cost. Rapid Application Development model attempts to deliver on quality through the heavy involving of users in the analysis and particularly the design stages.

List of Tasks (WBS)

* Requirement Elicitation
* Project Planning
* Requirement Analysis and SRS Document review
* System Prototype Design
* Project Design Review with Clients
* Implementation and Unit Testing
* Object Oriented Design Review
* Project Agreement
* System Integration and System Testing
* Internal Project Review – Functional Prototype Testing
* Project Acceptance by Client

Estimation for Each Task (Use of COCOMO II)

|  |  |  |
| --- | --- | --- |
| **Task of Phase** | **Days** | **Hours** |
| Requirements Elicitation | 12 | 96 |
| Project Planning | 13 | 104 |
| Requirements Analysis | 10 | 80 |
| System Design | 15 | 120 |
| Object Oriented Design | 13 | 104 |
| Implementation and Unit Test | 13 | 104 |
| System Integration and System testing | 14 | 112 |

**N.B.** Engineers individually works for 8 hours and 5 days a week. Total project duration is 90 working days.

Scheduling the Tasks

|  |  |
| --- | --- |
| **Date** | **Project Phases** |
| June 10 – June 25 | Requirement Elicitation |
| June 26 – July 15 | Project Planning |
| July 16 – July 31 | Requirement Analysis |
| August 1 - August 21 | System Design |
| August 22 – September 10 | Object Design |
| September 11 – September 26 | Implementation and Unit Testing |
| September 27 – October 12 | System Integration and System Testing |

**N.B.** Weekend of few are included in the time frame which is not counted as working days. It is assumed that only 80% time of an engineer per day will be used to develop the software and 20% of the time will be used to reading emails, attending meetings and process improvement activities.

List of Milestones

|  |  |
| --- | --- |
| **Date** | **Project Milestones** |
| June 5 | Software Requirement Presentation by Client |
| June 10 – June15 | Analysis Review |
| July 14 | Project Plan Review by Client |
| September 8 | Object Design Review |
| September 12 | Demo Prototype Software |
| September 20 | Internal Project Review (Functional Prototype) |
| October 12 | Project Acceptance by Client |

Staffing Plan

Staffing plan is prepared to make for certain reasons. In a project it is always need to be count in the plan that the sufficient staff with the right skills and experience to ensure the successful project completion. The following table is a detail breakdown of the roles and required stuff plan in order to execute the project. It includes the project role, the responsibility and the number of stuff required for the project.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Role** | **Name** | **Est. Working Hours** | **Key Project Phase** | **Number of Stuff Required** | **Hourly Rate** |
| Project Manager | Jamil Mahmud | 140 | ALL | 01 | $120 |
| Requirements Analyst (Lead) | Urmi Sarkar | 35 | Requirements | 01 | $80 |
| Requirements Analyst | 1. Urmi Sarker 2. Shanjana Islam 3. Hasibul Hasan Nobin | 20  15  20 | Requirements | 03 | $80 |
| Software Engineer (Lead) | 1. Abdur Rahman Emon 2. Abrar Rafid | 20  20 | System Allocation & Design | 02 | $90 |
| Software  Engineer | 1. Rhydwan Hasnat 2. Shariar Shawon | 30  46 | System Allocation | 02 | $60 |
| Programmer (Lead) | Sabbir Shikder Orid | 25 | Implementation | 01 | $130 |
| Programmer | 1. Riyad Mohammad 2. Wasif Zaman | 30  35 | Implementation | 02 | $100 |
| Verification Engineer | 1. Noor A Aysha 2. Ragib Hasan 3. Muntanuz Zaman | 30  34 | Requirements, Design, Implementation | 02 | $50 |
| Software Designer | Urmi Sarker | 80 | Design | 01 | $150 |
| Quality Analyst | Shanjana Islam | 35 | All (but most work up-front during definition) | 01 | $190 |
| Database Engineer | Mahfuz Rahman | 25 | Design,  Implementation  Installation | 01 | $80 |
| Configuration Manager | Asif Iqbal | 25 | All (but most work up-front during definition) | 01 | $50 |
| Technical Writer | Mahmud Hossain | 25 | Documentation | 01 | $90 |

**N.B.** Most of the stuff will attend weekly project status meetings for which the dates are need to be set and determined. All “Lead” staff must join all meeting sessions. Beneath the “Lead” stuff all other stuffs will work as directed.

Monitoring and Controlling Mechanism

Monitoring of project progress is done by the Project Manager using the following means:

* Weekly project meeting will take place under lead project manager’s supervision.
* Meetings will be held to inform each other of the progress made on various tasks. New tasks will be assigned by the Project Manager during these meeting days. Before group meetings the Project Manager will review the previous meeting, briefs and compose an agenda for the meeting. Team members can propose additional agenda points before or during the meeting.
* These group meetings are scheduled once in a week. During these meetings the Project Manager and the QA manager will meet the senior management. The following things are need to be done before meeting the top management.
* The progress report of the last reporting period will be written by the Project Manager.
* The Project Manager will demonstrate upcoming group session brief to the management.

A hard copy of the progress report will be delivered to the top management.

Risk Management

This detail will mention the number of possible risks for the project. Also risk mitigation plans are will be described in order to prevent the risks.

1. **Communication Gap –** There is a chance to break in communication between the team members or sponsors. If this happen then it would potentially lead to falling behind the project. On this case, project manager will keep high attention so that the team members keep inter connected while finishing any given task.
2. **Environment Failure –** There is possible chances of server crush, hardware inconvenience, system failure of the work environment. In this circumstance only solution is to keep backup maintenance or hardware capacity so that on any emergency case backup plan can be initialized.
3. **Defect at modeling and planning –** If any defect found in modeling or object designing then it would take higher time. In this case, before starting the implementation the design part must go under higher count of review and analysis.

List of Deliverables

Software Project Management Plan defines the technical and managerial process which is necessary for the development and delivery the final software system. Here in this section the list of deliverables will be defined in detail

* Agreement papers and documents of the Automated Ticket Issuing System for the Dhaka Subway System will be delivered on the beginning to the client from the project development team.
* Analysis document describing the functional and global requirements of the system of 4 development model – The Use Case Model, The Object Model, The Functional Model and The Dynamic Model.
* System Design Describing the design goals, the high-level decomposition of the system, concurrency identification, hardware-software platforms, data management, global resource handling, software control implementation and boundary conditions. This document forms the basis of the object design.
* Object Design is composed of two documents – The updated RAD and the code related data from the developers.
* Test manual describing the unit and system tests performed on the system before delivery along with expected results.

Defect Tracking Process

Some precautionary measurements are need to be taken to track defects. They are stated below.

* Breakdown the whole execution procedure into several arts and scrutinizes each part circumspectly to track down defects.
* While coding phase starts project manager will always check the implementations are based on proper requirements.
* Requirements illustrated by client stakeholders should be maintained and updated on a regular basis.
* There should be satisfactory amount of interactions between the developer team and the project manager.
* The project manager must communicate with the stakeholders on a regular basis.

Metrices

|  |  |  |
| --- | --- | --- |
| **Schedule** | **Milestones** | **Software** |
| Satff Usage | Graph of person-hours used per month both projected and actual | MS Excel |
| Expenditures | Graph of total expenditures over time | MS Excel |
| No. of Requirements | Graph of requirement identified per module | MS Excel |
| No. of Requirement Defects | Graph of number of defects per module | MS Excel |
| No. of Objects | Graph of number of objects identified over time | MS Excel |
| Coding Progress | Number of objects coded | MS Excel |
| Coding Size | Lines of code measured | MS Excel |
| Test Progress | Unit test causes passed over time | MS Excel |
| Defect Tracking | Number of code defects | MS Excel |
| Test Progress | Number of integration test passed over time | MS Excel |

Postmortem

The overall project follows the modified RAD model. Three prototypes will be delivered to the clients – A Graphical User Interface, A Functional Prototype and a System Integration Prototype. Analysis is started before project planning is finished. System Design is followed by Object Design. It is hoped that the project will be completed successfully without any major interruption.