Automated Ticket Issuing System For Dhaka Subway Systems

A Software Development Project Management Plan

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Acknowledgement

This Project was instructed and supervised by respected teacher S.M. Abdur Rouf Bhuiyan. The duration of this project is from 4th July 2017 to 17th August 2018.

Review

Version	Date	Description
1.0.0	20th July 2018	The initial version of starting this project.
1.0.1	17th August 2018	This is the final version. Some problems were solved regarding documentation.

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3.Introduction

This is the documentation of the software development project management for Automated Ticket Issuing System for Dhaka Subway Systems. This Software Project Management Plan will explain details about the software development lifecycle which our group will take in order to complete the desired software product . This document will cover detailed information about the management plan used to this project . The intended audience for this document is the designers and the IT department people. 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 Systems are Included .This includes scheduling , identification of tasks and factors that may impact the project and planning.

4.Process Model

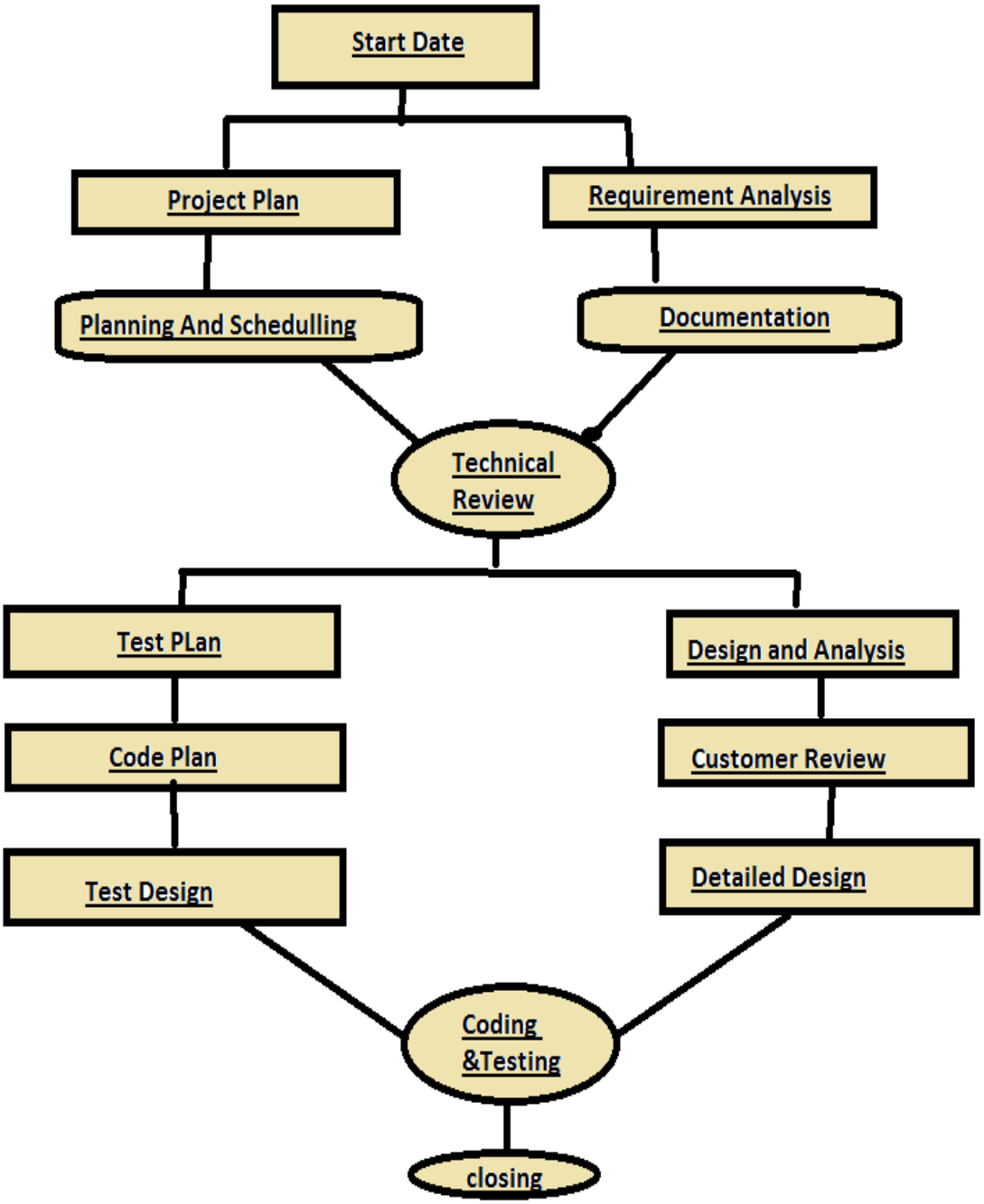
4.1 Choosing a Perfect Model

RAD model is Rapid Application Development model .It is a type of Incremental model .In RAD the Components are developed in parallel Manner. It is a faster software development process. The term has recently become a marketing buzzword that generically describes application that can be designed and developed within 60-90 days. It was intended to describe a process of development that involves application prototyping.

4.2 Why this Model

- To limit a project's exposure to the forces of change.
- To prevent runaway schedules.
- To prevent cost overruns.
- To converge early toward a design acceptable to the customer and feasible for the developers.
- To save development time , possibly at the expense of the economy or product quality.
- In certain situations , a usable 80% solution can be produced in 20% of the time that would have been required to produce a total solution.
- We have got well-defined requirement from the client to build this software . So , we easily planned the project and progress for the RAD Model.

4.3 Software Life Cycle Flow Chart



5. Quality Gates for Each Phase of Software Development

Work Product	Quality Assurance Technique
Specification	Formal Technical Review
Development Plans	Formal Technical Review
Designing	Inspection done by experts
Analysis	Inspection done by experts
Project Planning	Formal Technical Review
Implementation	Coding and Reviewing
Testing	Test Coverage Management

6. List of Tasks

Number	Task
1	**Requires Elicitation.**
2	**Analysis**
3	**Designing**
4	**Implementation & Unit Testing.**
5	**System Integration & System Testing.**
6	**Internal Project review(Functional prototype).**
7	**Project Acceptance By Dhaka Subway Systems**

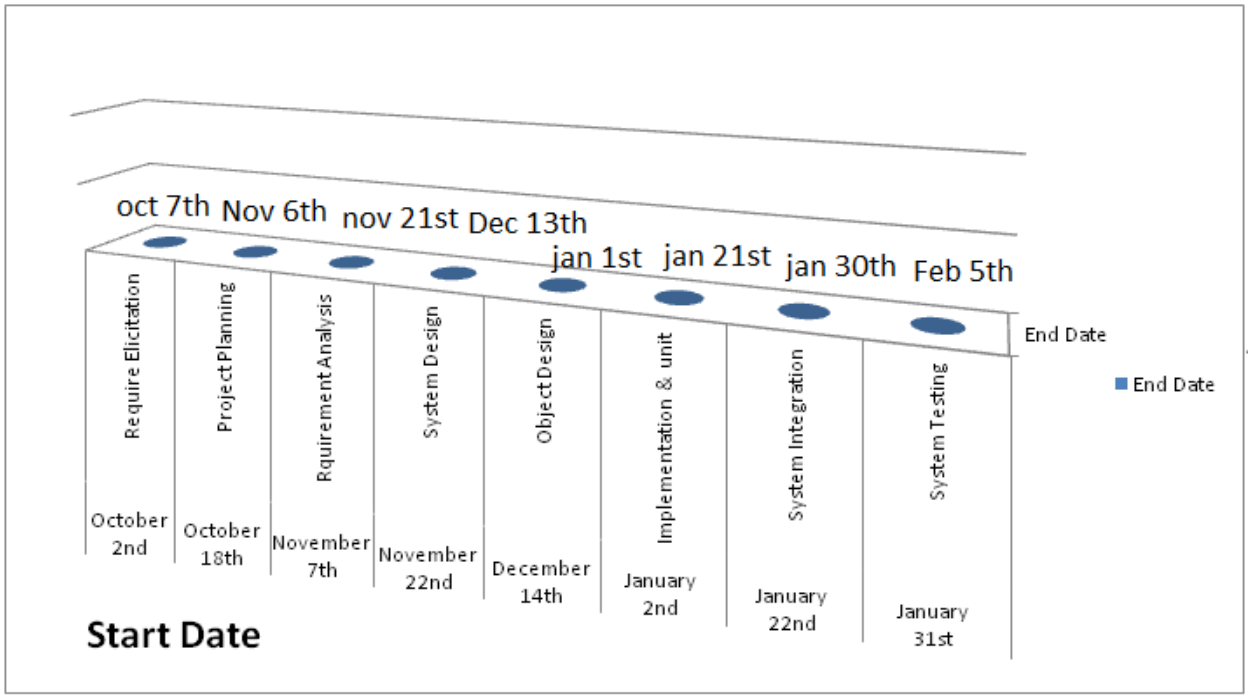
7. Estimation for each task

Task of Phase	Days	Hours
Requirements Elicitation	12	96
Project Planning	13	104
Requirements Analysis	10	80
System Design	17	136
Object Design	12	96
Implementation & Unit Testing	14	112
System Integration & system testing	12	96

Note: Each engineer works for 8 hours a day and 5 days a week. Total project duration is 90 working days excluding National holidays.

8. Scheduling the Tasks

Start Date	Project Phase	End Date
October 2nd	Require Elicitation	October 17th
October 18th	Project Planning	November 6th
November 7th	Requirement Analysis	November 21st
November 22nd	System Design	December 13th
December 14th	Object Design	January 1st
January 2nd	Implementation & unit	January 21st
January 22nd	System Integration	January 30th
January 31st	System Testing	February 5th



Note: Some weekends are included in the time frame which is not counted as working days . We assume that only 85% time of an engineer per day will be used to develop software. Other 15% will be spending by reading emails , attending meetings , process improvement activities etc.

9. List Of Milestone

Date	Project Milestones
September 27	**Project Presentation by Dhaka Subway Systems**
October 2 - October 6	**Analysis Review**
November 5	**Project Review with Dhaka Subway Systems**
December 25	**Object Design Review**
January 2	**Demo Software**
January 12	**Internal Project Review (functional prototype)**
February 5	**Project Acceptance by Dhaka Subway Systems**

10. Staffing Plan

The purpose staffing plan is to make certain the project has sufficient staff with the right skills and experience to ensure a successful project completion. The following is a detailed breakdown of the roles required to execute the project. It includes the project roles, the project responsibility of the role number of staff required fulfilling the role and the duration the staff resource will be needed on the project.

Role	Name	Est. Working Hours	Key Project Phase	Number of Staff	Hourly Rate
Project Manager	Foyaz Ahamed	110	All	01	105
Requirements Analyst (Lead)	Abir hossen	30	Requirements	01	85
Requirement Analyst	1.Abir Hossin 2.Ali Ahmed 3.Rifat Khan	20 15 20	Requirements	03	80
Software Engineer (Lead)	1.Abir Hossain 2.Tushar Ahmed	25 25	System Allocation & Design	02	88
Software Engineer	1.Mamun Ahmed 2.Shams Ahmed	35 48	System Allocation	02	65
Programmer (Lead)	Samiul Shovon	22	Implementation	01	125
Programmer	1.Showmik Das 1.Niloy Sharma	34 38	Implementation	02	100
Verification Engineer	1.Partho Deb 2.Bishal Das	32 34	Requirements , design , Implementation	02	50

Software Designer	Saikat Das	65	Design	01	155
Quality Analyst	Nirjhor Sinha	30	All(but Most work on Front-end)	01	190
Database Engineer	Imran Ahmed	25	Design , Implementation , Installation	01	80
Configuration Manager	Adib Ahmed	25	All(But most work up-front During definition)	01	55
Technical Writer	Noushin Jannat	24	Documentation	01	85
Installation Specialist	Bonodeep Singho	24	Installation	01	100

Note: Most staff will be required to attend weekly project status meetings, for which the dates are yet to be determined. All staff identified as “Leads” will be required to attend the meetings. Staffs who are in a group underneath a “Lead” will not be required to attend, while staff who have a “Lead” role, or who have no subordinate “Lead” will be required to attend.

11. Monitoring And Controlling Mechanism

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

- Weekly Project Meetings will take place at the lead project manager's room.
- Meetings are held Tuesday at 10 am and inform each other of the progress made on the various tasks. New tasks are assigned by the Project Manger during this meetings. Before project group meetings, the Project Manager will read the minutes of relevant previous meetings and compose an agenda for the meeting. Team members can propose additional agenda points before or during the meeting.
- These meetings are scheduled once in a week. During these meetings, the Project Manager and Quality Assurance Manager meet with the Senior Management. The following things need to be, done before a progress meeting:

  1.A progress report of the last reporting period is written by the Project Manager;
  2.The Project Manager and Quality assurance Manager read the minutes of the previous meeting.

Tracking the risk is very important . Quality assurance , configuration management , documentation and training are the project support function for monitoring and controlling.

A hard copy version of the progress repost is delivered to the senior Management.

12. Risk Management

Description	Probability
Communication collapse: There is a chance to break in Communication between the team members or sponsors. If this happen, it could potentially lead to falling behind. If it happen then we will try hard to reach that team mate. If they become unreachable for a time being . We will redistribute the works.	**25%**
Hardware Incapacity: There is a chance that the company server could fall before, during or after deployment of our software . If this happen then no solution will come , it means this project will unable to deliver to the sponsor .All necessary recovery steps will be taken as soon as possible	**30%**
Defect at modeling /planning: If any defect found during the project in our planning or modeling then the project will demand more time to complete.	**15%**
Political crisis : In case of any political issue our workers will work in the weekends to recover the lost time.	**50%**

13. List of Deliverables:

Software Project Management Plan defining the technical and managerial processes necessary for the development and delivery of the system.

- Agreement between Dhaka Subway Systems and developers , representing a contract between the Dhaka Subway Systems and the developers of what is going to be delivered.
- Analysis Document describing the functional and global requirements of the system of 4 models. The use case model , the object model , the functional model and the dynamic model.
- System Design describing design goals , the high level decomposition of the system , concurrency identification , hardware/software control implantation and boundary conditions , the document forms the basis of the object design.
- Object design is composed of two documents. The first document is an updated RAD. The code related data will be in the form of Java output from the code from each team.
- Test Manual documentation is the principles of operation. The delivery consists of a presentation of the system. Dhaka Subway Systems expects the acceptance test to be successfully demonstrated on February 5.

14. Defect Tracking Process

There can be taken some precautionary measurements to track defect .Those measurements are stated below:

- Breakdown the whole execution procedure into several parts and scrutinize each part circumspectly to track down defects.
- While coding phase starts , always check that the implementation is actually being based upon on requirements.
- Requirements illustrated by the Dhaka Subway Systems stakeholders should be maintained and updated on a regular basis.
- There should be satisfactory amount of interaction between the coder and the project manager to ensure the quality of the system.
- The project manager has to be communicative towards the stakeholders of the Dhaka Subway Systems.

15. Metrics

Schedule	Milestones	MS Project
Staff Usage	Graph of person hours used per month both projected and actual	MS Excel
Expenditures	Graph of total expenditures over time both projected and actual	MS Excel
No of Requirements	Graph of total requirements identified per module overtime.	MS Excel
No of Requirements Defects	Graph of number of defects identified per module overtime.	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 daily.	
Test Progress	Unit test causes passed overtime.	MS Excel
Defect Tracking	Numbers of code defects.	
Test Progress	Number of integration test passed overtime.	MS Excel
Defect Tracking	Number of code defects test passed overtime.	MS Excel

16. Postmortem

The overall project plan follows the model , a modified RAD model. 3 prototypes have to be delivered : 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 . We hope that we will be to complete this project successfully without any major interruption. On closing of the project we want to complete a final review with Dhaka Subway Systems and Celebrate the outcome of the project.