
# Project Management Plan for Dhaka Subway System's Automated Ticket Issuing System

A Software Development Project Management documentation submitted by:

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# Revision History:

| Version | Date | Description |
|---|---|---|
| V 1.0.0 | 28.11.2017 | First sample draft of the documentation |
| V 1.0.1 | 02.12.2017 | Completion of analysis and designing. A few problems regarding task scheduling solved. |
| V 1.0.2 | 10.12.2017 | Final completed version with post-mortem. |

# Table of Contents

# 1. Introduction:

This documentation is a software project management plan for Automated Ticket Issuing System for Dhaka Subway Systems. The document explains in details about the software's development lifecycle and the plans that will be followed through to bring about the completion of desired software product. The document covers detailed information about the management, monitoring and controlling plans to be used in this project. The intended audience of this document are the system's designers, programmers and IT department people. The document focuses on all technical and managerial approaches to be taken to develop the software as per requirements. Upon the project's successful completion, all deliverables are to be turned over to the Dhaka Subway System as per the list of deliverables included in this documentation. This includes the risk management scheme, task scheduling and other factors that might affect the project's planning and successful completion.

# 2. Process Model:

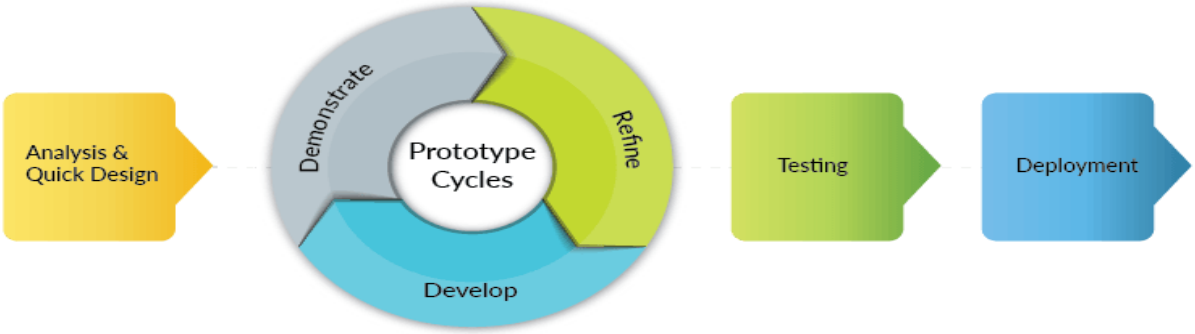
## 2.1 Software Model:

Rapid action development is a software development methodology that uses minimal planning in favor of rapid prototyping and RAD projects follow iterative and incremental model and have small teams comprising of developers, domain experts, customer representatives and other IT resources working progressively on their component or prototype. RAD refers to a development life cycle designed to give much faster development and higher quality systems than the traditional life cycle and it allows usable systems to be built in as little as 60-90 days, often with some compromises.

## 2.2 Justification:

- fast application development and delivery
- reducing costs on project whilst not compromising on quality
- reducing the project time-frame and the number of people involved in such project
- encourage the involvement of customers in the entire process of its development lifecycle
- very flexible if any changes required
- visualization of progress
- effective for saving valuable resources
- due to prototyping in nature, there is a possibility of lesser defects
- constant integration isolate problems and encourage customer feedback
- ensures greater customer satisfaction

### 2.3 Software Life Cycle Flow Chart:




# 3. Quality Gate for each phase of Software Development:

### 3.1 Software Testing:

In this portion the code is executed to identify the defects. When the code being executed is input with a value, the result or the output of the code is checked and compared with the expected output. With this we can observe the performance of the system. Unit testing, Integration testing, System testing and Acceptance testing are performed here. Unit testing are performed developers to testing the individual modules. Integration testing performed when modules added from different interface. System testing is performing to test the whole system and Acceptance testing is performed to check the user point of view. It is performed later stage of the development life cycle.

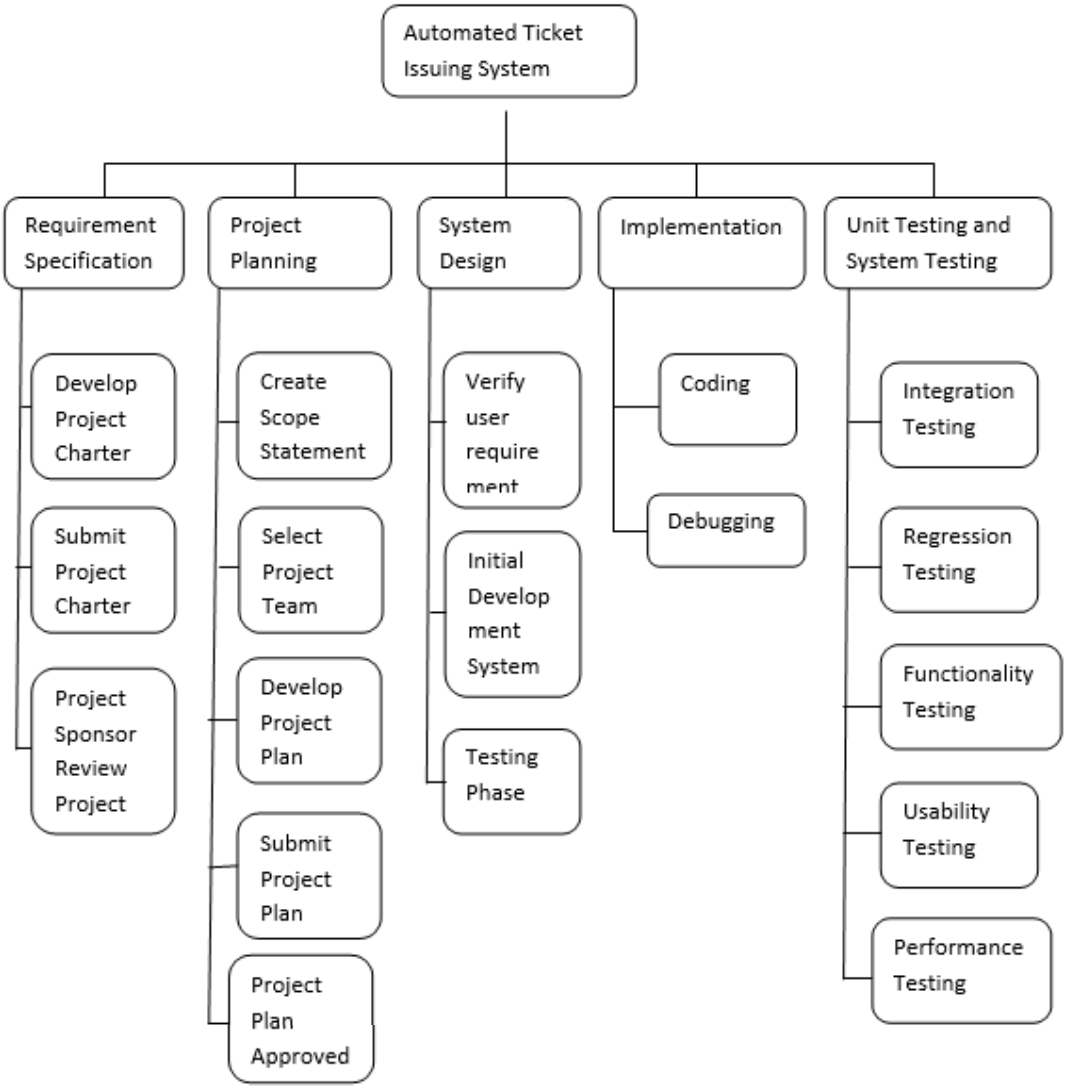
- Testing the functionality of the different page
- Testing the checkout process and payment methods
- Testing the interfaces between different pages

### 3.2 Review:

The testing is done by arranging meeting after each phase completed in the development life cycle. No code is executed in this scope of testing. In this testing a checklist is prepared for testing process (documentation). It is done in the early stage of the development life cycle. System requirement specification, functional requirement documents are reviewed by this section.

- Checking the GUI of the application
- Checking the database structure of the application

# 4. List of Tasks:

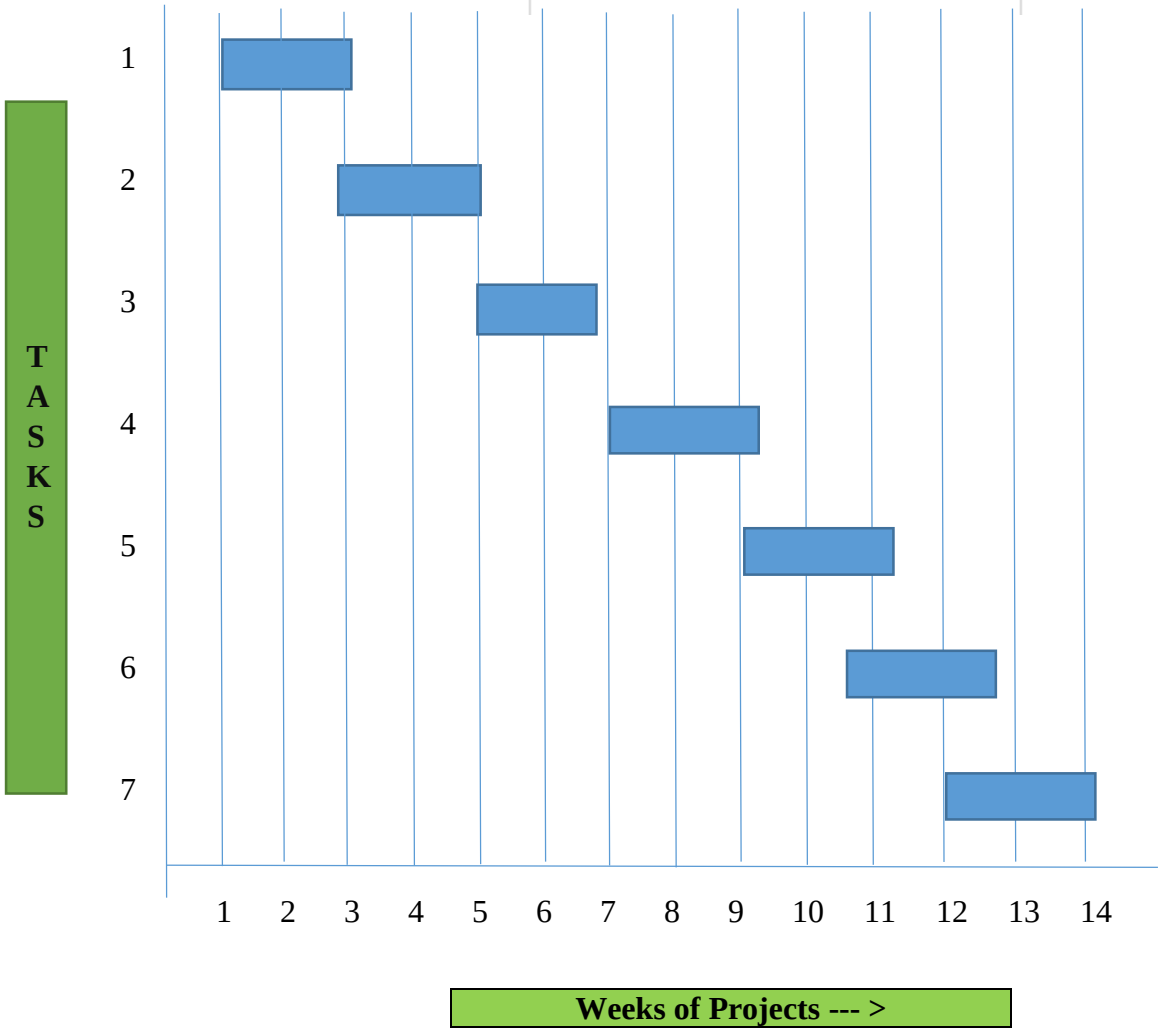



# 5. Estimation of each task:

| | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| 1 | **TASK PHASE** | **Days** | **Hours** | | | | | |
| 2 | Requirements Elicitation | 10 | 80 | | | | | |
| 3 | Project planning | 12 | 96 | | | | | |
| 4 | Requirements Analysis | 10 | 80 | | | | | |
| 5 | System Design | 15 | 120 | | | | | |
| 6 | Object Design | 11 | 88 | | | | | |
| 7 | Implementaion and Unit Testing | 12 | 96 | | | | | |
| 8 | System Integration and System testing | 12 | 96 | | | | | |
| 9 | **TOTAL TIME REQUIRED =** | **82** | **656** | | | | | |
| 10 | | | | | | | | |
| 11 | **Note:** We assume that engineers have average experience and each engineer works for 8 hours a day and 5 days a week. | | | | | | | |
| 12 | works for 8 hours a day and 5 days a week. Total expected project time = 82 days. (Excluding all National holidays). | | | | | | | |
| 13 | | | | | | | | |

# 6. Scheduling of tasks:

| | A | B | C |
|---|---|---|---|
| 1 | **Date** | **Phase of the Project** | |
| 2 | November 15 - November 27 | Requirements Elicitation | |
| 3 | November 28 - December 11 | Project Planning | |
| 4 | December 12 - December 24 | Requirements Analysis | |
| 5 | December 26 - January 11 | System Design | |
| 6 | January 12 - January 25 | Object Design | |
| 7 | January 16 - January 30 | Implementation and Unit Testing | |
| 8 | January 31 - February 13 | System Integration and System Testing | |
| 9 | | | |
| 10 | **Note: The scheduled days includes weekends which are not counted as working days. | | |
| 11 | We are assuming that an engineer will only use 80% of his/her time to develop | | |
| 12 | software. For the other 20% will be overhead be overhead e.g. reading e-mails, attending | | |
| 13 | meetings, process improvement activities etc. | | |
| 14 | | | |



# 7. List of Milestones:

| DATE | PROJECT MILESTONE |
|---|---|
| October 1, 2017 | Project proposal by Dhaka Subway Systems |
| November 15 – November 20, 2017 | Analysis Review of the project |
| December 10, 2017 | Project Review with Dhaka Subway Systems |
| January 22, 2018 | Review of Object Design |
| January 17, 2018 | First demo of the software |
| January 26, 2018 | Internal Project Review (complete functional prototype) |
| February 12, 2018 | Project Acceptance by Dhaka Subway Systems |

# 8. Staffing Plan:

| | A | B | C | D |
|---|---|---|---|---|
| 1 | **Staff Role** | **Working Hours** | **Required Project Phase** | **Hourly Payment** |
| 2 | Project Manager | 100 | Evenly throughout the project | $ 100.00 |
| 3 | Requirements Analyst (lead) | 25 | RA | $ 80.00 |
| 4 | Requirements Analyst 1 | 12 | RA | $ 75.00 |
| 5 | Requirements Analyst 2 | 10 | RA | $ 75.00 |
| 6 | Requirements Analyst 3 | 13 | RA | $ 75.00 |
| 7 | Software Engineer (Lead) | 20 | System allocation & design | $ 90.00 |
| 8 | Software Engineer 1 | 30 | Sytem allocation | $ 60.00 |
| 9 | Software Engineer 2 | 46 | System allocation | $ 58.00 |
| 10 | Programmer (lead) | 20 | Implementation | $ 120.00 |
| 11 | Programmer 1 | 30 | Coding and implementation | $ 90.00 |
| 12 | Programmer 2 | 32 | Coding and implementation | $ 100.00 |
| 13 | Software Designer | 60 | Design (low & high) | $ 150.00 |
| 14 | Quality Analyst | 25 | Quality Assurence | $ 200.00 |
| 15 | Database Administrator | 25 | Design, Implementation, Installation | $ 80.00 |
| 16 | Config. Manager | 20 | Work up-front config. | $ 50.00 |
| 17 | Tech. Writer | 25 | Documentation | $ 100.00 |
| 18 | Installation Specialist | 20 | Installation of environments | $ 90.00 |
| 19 | | | | |
| 20 | **TOTAL WORKING HOURS** | **513** | **TOTAL AMOUNT ON STAFFING** | **$ 1,593.00** |
| 21 | ****NOTE:** All staff must attend weekly project status meetings, the date are yet to be finalized. | | | |
| 22 | Every team member marked as 'Lead' has to attend the meetings, while his/her subordinates are not required to. | | | |

# 9. Monitoring and Controlling Mechanism:

## 9.1 Monitoring:

- Collecting information about project performance
- Tracking and analysis risk
- Communication Status:

| From | To | Time Period | Status |
|---|---|---|---|
| Team members | Project manager | Weekly | Report |
| Project manager | Team members | Weekly | Report |
| Team members | Software manager | Monthly | Project review |

## 9.2 Controlling:

- Comparing actual performance with planned performance
- Analysis the variances
- Evaluating possible alternatives
- Developing corrective action plans
- Submitting change requests to implement the preventive and corrective actions, defect repairs or other necessary changes

# 10. Risk Management:

| Risk | Probability | Risk Type | Mitigation Approach |
|---|---|---|---|
| Components are not delivered on remaining cost | 25% | Cost | Address the most critical risk categories and cost elements. Find out the current state of the risk, execute action plan. Develop options and actions that reduce threats and increase opportunities to the achievement of the objectives by reducing cost |
| Unable to acquire customer satisfaction | 20% | Customer | Pay attention to communication on time. Focus on the agreed user requirements, which express the wishes of the customer. Involve customers in the entire process of its development |

| | | | |
|---|---|---|---|
| | | | lifecycle and justify customer feedback |

# 11. List of Deliverables:

The following are the list of deliverables to Dhaka Subway System upon delivery of the project:

- This document, the software project management plan that informs of all the managerial and technical processes necessary for the development and delivery of the system.
- The formal agreement between Dhaka Subway System and Southtec, Inc. team of developers that servers as a contract between the developers of Southtec, Inc. and Dhaka Subway System for what is to be delivered upon successful completion of the project.
- An Object Oriented Analysis and Design documentation that describes the functional and global requirements of the use case model, the class diagram model, the activity diagram model, and the sequence diagram model.
- A system design documentation describing the goals, the high level and low level designs, identification of concurrency, hardware and software platforms, global resource handling, data management and implementation of software control. This document will form the basis of the object design.
- Two further documentations make up the Object design, one is an update RAD, the other being the source code. All data related to source code will be in the form of Java output from the coding done by each of the programming teams.
- A complete test manual describing each and every unit and system tests performed on the system before delivery along with expected set of output data.

The delivery of the final product consists of short presentation of the entire system. As previously discussed, Dhaka Subway System expects the system acceptance test to be successfully demonstrated on February 14$^{th}$, 2018.

# 12. Defect Tracking Process:

The proposed defect tracking process will be as follows:

- The entire execution process will be broken down into several smaller parts and each part will be reviewed to track existing defects (if any).
- From the very beginning of the coding phase, the team leader will be in charge of constantly checking that all implementations are being based upon the requirements.
- All requirements from Dhaka Subway Systems should be clarified, and update as required, and should be maintained strictly till the end on a daily basis.
- The project manager must be communicating with the external stakeholders regularly.
- The project manager must be communicating with the development team to clarify all miscommunications (if any).

# 13. Metrics (List of Matrices to be collected):

| SCHEDULE | MILESTONE | MS PROJECT |
|---|---|---|
| Staff Usage | A graph of person hrs per person month (compare projected and actual) | Used MS Excel |
| Expenses | A curve illustrating total expenses over time (compare projected and actual) | Use MS Excel |
| Requirements | A graph showing total number of requirements discovered against time | Use MS Excel |
| Count of Requirement Defects | A curve showing number of defects identified per module against time | Use MS Excel |
| Count of Objects | A graph comparing count of Objects identified over time | Use MS Excel |
| Coding Progress | List total count of Objects coded | Use MS Excel |
| Product Size | Measure Lines of Code (LOC) | Use MS Excel |
| Progress Testing | Perform Unit test and plot count of passed cases against time | Use MS Excel |
| Defect Tracking | List number of defects/LOC | Use MS Excel |
| Progress Testing | Plot count of Integration test cases passed against time | Use MS Excel |
| Defect Tracking | Number of defects fixed over time | Use MS Excel |

# 14. Postmortem:

A modified RAD model is followed throughout the project, and as per planning 3 prototypes are to be delivered to Dhaka Subway Systems.

- A Graphical User Interface design (GUI)
- A functional prototype with basic client requirements implemented.
- A system integration prototype.

Project Analysis is started in parallel to Project Planning, with Object Design done right after System Design is completed. Measures are taken to ensure the project goes as per the management plan, and if all risks all unforeseen circumstances are handled, we hope to complete the project successfully without any interruption.