**Project Management Plan**

**Project Name: Subway System Simulator**

**Project Description:** The main idea of the project is to develop a safe subway system simulator as a transport system for the public. As this is used as a mode of transport by the public, Safety is the most important regarding the project. This project have three systems. Train system, Track system, Dispatcher system. Train system displays the information regarding all the trains. Track system displays information about any issues at any particular section or switch. Dispatcher system displays the information about sections and switches working conditions, any difficulties of any track or trains, Emergency stop button to stop the entire system.

**Project Deliverables:**

* Train System
* Track System
* Dispatcher System
* Documentation:
  + - * Functional and Non-Functional
      * Technical
      * Status
      * Schedules

The last produce to be delivered is a combined working system of all trains, tracks and dispatcher meeting the requirements specifications and functionality of the business.

Sponsor Name: Michael Oudshoorn

**Project Organization:**

* **Organizational structure:** We are using the divisional structure in this everyone is responsible for certain market services or in certain services in which they are flexible.
* **Organizational boundaries and interfaces:** Each task supervision is assigned to another member in the team as their responsibility to make them active and perform leadership.
* **Project responsibilities:** 
  + Each and every deliverable of a project should be developed meeting all the time, scope and cost constraints along with the procedures of the organization.
  + Client should always be supportive for the entire team by providing the required resources in the correct time.
  + All team members should always be interactive with the other team members and make sure that the product can be delivered in time to the client.

**Managerial process:**

* It is very important to know about the management objectives like goal of the top management, priorities of the project and know about the assumptions.
* The project should be monitored to handle the changes, the project should be reviewed on a weekly basis and deliverable should be formally accepted by the client.
* This project is assigned with 7 members to do the project.

**Technical Processes:**

* This deals with the tools and techniques required to do the project. Each organization will have their own tools for developing documents so we need to coordinate and should know what tools and processes to be followed while doing the project.
* Here we are using tools Swing or Bootstrap, MS office, NetBeans.

**Work Packages:**

* The main work packages for the project are Algorithm design, Database creation, UI Integration, Developing the code using algorithm designed, integrating the three systems.

**Budget Allocation:**

* The budget of the project is estimated using number of working hours individually.

**Schedule:**

* The project will start on 01/09/17 and it will run 04/15/17 and detailed information of the schedule will be updated weekly in the client meeting.

**Project Management Approach:**

The Project Manager has the overall authority and responsibility for managing and executing this project according to this Project Plan and its Subsidiary Management Plans. The project team will consist of personnel from the coding group, quality control/assurance group, technical writing group, and testing group. The project manager will work with all resources to perform project planning. All project and subsidiary management plans will be reviewed and approved by the project sponsor. All funding decisions will also be made by the project sponsor. Any delegation of approval authority to the project manager should be done in writing and be signed by both the project sponsor and project manager.

The project team will be a matrix in that team members from each organization continue to report to their organizational management throughout the duration of the project. The project manager is responsible for communicating with organizational managers on the progress and performance of each project resource.

**Scope Management Plan:**

Scope management for the “Subway System Simulator” Project will be the responsibility of the Project Manager. The project manager for this project is Vinay Banala. The scope for this project is defined by the Scope Statement, Work Breakdown Structure (WBS). The Project Manager, Sponsor, and Stakeholders (client, all team members) will establish and approve documentation for measuring project scope which includes deliverable quality checklists and work performance measurements.

Proposed scope changes may be initiated by the Project Manager, Stakeholders or any member of the project team. All change requests will be submitted to the Project Manager who will then evaluate the requested scope change.

Based on feedback and input from the Project Manager and Stakeholders, the Project Sponsor is responsible for the acceptance of the final project deliverables and project scope.

The Project Sponsor is responsible for formally accepting the project’s final deliverable. This acceptance will be based on a review of all project documentation, testing results, beta trial results, and completion of all tasks/work packages and product functionality.

**Communication Management Plan:**

The purpose of this document is to define the communications goals and strategies of the SubwaySystemSimulator. These high-level strategies and goals are intended to provide guidance in planning and measuring results of the current and future communications efforts. The SubwaySystemSimulator Communications Management Plan (CMP) defines the project’s structure and methods of information collection, screening, formatting, and distribution of project information. It also outlines understanding among project teams regarding the actions and processes necessary to facilitate the critical links among people, ideas, and information that are necessary for project success. The overall objective of a Communications Management Plan is to promote the success of a project by meeting the information needs of project stakeholders and outline the goals of the communications efforts to reach and inform each group. Without detailed plans for communications activities that identify the organizational, policy, and material resources needed to carry them out, the SubwaySystemSimulator will not be able to secure needed resources, coordinate efforts with other groups, or report its activities and results to key oversight stakeholders.

Communications planning activities identify the appropriate level of communication for each project stakeholder, what information should be distributed and the frequency of communications. This plan should also include the vehicle of communications (email, face to face meetings, etc). The risk of insufficient planning could result in failure to accomplish key project objectives, duplication of effort, and reduced stakeholder confidence.

**Cost Management Plan:**

The Project Manager will be responsible for managing and reporting on the project’s cost throughout the duration of the project. The Project Manager will present and review the project’s cost performance during the monthly project status meeting. Using earned value calculations, the Project Manager is responsible for accounting for cost deviations and presenting the Project Sponsor with options for getting the project back on budget. All budget authority and decisions, to include budget changes, reside with the Scheduling Assistant Project Sponsor.

For the Scheduling Assistant Project, control accounts will be created at the fourth level of the WBS which is where all costs and performance will be managed and tracked. Financial performance of the Scheduling Assistant. Project will be measured through earned value calculations pertaining to the project’s cost accounts. Costs may be rounded to the nearest dollar and work hours rounded to the nearest whole hour.

Cost and Schedule Performance Index (CPI and SPI respectively) will be reported on a monthly basis by the Project Manager to the Project Sponsor. Variances of 10% or +/- 0.1 in the cost and schedule performance indexes will change the status of the cost to yellow or cautionary. These will be reported and if it’s determined that there is no or minimal impact on the project’s cost or schedule baseline then there may be no action required. Cost variances of 20%, or +/- 0.2 in the cost and schedule performance indexes will change the status of the cost to red or critical. These will be reported and require corrective action from the Project Manager in order to bring the cost and/or schedule performance indexes back in line with the allowable variance. Any corrective actions will require a project change request and be must approved by the CCB before it can be implemented.

Earned value calculations will be compiled by the Project Manager and reported at the monthly project status meeting. If there are indications that these values will approach or reach the critical stage before a subsequent meeting, the Project Manager will communicate this to the Project Sponsor immediately.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | |  | Hrs | % of Total |
| Project Milestones | | |  |  |
| **1. Planning** | | |  | **10.58%** |
| 1.1 Research and discovery | | | 140 |  |
| 1.2 Scope definition | | | 140 |  |
| **2. Design** | | |  | **11.90%** |
| 2.1 | | Web application design | 140 |  |
| 2.2 | | Visual design | 105 |  |
| 2.3 | | User Experience | 70 |  |
| **3. Features** | | |  | **23.89%** |
| 3.1 | | Web application features | 140 |  |
| 3.2 | | Admin login | 70 |  |
| 3.3 | | Faculty login | 70 |  |
| 3.4 | | Scheduling courses | 140 |  |
| 3.5 | | Display Schedule | 140 |  |
| 3.6 | | Faculty information update | 70 |  |
| **4. Human Resource Management** | | |  | **3.96%** |
| 4.1 | | Training | 105 |  |
| **5. Testing** | | |  | **22.48%** |
| 5.1 | | Test plan preparation | 105 |  |
| 5.2 | | Test cases drafting | 140 |  |
| 5.3 | | Test cases execution | 105 |  |
| 5.4 | | User Testing | 140 |  |
| 5.5 | | Deployment testing | 105 |  |
| **6. Infrastructure** | | |  | **14.54%** |
| 6.1 | | Initial setup | 70 |  |
| 6.2 | | Data Storage | 140 |  |
| 6.3 | | Access to Data base | 140 |  |
| 6.4 | | Scalability | 35 |  |
| **7. App Administration** | |  | **12.65 %** |
| 7.1 | | Infrastructure for performance management | 140 |  |
| 7.2 | | Web portal | 140 |  |

## Schedule Management Plan

Project schedules for the “Subway System Simulator” Project will be created using MS Project software starting with the deliverables identified in the project’s Work Breakdown Structure (WBS). Activity definition will identify the specific work packages which must be performed to complete each deliverable. Activity sequencing will be used to determine the order of work packages and assign relationships between project activities. Activity duration estimating will be used to calculate the number of work periods required to complete work packages. Resource estimating will be used to assign resources to work packages in order to complete schedule development. The project stakeholders will participate in reviews of the proposed schedule and assist in its validation.

**Work Breakdown Structure:**

1. Initialization of the project
   1. Select Project Manager
   2. Identify the Stakeholders
   3. Form Project Team
   4. Kick off meeting with all the stakeholders
   5. Prepare project Charter
2. Planning for the project
   1. Develop a scope statement
   2. Requirement management plan
      1. List Hardware requirements
      2. List Software requirements
   3. Develop a requirement Traceability Matrix
   4. Develop Time management plan and Gantt charts
   5. Develop Budget/Cost estimation
   6. Develop a quality management plan
      1. List Items to be included in Quality control
      2. Prepare how defects are measured
   7. Develop human resources & communication management plan
   8. Develop a Risk register
   9. Prepare a stakeholder management plan
   10. Approve the overall Project Management plan
3. Execution of the project
   1. Develop the design documents required for project
   2. Design documents approved
   3. Developing code
   4. Bug Fixes
   5. Testing
4. Monitoring and Controlling
   1. Status reports
   2. Change requests incorporation
   3. Version controlling
5. Closing
   1. Project Demo
   2. Client acceptance
   3. Sign-off meeting

**Change Management Plan:**

The Change Management Plan establishes how changes will be proposed, accepted, monitored, and controlled. The change control procedures identified in the Change Management Plan will govern changes to the baseline project scope including changes to the work breakdown structure and requirements from project inception through to completion. In addition, the change control procedures will govern changes to the baseline schedule and cost. This Change Management Plan addresses the following activities:

* Identification and inventory of change requests
* Analysis and documentation of the complete impact of requested changes
* Approval or rejection of change requests
* Tracking changes and updating of project documentation to account for approved changes

In order to initiate a change, we have to come up with a change request form which describes about the changes that are to be done and the responsible person and what needs to be done if anything goes wrong while the changes are being implemented. Even the changes will be tracked by specified people in order to make sure the changes are implemented correctly.

**Change Request Form:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Project Information** | | | | | | | |
| **Project Title:** | | |  | | | | |
| **Project Manager:** | | | | | | | |
| **Section 1: Change Request** | | | | | | |
| **Requestor Name:**  **Requestor Phone:** | | **Date of Request:** | | **Change Request Number:**  *Supplied by (PM)* | | |
| **Item to be Changed:** | | | | **Priority:** | | |
| **Description of Change:** | | | | | | |
| **Estimated Cost & Time:** | | | | | | |
| **Section 2: Change Evaluation** | | | | | | | |
| **Evaluated by:** | | | **Work Required:** | | | | |
| **What is Affect:** | | |
| **Impact to Cost, Schedule, Scope, Quality, and Risk:** | | | | | | | |
| **Section 3: Change Resolution** | | | | |  |
| **Accepted Rejected** | **Approved by (Print):** | | **Signature:** | | **Date:** |
| **Comments:** | | | | | |
| **Section 4: Change Tracking** | | | | |  |
| **Completion Date** | **Completed by (Print):** | | **Signature:** | | **Date:** |

## Quality Management Plan

Mahesh will play a role in quality management. It is imperative that the team ensures that work is completed at an adequate level of quality from individual work packages to the final project deliverable. The Project Sponsor is responsible for approving all quality standards for the “Subway System Simulator” Project. The Project Sponsor will review all project tasks and deliverables to ensure compliance with established and approved quality standards. Additionally, the Project Sponsor will sign off on the final acceptance of the project deliverable.

Mahesh is responsible for quality management throughout the duration of the project. He is responsible for implementing the Quality Management Plan and ensuring all tasks, processes, and documentation are compliant with the plan. The Project Manager will work with him to establish acceptable quality standards.

|  |  |  |  |
| --- | --- | --- | --- |
| **S No** | **Defect Level** | **Defect Name** | **Measurements** |
| 1 | High Level Defects | Wrong Estimation, Not assigning work to a right person, Planning errors | Project estimation should be done more effectively and sufficient time should be given to estimate the project.  Project Manager should have a good knowledge of the team members and their capabilities and assign work accordingly.  Care must be taken in the planning phase, so that later surprises are avoided. |
| 2 | Mid-level Defects | Bugs, Integration issues | Bugs are common in any project so proper testing and quality assurance should be implemented.  When modules are combined together and tested on a whole some issues might arise so the testing team should have enough knowledge of all the modules. |
| 3 | Low level Defects | Monitor Resolution, Hard disk specifications | Monitor resolution of the computers might not be good which may not be a huge problem but work can be done better if it is as per the specifications. |

## Risk Management Plan

Risk is defined as an event that has a probability of occurring, and could have either a positive or negative impact to a project should that risk occur. A risk may have one or more causes and, if it occurs, one or more impacts.

The approach for managing risks for the “Subway System Simulator” Project includes a methodical process by which the project team identifies, scores, and ranks the various risks. Every effort will be made to proactively identify risks ahead of time in order to implement a mitigation strategy from the project’s onset. The most likely and highest impact risks were added to the project schedule to ensure that the assigned risk manager take the necessary steps to implement the mitigation response at the appropriate time during the schedule. Risk managers will provide status updates on their assigned risks.

Upon the completion of the project, during the closing process, the project manager will analyze each risk as well as the risk management process. Based on this analysis, the project manager will identify any improvements that can be made to the risk management process for future projects.

The responsibility for managing risk is shared amongst all the stakeholders of the project. However, decision authority for selecting whether to proceed with mitigation strategies and implement contingency actions, especially those that have an associated cost or resource requirement rest with the Project Manager who is responsible for informing the funding agency to determine the requirement for a contract modification. The following tables details specific responsibilities for the different aspects of risk management.

### **Risk Mitigation strategies**

|  |  |  |
| --- | --- | --- |
| **Sr. no.** | **Risk Category** | **Risk Mitigation Strategy** |
| 1 | Project Integration Risk | * Have an experienced Project Manager prepare the integration management plan * Involve the team while preparing project integration plan |
| 2 | Cost Risk | * Allocate sufficient reserve for handling cost overruns * Have an experienced Project manager prepare the cost management plan |
| 3 | Executive Support Risk | * Properly Discuss the project with executives and confirm whether they are completely onboard |
| 4 | Scope Risk | * Have an experienced Project Manager prepare the scope management plan |
| 5 | Change Management Risk | * Be clear with clients regarding formal procedures to be followed for change requests |
| 6 | Stakeholder Risk | * Properly Discus the project with stakeholders and confirm whether they are completely onboard * Keep stakeholders engaged by constant communication and meetings with them |
| 7 | Communication Risk | * Engage in team building activities since beginning of the project * Be transparent with the stakeholders regarding progress of the project and difficulties if any |
| 8 | Time Risk | * Have an experienced Project Manager prepare the Time management plan * Design proper WBS |

## Staffing Management Plan

Mohammad Ghori is Primary contact and is Responsible to meet the client representing the whole team.

Revathi is responsible for Communications and documentation management. She is responsible to communicate with each and every team member and to document all gathered information.

Mahesh is responsible for Quality and testing management. He is responsible to test the product and quality till the end of the project from the beginning.

Grevil is responsible for Data Management. He is responsible to collect, analyze and to distribute the data.

Prudvi is responsible for Issues management. He is responsible to communicate with all the team members in order to know if there are any issues in the project.

Vinay is responsible for requirements management. He is responsible to gather all the requirements from the client Manager.

Kranthi is responsible for Client management. He is responsible to communicate with the client and arrange meetings with the client.