**Project Management plan**

**Project Name:** Student Attendance Tracking

**Project Description:**

            The main purpose of this system is to develop an easy and flexible way of tracking the attendance of a specific student while providing appropriate feedback on every action. There are many others traditional ways of marking a students’ attendance but they include many drawbacks such as abuse of the system, installation of new hardware or time constraints and many more. Overcoming these limitations will be a major task. Hence, we plan to create a system which will scan a QR code, generated by the instructor for a specific course using the specific CRN of that course and with a specific time interval in which the class meets using a web application and displays it on the screen for the students to scan and capture it, then the student scans the QR code and captures the image of the code and the system automatically sends it to the database which is automatically retrieved for the instructor and it is updated showing all the details of the student such as the unique ID, name and other personal information and then the attendance would be graded and the student gets a feedback stating the status of his attendance is graded or not.

**Project Deliverables:**

1. Mobile Application

* QR code scanner
* QR code capture
* View courses taken in that semester.
* View Attendance Percentage.

1. Web Application

* QR code generator
* View and analyze student attendance percentage.
* View current no of students in the class.
* Mark Attendance of a student.
* View the course list and assigned instructors to each course.
* Retrieves student attendance.

**Project Organization:**

All team members are responsible for every work that must be worked on for the project. But each member of the team will supervise one aspect of the project.

Various aspects of the project are as follows:

* Primary Contact
* Client Management
* Data management
* Requirements Management
* Quality and Testing Management
* Issue Management
* Communications and Documentation management

**Managerial Process:**

* Monitoring of the project should be done on weekly basis to handle change requests and review the project progress.
* Each deliverable should be formally approved by the client.

**Technical Processes:**

* Iteration Plan is being implemented where there are exact deliverables on every weekend and the each team members contributes to the deliverables in achieving the desired progress.
* Object orient programming process will be used to develop any Java or iOS applications.
* Tools and Techniques that will be used to develop this project are Java, Swift, Swing, Eclipse/NetBeans, XCode and MySQL database solution.

**Work Packages:**

The main work packages of the systems are:

* Algorithm Design
* Database design and creation
* UI design
* Coding according to the designed algorithm
* Finally, Integrating all the work packages together

**Budget Allocation:**

The only budget for this project will the number of hours that team members spend individually on the project. We are expecting each team member to work for 40 hours a week in summer semester and 15 hrs a week in fall semester.

**Schedule:**

The project is started on 06/12/2017 and is expected to complete by 11/09/2017. Detailed schedule for each week will be updated to the client in the respective week.

**Project Management Approach**

The Project Manager has the overall authority and responsibility for managing and executing this project according to this Project 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 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 who will continue to report to their project manager or project sponsor throughout the duration of the project. The project manager is responsible for communicating with Primary Contact on the progress and performance of each project resource.

**Scope Management Plan:**

Scope management for the “Student Attendance Tracker” Project will be the responsibility of the Project Manager. The project manager for this project is Sirisha Vanamali. 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 Student Attendance Tracker. These high-level strategies and goals are intended to provide guidance in planning and measuring results of the current and future communications efforts. The Student Attendance Tracker 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.

The “Student Attendance Tracker” communication plan is to hold a team meeting every Friday to analyze previous week’s progress, know where we stand, what we need to achieve as a team by next week, what measures to implement to overcome any backlogs, division of work equally among the team members with an appropriate deadline. We will hold stand-up meetings every day Monday through Friday to analyze each ones progress and lend a helping hand to a team member who is lagging behind.

**Cost/Effort Management Plan:**

The purpose of the Cost Management Plan is to present the cost and effort estimates of Student Attendance Tracker Project and identify the factors that will tend to increase cost/effort and define procedures that will be used to deal with increases to cost or effort.

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 accountable 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 Project Sponsor.

For the Student Attendance Tracker, Client Approval will be created at the every level of the WBS which is where all costs and performance will be managed and tracked. Financial performance of the Student Attendance Tracker 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** | |  | **23.23%** |
| 1.1 Research and discovery/Requirement Gathering | | 140 |  |
| 1.2 Scope definition/Problem Statement | | 140 |  |
| 1.3 Functional Requirements | | 140 |  |
| 1.4 Non-functional Requirements | | 140 |  |
| **2. Design** | |  | **11.90%** |
| 2.1 | Mobile Application design | 140 |  |
| 2.2 | Web application design | 105 |  |
| 2.3 | Configuring notifications and sequencing screens appropriately. | 70 |  |
| **3. Core Features** | |  | **23.89%** |
| 3.1 | Admin login | 70 |  |
| 3.2 | Instructor login | 70 |  |
| 3.3 | Student Login | 70 |  |
| 3.4 | Display Courses | 20 |  |
| 3.5 | Display attendance Percentage as a bar graph | 70 |  |
| 3.6 | Generate QR | 260 |  |
| 3.7 | Scan and Capture QR | 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 |  |

## Schedule Management Plan

Project schedules for the “Student Attendance Tracker” 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.

The ‘Student Attendance Tracker’ Project follows an iterative plan over five weeks having deliverables after every week and stand up meetings every day to log progress during the week. This iterative plan will have two milestones over GDP-1 i.e. on 07/04/2017 (Client Approval in Initialization Phase) and on 07/18/2017(Documentation approval in Planning Phase). During the first milestone, the mid-term documents mark the progress done during the first two weeks and will let the client know about the progress. During the next milestone, the final documents should be submitted including the use case diagrams, SRS, PMP and other architecture documents.

There will be three more milestones during the GDP-2 i.e. on 10/17/17, 11/02/17, 11/09/17 marking the progress during the development of the project code. These milestones will help us track the progress, let us know if we are ahead/behind schedule. If any changes are required to the requirements to match the schedule, a Change request must be raised seeking approval from client and project manager.

**Work Breakdown Structure**

1. Initiation
   1. Identifying the Objectives
   2. Determining the Scope
   3. Purpose of the project
   4. Deliverables to be produced
2. Initialization
   1. Requirements gathering
   2. Requirements Elicitation
   3. Requirements Analysis
   4. Client Approval
3. Planning
   1. Project iteration plan
   2. Resource Management plan
   3. Quality Management plan
   4. Issue Management plan
   5. Communication Management plan
   6. Risk Management plan
   7. Documentation Approval
4. Detail Design
   1. Designing Use case diagrams
   2. Designing ER diagrams
   3. Designing Prototypes
   4. Design Approval
5. Development
   1. UI design for IOS application
   2. UI Design for Web application
   3. Database design
   4. Database Connectivity
   5. Developer testing
   6. Client Approval
6. Validation
   1. Unit Testing
   2. System Testing
7. Execution and Deployment
   1. Deploy Web application
   2. Deploying iOS application
   3. Deploy project deliverables
   4. Monitor and control
   5. Client Approval
8. Closing
   1. User Review
   2. Client Review
   3. Documentation and Future Scope
   4. Approve and publish

**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

Vamshi Devalla will play a role of quality manager. 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 “Student Attendance Tracker” 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.

|  |  |  |  |
| --- | --- | --- | --- |
| **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. |

Vamshi 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.

## 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 “Student Attendance Tracker” Project includes a methodical process by which the project team identifies 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 analyse 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 on-board |
| 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 on-board * 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

Sirisha Vanamali is Primary contact and is Responsible to meet the client representing the whole team.

Shankar Rao is responsible for Communications and documentation management. He is responsible to communicate with each and every team member and to document all gathered information.

Vamsi Devalla 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.

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

Subba Reddy 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.

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

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

**Gantt chart**

