Software Project Management Plan

Group 3 : BookMyPass

1 Introduction

1.1 Project Overview

This project will help to digitize and automate the process of applying for railway concession. The current system requires any person to first avail a form from the college, fill it and then again stand in long queues to verify the same at the college and then issue the pass at the pass issue counter at the railway station. The user initially will have to create an account during which the user will have to fill all the details including a unique college code/verification ID. Now, the user needs to apply for the concession by filling in other details such as starting point of the journey, destination, duration of the pass, class of travel, etc. Now, these details entered by the user will be verified with the college database. Once the student data is verified by the college, the request is sent to the railways system for granting concession. The railways would enable the payment service for user to pay the charges for the pass. Once the payment is done, digital pass is generated and sent to the user on the app. If the current pass is about to expire in a few days, a reminder is sent to the user to reapply for the pass. The expected date of completion is mid-November 2019.

1.2 Project Deliverables

• Student Registration and Authentication module documentation - August first week
• Student Registration and Authentication module executable code - Start of September
• Registered students database rights - Start of September.
• Dependencies and libraries - Start of September.
• Pass Application in Railways module documentation- September first week.
• Pass Application in Railways module executable code- End of September.
• Pass Application in Railways module database rights - End of September.
• Dependencies and libraries -End of September.
• Pass approval,generation and reminder unit documentation - Last week of September.
• Pass approval,generation and reminder unit executable code - October end.
• Pass details and final database rights - October end.

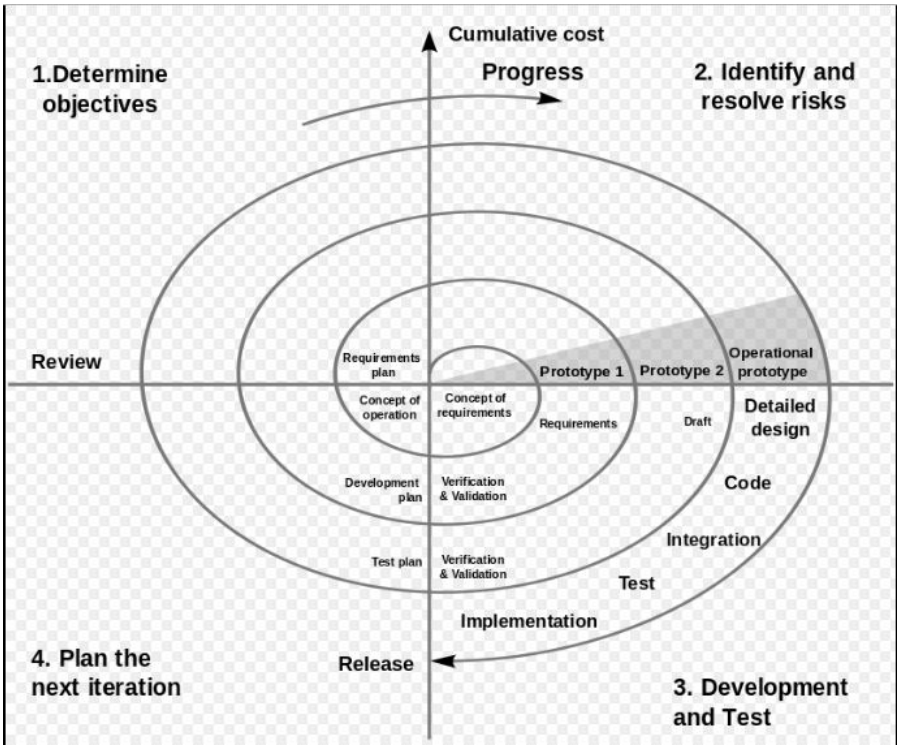
• Dependencies and libraries - October end.

2 Project Organization

2.1 Software Process Model

We will use the iterative spiral model approach.This model allows us to iterate through each process framework of communication,planning,modelling,construction and delivery.we will deliver core model to customer quickly and deliver more iterative versions in time.

Figure 1: Process Model



2.2 Roles and Responsibilities

1. Pratik Merchant (1714093)-Project Manager
The project manager will look after the overall functioning of the project and assign tasks to each of the members. He/She will act as the face of the project

and will lead all the activities.
2. Sarvesh Pai (1714098) -Designer
The designer will design the overall system and will lead all the activities of designing the system in the best and most efficient way possible.
3. Priya Mane (1714091) -Developer
The developer will define how the design is converted to reality by defining the implementation details of the various modules and successfully developing the same.
4. Tejas Karia (1714088) -Tester
The tester will lead all the activities of testing each and every module that has been implemented to determine the errors and will hence inform the developer to overcome the same. If a design flaw has been spotted, the designer would be informed first and then the developer.

2.3 Tools and Techniques

The app will be developed for android OS and developed using Android Studio in Java.
Android studio version 3.5 will be used with minimum SDK Android 6.0 (Marshmallow).
Database used would be Firebase (Realtime database).
For developing demo UI / Wireframes , Marvel UI would be used.
Java would be used for developing the application because it is the most suitable language for application development and android studio makes app development in Java developer friendly because of wide range of easily overridable methods and simple drag and drop for UI creation .
For development synchronisation purposes, version control system would be used.
Git will be as version control system as it can be easily used in android studio and simple to understand.

3 Project Management Plan

3.1 Tasks

3.1.1 Requirement Analysis

3.1.1.1 Description Requirement Analysis would be done to know the exact expectations of the client from the product. The functionalities and working of the product would also be clear by doing sufficient and effective requirement analysis.
The expectations of students as well as railway authorities and institutes can also be noted.

3.1.1.2 Deliverables and Milestones Effectively communicate with all the actors involved in the working of app.
By the end of this process, the design and development team will be sure of the functioning of the app.

3.1.1.3 Resources Needed For effective requirements analysis, multiple meetings would have to be conducted with the stakeholders of the app.
Brainstorming sessions of Joint discussions must be organised for effective communication and information gathering.

3.1.1.4 Dependencies and Constraints Task cannot be completed without conducting meetings with the stakeholders and knowing the expectations from the app.

3.1.1.5 Risks and Contingencies The risk involved would be only failure to communicate with the organisations involved and users. Another issue could be miscommunication between the stakeholders and developers/designers, but this can be tackled by having multiple sessions and creating well defined SRS and getting it approved by the client.

3.1.2 Software Requirement Specification

3.1.2.1 Description This project will help to digitize and automate the process of applying for railway concession.The current system requires any person to first avail a form from the college, fill it and then again stand in long queues to verify the same at the college and then issue the pass at the pass issue counter at the railway station.But in our app, the user needs to apply for the concession by filling in his travel credentials. Now, these details entered by the user will be verified with the college database. Upon student data verification,the railways would enable the payment service for user to pay the charges for the pass. Once the payment is done, digital pass is generated and sent to the user on the app. Pass reapplication is also a key feature

3.1.2.2 Deliverables and Milestones The document focuses on briefing all the member of the team as well as the client about the specifications and functionalities of the software project.

3.1.2.3 Resources Needed Any mobile device that has at least 512 MB of RAM. A mobile device with has sufficient amount of unused non-volatile memory.
Operating System: The application would be first made available on the Android operating system for its best support and user-friendliness. Database: For storing user data we have chosen .

For uploading of files to the database and retrieving the data from the database over the internet, the relevant TCP protocols will be used.

3.1.2.4 Dependencies and Constraints

• Authentication :
Creating an account in order to access the features of the application.Account also stores pass history
• User Details:
The details would be taken from the user and displayed for future reference. • Pass Application and Institute Level Authentication for Student Details:
The user has to add his travel credentials. After user data verification, the pass payment is initiated. After the payment is made by the user within the 2 days window, the user can access the digital pass through the app.
• Digital Pass Retention:
Active passes can be viewed immediately with a button click
• Renewal Notification:
Renewal reminders also are a key feature.
• Status of Pass

3.1.2.5 Risks and Contingencies Matter of risk mainly revolves around communication and necessary documentation. If the SRS isn't well defined and well - addressing each and every aspect of the project , then major miscommunication and false information transfer could take place. Client may face issues on being on the same page as the developing team. The expectations and deliverables would have explosive differences between them.

3.1.3 Student registration and authentication module

3.1.3.1 Description In this section, the student registration and authentication module will be developed and deployed at the customer side for testing and feedback and data collection purposes.

3.1.3.2 Deliverables and Milestones To deploy prototype module for registration process done by student and the flow of data to the organisation's database for verification.

3.1.3.3 Resources Needed Resources required would be Android Studio 3.5, firebase and access the Institute's database for verification purposes.

3.1.3.4 Dependencies and Constraints The step cannot be considered effective without getting feedback from the customer about the deployed prototype.

The task will depend on the response from all the stakeholders, the students must register and the entire transaction of student registration and verification by the institute must be completed.

3.1.3.5 Risks and Contingencies The risks involved are more concerned towards security of the institute's database. The entire process must be accurate as this is the first step for applying for the pass.
This is the most crucial step as any wrong results generated in this step may cause the student to not apply for the further steps.

3.1.4 Pass Application

3.1.4.1 Description In this task, all the activities right from the moment user clicks on the apply button till the pass has been approved would be involved.

3.1.4.2 Deliverables and Milestones The app must be able to perform all the validation tasks successfully and return the result of the verification

3.1.4.3 Resources Needed The data entered by the user would be the primary requirement.

3.1.4.4 Dependencies and Constraints The step will be incomplete without the data being entered by real users and until the verification process is completed.

3.1.4.5 Risks and Contingencies Risk - The format of the data entered by the user and at the college database might differ. Contingencies - An option to edit the user details will be provided to the user while filling a new application.

3.1.5 Pass approval, generation and reminder unit

3.1.5.1 Description In this task the pass approval process by the railway authorities will be handled. The pass will be generated and sent to the student. Along with this, the app will also be enhanced by the reminder system, this system will remind the user few days before his/her current (active) pass is going to expire.

3.1.5.2 Deliverables and Milestones The app must be able to display appropriate information to the railway authorities and get accurate response from them.
Based on the user details, the system must generate the pass and send it to the user after payment.
Payment will be carried out by using a safe gateway.
The reminder will help the user to know well in advance, when his/her pass is getting expired and hence he/she can then apply for the next pass in appropriate time.

3.1.5.3 Resources Needed For designing the system, the details of the railway system must be known.

3.1.5.4 Dependencies and Constraints The task cannot be completed without getting the approval from the railway authorities.

3.1.5.5 Risks and Contingencies The risk could be only where payment is involved, but that is taken care of by the gateway system.
The pass must also be approved by the authorities
Contingency - If the pass is not approved for some reason, then the user will be given an option to reapply for the pass.

3.1.6 Integration

3.1.6.1 Description Integration of the various modules implemented individually in each iterative version.

3.1.6.2 Deliverables and Milestones Integrated version of application ready for testing.

3.1.6.3 Resources Needed Different modules developed independently

3.1.6.4 Dependencies and Constraints Each module depends upon the previously implemented module. Every module should give desired result and should be compatible with the next module

3.1.6.5 Risks and Contingencies Risk : If even one module is not integrated then the objectives of the application would not be met and it would be non-functional Contingency : Additional time can be given to the non-functional module so that the issues can be resolved and it can be integrated.

3.1.7 Testing

3.1.7.1 Description In this task, the app will be tested for complete transactions on dummy data.

3.1.7.2 Deliverables and Milestones The app must be able to perform all the tasks successfully and give all expected results.

3.1.7.3 Resources Needed Dummy data and some users would be required to test the app.

3.1.7.4 Dependencies and Constraints The step will be incomplete without the app being handled by real users and getting their feedback.

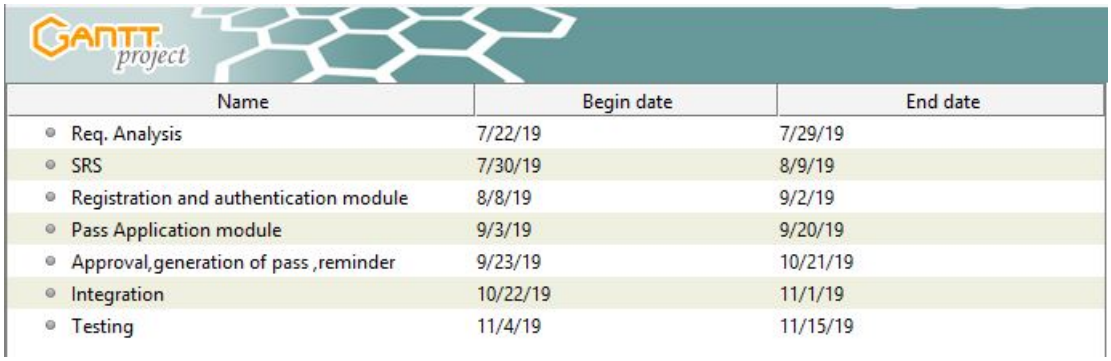
3.1.7.5 Risks and Contingencies Risk - The app might not be satisfactory or the functions/code might cause some anomalies and give wrong results. Contingencies - If the app gives faulty results, it can be corrected by debugging the app and again presenting it to the customer.

3.2 Assignments

Task 1 - Requirement analysis - Pratik
Task 2 - Software Requirement Specification - Pratik
Task 3 - Student registration and authentication module - Sarvesh,Priya,Tejas
Task 4 - Pass Application - Sarvesh,Priya,Tejas
Task 5 - Pass approval, generation and reminder unit - Sarvesh,Priya,Tejas
Task 6 - Making system compatible in different operating systems - Priya, Tejas
Task 7 - Testing -Tejas

3.3 Timetable

Figure 2: Timetable



Name	Begin date	End date
Req. Analysis	7/22/19	7/29/19
SRS	7/30/19	8/9/19
Registration and authentication module	8/8/19	9/2/19
Pass Application module	9/3/19	9/20/19
Approval,generation of pass ,reminder	9/23/19	10/21/19
Integration	10/22/19	11/1/19
Testing	11/4/19	11/15/19

Figure 3: Gantt Chart for Timetable