**Project Plan:  LiveRail**

**1. Introduction**

This document lays out a project plan for the development of “LiveRail”, a real-time train inquiry portal.

The intended readers of this document are current and future developers working on “LiveRail” and the stakeholders of the project. The plan will include, but is not restricted to, a summary of the system functionality, the scope of the project from the perspective of the “LiveRail” team (Samyak Talesra, Sushil Pandey, Gurudutt Rai and our Project Guide), scheduling and delivery estimates, project risks and how those risks will be mitigated, the process by which we will develop the project, and metrics and measurements that will be recorded throughout the project.

**2. Overview**

In today's day and age when everyone is busy with their minute-perfect strict schedule, train delays are increasing year after year, adding to the misery of crores of people who use railways as their means of commute, as well as long journey travelers.

According to a report of Economic Times, the average train delay in India stood at 53 minutes in 2017, while trains for Bihar had a delay of 104 minutes in 2017, 93 minutes in 2016 and 80 minutes in 2015, taking the percentage increase in delays over these three years to 30 percent.

Given the alarmingly high rates of delays, ‘LiveRail' becomes more relevant as it aims to provide users with live train status, PNR inquiry, trains between stations and many more related services accessible to anyone from any device, anywhere and anytime.

**2.1 Customers**

Anyone who has a train-related query can use this application.

**2.2 Functionality**

* Users should be able to register and then log in using their email accounts.
* The whole application will be based on GET requests on REST basis to a third-party remote server which will cater the following services to the users:-

1. Live Train Status and Arrival Times at Stations
2. PNR Status
3. Trains Between Stations
4. Train Route
5. Train Seat Availability and Fare Enquiry
6. Canceled and Rescheduled Trains

**2.3 Platform**

It will be launched as a web-based application.

**2.4 Development Responsibility**

Samyak Talesra, Sushil Pandey and I, Gurudutt Rai will be responsible for the complete application development lifecycle, including documentation, database design, source code development, and testing.

**3. Goals and Scope**

* Users should be able to register, and then log in using their credentials.
* They will be able to access any service as stated in section 2.2.
* User history will be stored in the local database, and last N queries will be displayed on the user dashboard (using Top N analysis).
* Non-perishable information (such as trains between stations, train routes, etc.) will be stored in the local database and will be updated once a month, so that network traffic can be decreased, and the application doesn't have to hit the REST server to fetch same information again and again. This will also make our application robust and fast.
* Perishable information such as rescheduled and canceled trains will be updated once a day and will be shown on the dashboards of relevant logged in users (belonging to the same city as rescheduled and canceled trains).
* *User searches and data can be deduced using data analysis and can be used to forecast trends.*
* *‘****LiveRail Credits****' credit points system, which will involve a virtual currency for the web application. Each time a user requests for some information, they need to spend some 'LiveRail Credits', once the user reaches their limit, they can not request further.*

*This is to prevent misuse of the services provided by our application, to regulate network traffic and to keep the hits to the REST server at a minimum.*

1. P.S. The font in *italics* shows features that can be added if time permits.

**4. Deliverables**

We'll deliver the following during development:-

* Feature specification
* Product design
* Test plan
* Development document
* Source code

**5. Risk Management**

**5.1 Risk Identification**

* There are numerous similar applications available on the internet. It will be a challenge to motivate users to use ’LiveRail’ instead.
* ‘LiveRail' depends heavily on third-party REST server, namely ‘railwayapi.com'. This means that in a scenario where ‘railwayapi.com' goes down, live tracking and other dynamic services will be hampered in our web application.

**5.2 Risk Mitigation**

* **The third-party REST server ‘railwayapi.com' powers more than 1000 websites on the internet similar to ours, and it's highly unlikely that it would go down for a substantially long time. But considering the possibility, we can add a fail-safe REST server (which is another third-party REST server) as a future add on to our product.**
* **To motivate more users to use our product, we have to create a simple, minimal, yet versatile and efficient UI.**

**6. Technical Process**

* Following would be the languages we would use to develop our application within the stipulated period:

1. Front-end development: Angular/JSP (will be decided on a feasibility basis).
2. Back-end development: Java, MySQL/MongoDB (decided on a feasibility basis).