**Project Design Phase-I**

**Proposed Solution**

| Date |  |
| --- | --- |
| Team ID | PNT2022TMID37095 |
| Project Name | Developing a Flight Delay Prediction Using Machine Learning. |

**PROPOSED SOLUTION :**

| **S NO** | **PARAMETER** | **DESCRIPTION** |
| --- | --- | --- |
|  | Problem Statement (Problem to be solved) | * To propose an flight delay prediction system based on the machine learning model and attempt to predict the flight delays from available flight based schedule data, whether data etc. |
|  | Idea / Solution description | * Collect various factors based on climatic conditions, existing flight schedules, airline information etc, * Flight Delay Prediction model using the principal component analysis such as Random Forest Algorithm and Gradient boosting classification is employed. * Firstly, the Flight Delay is calculated using the previous flight delay data by arithmetic index method. * Secondly, the principal component analysis (PCA) is applied to the dataset. * Thirdly, to predict the Flight Delay, different regression algorithms are used to the PCA output. * Finally, the Gradient Boosting Classifier is utilized to classify the flight delay status. |
|  | Novelty / Uniqueness | * In this prediction, the main uniqueness is utilization of PCA and gradient booster trees. * Pilot related information and airline related information are given. |
|  | Social Impact / Customer Satisfaction | * This work can help the passenger to plan accordingly if they can predict the delay beforehand * Accurately predicting these flight delay allows the airline to make alternate arrangements. |
|  | Business Model (Revenue Model) | For Analyzing the metrics of each flight delay and on correct prediction , a charge of Rs 999 will be collected. |
|  | Scalability of the Solution | * The solution is highly scalable as we use Machine learning techniques. * Automated system can be build to aid the customer, to collect flight details and quickly analyze and predict the flight delay. |