**Project Design Phase-I**

**PROPOSED SOLUTION**

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| Date | 03 October 2022 |
| Team ID | PNT2022TMID47681 |
| Project Name | Project - Exploratory Analysis Of RainFall Data In India For Agriculture |
| Marks |  |

**Proposed Solution :**

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| **S.No.** | **Parameter** | **Description** |
|  | Problem Statement (Problem to be solved) | * Rainfall has been a major   concern these days.   * Rainfall is a key part of the hydroogical   cycle and alteration of its patterns directly affects the water resources. Changes in the  pattern have become a major issue for  harvesting crops.   * This has paved the way   for drastic changes in patterns of  rainfall.   * The factors that have been   affecting rainfall are temperature,  humidity, wind speed, pressure, and  precipitation. These are primary  factors that affect rainfall. It is highly  important to study the behavior of  rainfall against the factors that have been affecting it.   * Only then we will be   able to predict the rainfall accurately. |
|  | Idea / Solution description | * Technology is much more   advanced now. **Machine Learning** has  become trending for predictions.   * It contains various algorithms that can   help us in predicting our required value.   * The proposed system forecasts rainfall   with machine learning technique:  1. Random Forest  2.Decision Tree  3.XGbost  4.K-nearest neighbors |
|  | Novelty / Uniqueness | * The use of machine learning   techniques has increased the accuracy of rainfall prediction systems by exploring the hidden patterns of historical weather data   * This application is usefel for begineers   in agriculture. |
|  | Social Impact / Customer Satisfaction | * Helps in producing fields and healthy   crops.   * Any type of malfunction in the   weather sensor can also compromise the accuracy of the proposed rainfall prediction  system. |
|  | Business Model (Revenue Model) | * This comparative study is conducted   concentrating on the following aspects: modeling inputs, Visualizing the data, modeling methods, and pre-processing techniques.   * The results provide a comparison of   various evaluation metrics of these machine learning techniques and their reliability to predict rainfall by analyzing the weather data. |
|  | Scalability of the Solution | * Machine learing used for accurate   prediction in which the given dataset is cleaned and normalized before the classification process begins.   * Timely and accurate forecasting can   proactively help reduce human and financial loss. |