**Project Design Phase-II**

**Solution Requirements (Functional & Non-functional)**

|  |  |
| --- | --- |
| Date | 21-10-2022 |
| Team ID | PNT2022TMID39908 |
| Project Name | Predicting the energy of wind turbine based on weather conditions |
| Maximum Marks | 4 Marks |

**Functional Requirements:**

Following are the functional requirements of the proposed solution.

|  |  |  |
| --- | --- | --- |
| **FR No.** | **Functional Requirement (Epic)** | **Sub Requirement (Story / Sub-Task)** |
| FR-1 | User Registration and logging in by entering their username and password. | Registration through Form |
| FR-2 | User Confirmation by validating the username with respect to the password | Confirmation via Email  Confirmation via OTP |
| FR-3 | Displaying the further information about the application. | By selecting the about button the details of the application will be displayed. |
| FR-4 | Validating the city name. | System checks whether the city entered by the user is present or not. If present it will collect the further details else it will display the pop-up message as error in the city. |
| FR-5 | Checking the data type of the value. | System checks for the data type of the value entered by the user. |
| FR-6 | Validating all required fields. | Before predicting the output the system checks whether all the values are entered by the user and checks whether all values are correct |
| FR-7 | Displaying weather conditions for a given city. | It displays the weather of the city which have been selected. |
| FR-8 | Displaying predicted energy output power. | The predicted output will be displayed as amount of wind energy power generated. |

**Non-functional Requirements:**

Following are the non-functional requirements of the proposed solution.

|  |  |  |
| --- | --- | --- |
| **FR No.** | **Non-Functional Requirement** | **Description** |
| NFR-1 | **Usability** | The system satisfies the user goals and the application is easy to use. |
| NFR-2 | **Security** | The data provided to system will be protected from attacks and unauthorized access |
| NFR-3 | **Reliability** | The system will provide the consistency in output without producing an error. |
| NFR-4 | **Performance** | The performance will never degrade even the workload is increased. |
| NFR-5 | **Availability** | The availability factor of a wind turbine is the amount of time that the turbine is able to produce electricity over a certain period, divided by the amount of the time in the period. |
| NFR-6 | **Scalability** | The scaled model is simply geometrically zoomed from the reference full-scale one, while in the second strategy the scaled  rotor is completely redesigned in order to match desired characteristics of the full-scale machine. |