Project Design Phase-II

Solution Requirements (Functional & Non-functional)

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| Date | 09 November 2022 |
| Team ID | PNT2022TMID12567 |
| Project Name | Predicting the energy output of wind turbine based  on weather condition |
| Maximum Marks | 4 Marks |

**Functional Requirements:**

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| **FR No.** | **Functional Requirement (Epic)** | **Sub Requirement (Story / Sub-Task)** |
| FR-1 | User Registration | Registration through Form Registration through Gmail  Registration through LinkedIN |
| FR-2 | User Confirmation | Confirmation via Email  Confirmation via OTP |
| FR-3 | Input | Location of the user must be ON state on the  device. |
| FR-4 | Weather Condtion | Based on location the Weather condition data is  gathered through any satellites or resourse like API |
| FR-5 | Regression tree method | To get more reliable output these methods are  used. |
| FR-6 | Modeling the data | This is used to Genetic programming will helps to  get more accurate result. |
| FR-7 | Wind Energy Prediction | A synergeic neural network based model is used. |
| FR-8 | Energy Output | The formula is *capacity factor=actual*  *output/maximum possible output* as ***kWh/yr*** |

**Non-functional Requirements:**

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| **FR No.** | **Non-Functional Requirement** | **Description** |
| NFR-1 | **Usability** | * It must be user friendly for all medium of people. * More Effective. * Less Data consumption. |
| NFR-2 | **Security** | * Secure Software Development * Forms authentication must be deployed. * Encryption ,key Management ,Firewall and Router Management. |
| NFR-3 | **Reliability** | Wind energy is reliable because it Highly securable, unlimited and effective integrated data. |
| NFR-4 | **Performance** | There we use Machine Learning techniques are combined so, the system performs well under all critical circumstance thus provide the user a well satisfied interface |
| NFR-5 | **Availability** | The most required is a device with good internet connection,they are globally available to all user across the world. |
| NFR-6 | **Scalability** | It will perform well under an increased or expanding workload as huge storage data and to retrieval data. |