

**School of Computing**

**SRM IST, Kattankulathur – 603 203**

**Course Code: 18CSC206J**

**Course Name: Software Engineering and Project Management**

| **Experiment No** | 10 |
| --- | --- |
| **Title of Experiment** | Develop a Testing Framework/User Interface |
| **Name of the candidate** | [Alankriti Dadlani](mailto:alankriti.dadlani22@gmail.com) |
| **Team Members** | **Aritra Karar, Sanjay.P** |
| **Register Number** | **RA2111028010010** |
| **Date of Experiment** | **18/04/2023** |

**Mark Split Up**

| **S. No** | **Description** | **Maximum Mark** | **Mark Obtained** |
| --- | --- | --- | --- |
| 1 | Exercise | 5 |  |
| 2 | Viva | 5 |  |
| **Total** | | **10** |  |

**Staff Signature with date**

**Aim**

To develop the testing framework and/or user interface framework for the “SMART WINDMILL SYSTEM”.

**Team Members:**

| **S No** | **Register No** | **Name** | **Role** |
| --- | --- | --- | --- |
| **1** | **RA2111028010020** | **Aritra karar** | **Rep/Member** |
| **2** | **RA2111028010010** | **Alankriti Dadlani** | **Member** |
| **3** | **RA2111028010012** | **Sanjay.P** | **Member** |

**Executive Summary**

**Scope:** The scope of testing for “SMART WINDMILL SYSTEM”, is both functional and nonfunctional testing. This covers all modules of the project

**Objective:** The objective of testing is to ensure that the “SMART WINDMILL SYSTEM” meets the required quality standards, performs as expected, and is reliable, efficient, and secure. The testing will also ensure that the system meets the needs of the end users and is user-friendly.

**Approach:** The approach to testing will be a combination of manual and automated testing methodologies. For functional testing, manual testing will be used to evaluate the user interface, test scenarios that require human interaction, and test cases that cannot be automated. Automated testing will be used to execute repetitive and critical path test cases. For non-functional testing, testing tools will be used to test the system's performance, security, and scalability. Test cases will be documented and managed using test management tools. Overall, the testing process will follow a comprehensive test plan and ensure that it is reliable, efficient, and secure.

**Test Plan**

**Scope of Testing**

**Functional Testing:** The “SMART WINDMILL SYSTEM” application should be tested for sensitivity and specificity, which is the ability of the algorithm to correct and identify power fluctuations and predict to some accuracy future power output. Also, user testing should be conducted with different types of energy sources and multiple weathers to evaluate the usability and effectiveness of the application. The application should be monitored for accuracy and improved upon based on user feedback and updates to the AI model.

**Non-Functional Testing:** Performance testing should be conducted to assess the application’s ability to handle a large volume of user requests and analyze data in a timely manner. This can be done by running simulated power sources to simulate high-traffic scenarios and measuring response time, and resource utilization. Security testing should be conducted to identify vulnerabilities in the application’s security controls and ensure it is compliant with relevant security standards and regulations

**Types of Testing, Methodology, Tools**

| Category | Methodology | Tools Required |
| --- | --- | --- |
| Functional  Requirements | Manual Testing | Template |
| Non-Functional Requirements | Automated Testing | Testing Frameworks, Security Testing Tools, Test Management Tools |

**Result:**

Thus, the testing framework has been created