EMSS 8

TEST plan

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Test Plan

**Development Testing**

1. **Unit testing**

In unit testing, we adopt an automated testing approach. The test code is integrated into the program, and it is used to test if the component functionality was implemented correctly. The following are few of the functionalities that we plan on testing in the development phase:

1. Solar Power System

The system checks if the solar power is available. When available, it checks the battery level. If below 80%, the solar power is used to charge the battery and the devices at the same time. This is done provided it is enough to cover the usage of the house. Based on the solar power readings, test code shall return an error if either the battery doesn’t charge or the EMSS does not switch the power supply.

1. Thermostat

Thermostat will turn on/off the air-conditioner according to the thresholds set by the user and then send information to the EMSS. When the air temperature (based on readings from temperature sensor) is outside the scheduled threshold, and the device is not turned on/off, then the test code returns error.

1. Appliances

The appliances turn on when they sense motion. This is based on the data that is collected from the motion sensor. The test code should report an error if the data suggests that there is motion but the appliance is not turned on.

1. Report Generation

This involves testing on the user interface side. When the user requests a report, the test code should test if the system provides the report in specified time and in a readable format.

1. **Component testing**

As all components are connected to EMSS central unit, the component testing focuses on the interaction between EMSS central unit and the other components. The following will be the primary objectives of our component test cases:

1. EMSS central unit should correctly control the status of power supply based on the availability and power stored in solar supply system.
2. EMSS central unit should carry out the switching of the appliances in real time and should reflect the correct status.
3. EMMS should maintain a correct track record of the electricity usage, electricity sold, and the costs involved.
4. The power supply grid should provide timely unit usage rate to the EMSS system.
5. The solar power system should check the status of the battery / solar energy and provide EMSS with the availability of the power.
6. **System Testing**

In this phase of testing, the overall functionality of the system will be the tested. Importance will be given to the Quality of the system and if the functionality is as mentioned in the requirements document. A separate QA testing team will be hired and engaged for this purpose. The following things will be taken into consideration in this phase:

* Goals & Objective
* Scope
* Test Deliverable
* Testing Strategy
* Testing Schedule
* Test Environment
* Roles and Responsibilities

**Release testing**

The release testing will be carried out before the final deployment. This will test the systems compatibility with the external environment. Factors like the hosting platform, uptime, SLA’s and other such non-functional requirements will be taken into consideration.

**User Acceptance Testing**

This will be carried out in a different environment before going into production. We will have the SME’s (Subject Matter Experts) fly in from our various off-shore offices and help with the testing. At the same time, we will have a team of selected individuals from all domains who will be the primary users of the system.

This will improve our understanding of any missing functionalities which might be necessity for business continuity. The User Acceptance Testing will mainly focus on checking if the system meets the requirements and works as the customer expected.

**Regression Testing**

Regression Testing will be carried in a different environment called ‘pre-prod’. This environment will have the same code as the production environment. Once a defect has been fixed or functionality has been added, testing will be done in pre-prod using a set of automated scripts.

Maintenance Plan

The following highlights the time and other resources utilization for our post-deployment maintenance:

Fault repair 24%

Environment adaption 21%

Functionality addition or modification 50%

Preventive 5%

To enable the users to report a defect or to request a new functionality, we will setup a ticketing system like ServiceNow. The ticketing system will be monitored by a support team. For the initial 2-3 months, we will have a separate team called ‘HyperCare’ to provide the users with a white glove treatment.