**[Kenovo]**

**[Electric Blender]**

**[V1.0]**

**Master Test Plan**

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**Document History**

| **Version #** | **Author(s)** | **Date** | **Reviewer(s)** | **Reviewing Date** | **Description of Change** |
| --- | --- | --- | --- | --- | --- |
| 1.0 | SohaSwailem | 02/04/2018 | Marwan Ahmed | 6/4/2018 | Draft |
| 1.0 | SohaSwailem | 15/04/2018 |  |  | \*Remove items not to be tested and features not to be tested as they are not in the project scope  \*Updating Regression Strategy to be more clarified  \*According to REV\_007, REV\_09 in Review-Log |
| 1.0 | Marwan Ahmed | 17/04/2018 | Soha Swailem | 18/04/2018 | = Adding Reviewing strategy section "7.5" with all its subsections :  7.5.1 : project management and planning documents  7.5.2 :Requirements Specifications Documents  7.5.3:Design specifications document  7.5.4:Test plans and Test cases documents |

1. **Test Plan Identifier**

Master Test Plan for Electric BlenderSystem TestPlan\_1.0

1. **Related Documents**

Documents that can be referenced include:

* Project Plan
* Requirements specifications
* Configuration Management Plan
* System/Unit Level test plans

1. **Introduction**

**3.1. Purpose**

This test plan describes the testing approach and overall framework that will drive the testing of the Kenovo Electric Blender.The document introduces:

* Test Strategy: rules the test will be based on, including the givens of the project (e.g.: start / enddates, objectives, assumptions); description of the process to set up a valid test (e.g.: entry / exit criteria, creation of test cases).
* Execution Strategy: describes how the test will be performed and process to identify and report defects, and to fix and implement fixes.
* Test Management: process to handle the logistics of the test and all the events that comeupduring the execution.

**3.2. Project Overview**

The System is a simple electric blender system that should have three speeds so the user should be able to change be able to change blender speed from Off -> Speed 1 -> Speed 2 -> Speed 3 -> Off again with a push button and the blender shall monitor the input voltage to avoid system failure. The system will be implemented using different hardware such as: Microcontroller,Motor Driver Circuit, DC Motor, Fuse and Push button.

**3.3. Audience**

* Testing team members perform tasks specified in this document, and provide input and recommendations on this document.
* Project Manager Plans for the testing activities in the overall project schedule, reviews the document, tracks the performance of the test according to the task here in specified.
* The stakeholders take part in the UAT test to ensure the business is aligned with the results of the test and will provide their inputs on functional changes.
* Technical Team ensures that the test plan and deliverables are in line with the design, provides the environment for testing and follows the procedures related to the fixes of defects.

1. **Test Items(functions)**

**4.1. Items to be tested**

|  |  |  |
| --- | --- | --- |
| **Index** | **Items to be tested** | **Test Version** |
| 1 | Hardware connections | Version 1.0 |
| 2 | System Requirements Specification (Review) | Version 1.0 |
| 3 | Hardware Components (Review) | Version 1.0 |
| 4 | Configuration Management Plan (Review) | Version 1.0 |
| 5 | Test Cases (Review) | Version 1.0 |

1. **Software Risk Issues**

* New version of the system
* Understanding a new package/tool
* Extremely complex functions
* Poorly documented modules
* Change requests
* Misunderstanding of the original requirements
* Time Constraints
* Budget Constraints

1. **Features To Be Tested**

|  |  |  |
| --- | --- | --- |
| **Index** | **Features to be tested** | **Test Version** |
| 1 | Switching between 3 speeds | Version 1.0 |
| 2 | Hardware protection circuit for over-voltage detection | Version 1.0 |
| 3 | Turning Blender ON & OFF | Version 1.0 |

1. **Strategy**

**7.1. Test Objectives**

* The objective of the test is to verify that the functionality of Kenovo Electric Blender System works according to the specifications.

**7.2. Test Principles**

* Testing will be focused on meeting the business objectives, cost efficiency, and quality.
* Testing will be done on hardware which runs the software.
* Testing environment and data will emulate a production environment as much as possible.
* Testing will be divided into distinct phases, each with clearly defined objectives and goals.
* There will be entrance and exit criteria.

**7.3. Scope and Levels of Testing**

**7.3.1 Unit Testing**

**Purpose:** *The purpose of this test is to verify functionality of a single unit.*

**Scope**: *Smallest Unit or function.*

**Testers:***Development Team.*

**Method:***Unit testing is carried out in the application based on White box techniques (eg. Code Coverage ,Decision Coverage) .*

**Timing**: *After Development of each function or unit.*

**7.3.2 System Testing**

**Purpose:** *System testing is used to validate the whole system comparing to the requirements.*

**Scope**: *The overall System.*

**Testers:***Testing Team.*

**Method:***System testing is carried out in the application using test scripts and documentation based on black box techniques (eg. Boundary value analysis, Decision Table, Use cases) and SRS.*

**Timing**: *After Completion of the System.*

**7.3.3 Regression Testing:**

**Purpose:** *Regression testing is used to validate that after changes no bugs are introduced to the unchanged part of the system/unit.*

**Testers:***Testing Team.*

**Method:***It will be based on severity of defects detected for the main Features so whenever the system changed testers should all testcase set.*

**Timing**: *After any changes.*

**7.4. Entry and Exit Criteria**

* Entry criteria to start the execution phase of the test: Software and Hardware are available and ready to start testing.
* Exit criteria to decide no more need of testing: 90% of test cases are executed and passed successfully.

**7.5. Reviewing strategy**

**7.5.1 Project Management and Planning documents   
 Purpose :** To validate all project related documents and update them according to project progress.

**Responsibility :** Reviewing the project documents will be a shared responsibility between the testers and developers.

**Methodology:** The responsible individual will investigate the documents by sight and log any emerging issues to the review log supported by a clear description of the raised issue and a traceable reference to the document where it was raised .

**7.5.2 Requirements specification documents   
 Purpose :** To validate the consistency of the gathered requirements and to ensure the clearance and completeness of the elicited requirements as per required from the customer.

**Responsibility :** Reviewing the requirements shall be a shared responsibility between the testers and developers to communicate with the customer to further clarify the requirements.

**Methodology:** The responsible individual will investigate the documents by sight and log any emerging issues to the review log supported by a clear description of the raised issue and a traceable reference to the document where it was raised .

**7.5.3 design specification documents   
 Purpose :** To check and investigate the proposed high level and detailed designs in terms of compliance to standards, logical and behavioral consistency and design optimization.

**Responsibility :** Reviewing the design specifications shall be a responsibility of developers to investigate and benchmark all the proposed the design and to check its validity to being implemented.

**Methodology:** The responsible individual will investigate the documents by sight and log any emerging issues to the review log supported by a clear description of the raised issue and a traceable reference to the document where it was raised .

**7.5.4 Test plans and test cases documents   
 Purpose :** To check the validity of test plans and test cases for any possible missed sections or possible uncovered requirements or any ambiguities in the test basis or test reports.

**Responsibility :** Reviewing the test plans and test documents shall be a responsibility of testers to investigate all test related documents.

**Methodology:** The responsible individual will investigate the documents by sight and log any emerging issues to the review log supported by a clear description of the raised issue and a traceable reference to the document where it was raised.

**7.6 Criteria for determining severity**

|  |  |
| --- | --- |
| **Severity** | **Impact** |
| 1 (Critical) | * High critical functionalities for example button doesn’t work and there is over voltage > 12 volt. * Areas which are highly accessed by the end user for example button. * Microcontroller burned. |
| 2 (High) | * Functionalities/modules that are having more bugs. * Delay between speeds. * Button hangs from time to time. * Motor hangs and there is the noise when the moving of the motor. |
| 3(Medium) | * Corrupted electronic components that might affect one of the module of the system for example when capacitor damaged, the detection of the voltage of the motor doesn't be determined. * Damaged soldering that can be effected on the module attach |
| 4 (Low) | * There are Documentation errors, which have minimum impact on product use. |

1. **Item Pass/Fail Criteria**

* Unit test level:
* 90% of cases should be passed.
* System test level:
* All lower level plans completed.
* 90% of test cases should be passed.

1. **Test Deliverables**

* Test plan document.
* Test cases.
* Error logs and execution logs.
* Test Summary Report.
* Test Data.

1. **Environmental Needs**

|  |  |  |
| --- | --- | --- |
| **Index** | **Items** | **Type** |
| 1 | Compiled HEX file of the project | Software |
| 2 | DC Motor | Hardware |
| 3 | Microcontroller | Hardware |
| 4 | Motor Driver Circuit | Hardware |
| 5 | Push Button | Hardware |
| 6 | Fuse | Hardware |
| 7 | Eclipse Software | Software Tool |
| 8 | Proteus | Software Tool |

1. **Staffing and Training Needs**

No need for specific training

1. **Responsibilities**

* Referenced to RASIC matrix Sheet

1. **Schedule**

* Referenced toProject Schedule Sheet

1. **Planning Risks and Contingencies**

* Referenced to Risks Document

1. **Glossary**

* **DC ->**Direct Current**.**
* **SRS ->**Software Requirement Specification.
* **UAT ->**User Acceptance Test.