Test Plan

Digital Air Conditioner Screen

04/04/2018

Team 4

Sara Safwat Amin

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Version History

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| **ID & Version #** | **Prepared**  **By** | **Revision**  **Date** | **Approved**  **By** | **Approval**  **Date** | **Reason** |
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Table Of Contents

[1. Test Plan Identifier 4](#_Toc510775334)

[2. Introduction 4](#_Toc510775335)

[2.1. Purpose 4](#_Toc510775336)

[2.2. Overview 4](#_Toc510775337)

[2.3. Test Objective 4](#_Toc510775338)

[2.4. References 4](#_Toc510775339)

[3. Test Items 5](#_Toc510775340)

[3.1. Items to be Tested 5](#_Toc510775341)

[3.2. Items not to be Tested 5](#_Toc510775342)

[4. Features 6](#_Toc510775343)

[4.1. Features to be Tested 6](#_Toc510775344)

[4.2. Features not to be Tested 6](#_Toc510775345)

[5. Test Approach 6](#_Toc510775346)

[5.1. Test principles 6](#_Toc510775347)

[5.2. Scope and Levels of Testing 6](#_Toc510775348)

[5.3. Steps That Control The Testing Approach 7](#_Toc510775349)

[6. Item Pass/Fail Criteria 8](#_Toc510775350)

[7. Suspension Criteria And Resumption Requirements 8](#_Toc510775351)

[8. Test Deliverables 8](#_Toc510775352)

[9. Environmental Needs 8](#_Toc510775353)

[10. Schedule 9](#_Toc510775354)

[11. Responsibilities 10](#_Toc510775355)

[12. Staffing And Training Needs 10](#_Toc510775356)

[13. Approvals 11](#_Toc510775357)

# Test Plan Identifier

The identifier of the test plan for Digital Air Conditioner System: TPD\_1.0

# Introduction

## Purpose

The purpose of this document is to summarize the test strategy as it relates to the implementation of the ***Digital Air Conditioner System*.** This test plan provides managers and test personnel with the necessary approach to validate that each process performs correctly and that the requirements of the system have been satisfied. This test plan will provide the following:

* Detail the approach and strategy for testing of the solution
* Describe the planning, test case preparation and scheduling, including resource requirements
* Explain the execution, results documentation and review of the testing
* Provide the test cases which will be executed for this testing effort

## Overview

Objective of Test plan is to define the various Testing strategies and testing tools used for complete Testing life cycle of this project. The Digital Air Conditioner System consists of a remote that controls fan speed and temperature of an air conditioner. The Mode button enables the user to switch between changing fan speed (low/medium/high), changing the temperature (from 16 to 32) and displaying the temperature and the fan speed.

## Test Objective

The objective of the test is to verify that the functionality of the ***Digital Air Conditioner System*** works according to the specifications.

The test will execute and verify the test scripts, identify, fix and retest all high and medium severity defects per the entrance criteria, prioritize lower severity defects for future fixing.

The final product of the test is:

A ready working product

A set of stable test scripts that can be reused for Functional and UAT test execution.

## References

Referenced documents to the test plan include:

* Project Plan
* Software Requirements Specifications.
* Configuration Management Plan.
* Test cases

# Test Items

## Items to be Tested

The following items should be tested

|  |  |  |
| --- | --- | --- |
| **Index** | **Features to be tested** | **Test Version** |
| 1 | The LCD | Version 1.0 |
| 2 | The ON/OFF push button functionality | Version 1.0 |
| 3 | The Mode push button functionality | Version 1.0 |
| 4 | The UP push button functionality | Version 1.0 |
| 5 | The DOWN push button functionality | Version 1.0 |
| 6 | System Requirements Specification (Review) | Version 1.0 |
| 7 | Configuration Management Plan (Review) | Version 1.0 |
| 8 | Test Cases (Review) | Version 1.0 |
| 9 | Hardware Components | Version 1.0 |

## Items not to be Tested

The following items should not be tested

|  |  |  |
| --- | --- | --- |
| **Index** | **Features to be tested** | **Test Version** |
|  |  |  |
|  |  |  |

# Features

## Features to be Tested

The following are the features to be tested in the system according to the customer’s perspective:

1. The LCD screen should not display until after 5 seconds from pressing the ON button.
2. There should be 3 modes (adjust temp mode, adjust fan mode and display mode).
3. Temperature and fan speed can’t be adjusted unless in and adjustment mode
4. The LCD displays the temperature and the fan speed when ON button is pressed or when being in display mode.

## Features not to be Tested

The following are the features not to be tested in the system according to the customer’s perspective:

1. Two push buttons pressed at the same time.

# Test Approach

## Test principles

* Testing will be focused on meeting the business objectives, cost efficiency, and quality.
* There will be common, consistent procedures for all teams supporting testing activities.
* Testing processes will be well defined, yet flexible, with the ability to change as needed.
* Testing activities will build upon previous stages to avoid redundancy or duplication of effort.
* Testing will be a repeatable, quantifiable, and measurable activity.
* Testing will be divided into distinct phases, each with clearly defined objectives and goals.
* There will be entrance and exit criteria.

## Scope and Levels of Testing

### System Testing

Testing conducted on a complete, integrated system to evaluate the system's compliance with its specified requirements.

### User Acceptance Testing (UAT)

To conform that system is developed according to the specified user requirements and is ready for operational use. Acceptance testing is carried out at two levels - Alpha and Beta Testing. User acceptance testing (UAT) will be done at the Client.

### Unit Testing

This testing is typically defined as developer testing of a specific module against functional design specifications.

## Steps That Control The Testing Approach

### Develop Tests

1. Analyze Requirements
2. Develop scenarios
3. Derive Acceptance Criteria
4. Construct Test Cases
5. Review Documents (SRS, SDD).

### Prepare to Test

* Prepare the environment to execute test cases: Ensure that people, software and hardware are all in place to start testing.
* Preparing Test data.

### Run Tests

Execute the test cases and report test results, summaries and write defect reports.

### Review Test Results

### Plan Testing

Identifying the entry and exit criteria before testing.

***Entry Criteria:***

- QA resources have completely understood the requirements.

- Reviewed test scenarios, test cases and RTM.

- Hardware should be available and software should be developed.

***Exit Criteria:***

- At least 90% of the test cases are successful.

- No defects over a period of time or less testing efforts.

- All the high priority/severity test cases has been executed.

### Change Management

Impact analysis should be done before any change request to indicate how the changes will impact the test process and what should be focused on during regression testing.

# Item Pass/Fail Criteria

90 percent of the test cases executed on a single module have to be successful in order to considered it a passed item.

# Suspension Criteria And Resumption Requirements

***Suspension Criteria:***

* Unavailability of hardware during execution.
* Introducing a defect that is critically blocking other modules from being tested.

***Resumption Criteria:***

* Availability of hardware.
* No presence of defects that are critical.

# Test Deliverables

1. Test Plan
2. Test Design Specifications
3. Test Case Specifications
4. Test Procedure Specifications
5. Test Logs
6. Test Incidents Reports
7. Test Data
8. Test Summary Reports
9. Test Execution Reports

# Environmental Needs

* Hardware components have to be ready and stable.
* Hardware connections have to be ready.
* Test data
* Development completed, unit tested and the code is delivered to the testing team.
* Configuration guides; For version control, Github will be used with TortoiseGit.

# Schedule

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Task Name** | **Start** | **Finish** | **Effort** | **Comments** |
| Test Planning |  |  |  |  |
| Review Requirements documents |  |  |  |  |
| Create initial test estimates |  |  |  |  |
| First deploy to QA test environment |  |  |  |  |
| Functional testing – Iteration 1 |  |  |  |  |
| Iteration 2 deploy to QA test environment |  |  |  |  |
| Functional testing – Iteration 2 |  |  |  |  |
| System testing |  |  |  |  |
| Regression testing |  |  |  |  |
| UAT |  |  |  |  |
| Resolution of final defects and final build testing |  |  |  |  |
| Deploy to Staging environment |  |  |  |  |
| Release to Production |  |  |  |  |

# Responsibilities

|  |  |  |
| --- | --- | --- |
| **Role** | **Resources** | **Responsibilities** |
| Test Manager | Enas Taher | Provides management oversight  Responsibilities:   * Provide technical direction * Acquire appropriate resources * Management reporting |
| System Tester | 1- Dina Helmy  2- Engy Zinhom  3- Hadeel Yamani  4- Sara Safwat  5- Yasmine Yehia | * Review documents * Construct test cases * Prepare test environment * Prepare test data * Execute test cases * Document test results * Review test results |

# Staffing And Training Needs

* Team members need to learn about Embedded and Electronic Systems fundamentals.
* Team members need to know how to use TortoisGit and GitHub
* Team members need to know how to use Eclipse IDE.
* The development team will need to know how to perform unit testing on their codes.

# Approvals

The undersigned acknowledge they have reviewed the *“Digital Air Conditioner Screen”* **Test Plan** document and agree with the approach it presents. Any changes to this Requirements Definition will be coordinated with and approved by the undersigned or their designated representatives.

|  |  |  |  |
| --- | --- | --- | --- |
| Signature: |  | Date: |  |
| Print Name: |  |  |  |
| Title: |  |  |  |
| Role: |  |  |  |