Multi Elevator System Test Plan (Version 1.0)

Team:

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Test Plan Identifier

Test plan no – 1

Version – 1.0

Unique identifier – MES-TP1

Master test plan

Introduction

This project provides the top-level architecture overview of the Multi Elevator System. This Architecture controls three elevators in a multi-story building. This document outlines all the software component of the multi elevator system. The basic major component of this software system are control system, Monitor system, Elevator request system, power unit and Elevator unit which also comprise of sub system. Elevator unit also contain subsystem, which are control unit(CU), Button Pad(BP), Door, Position and direction tracker (PDT), weighing system (ws). The Monitor system is basically responsible for decision making and processing information.

Monitor system get information from the control unit which it process and send the feedback to the control unit. The second major component is control system which is responsible for coordination between all other components and their sub system. The three elevators are identical to each other, so will be represented here as one component. All the three elevators are connected to the power unit.

1. Code reviews
2. Unit testing
3. Code inspections
4. Integration testing

Test Items

1. Elevator unit
2. Elevator Request system
3. Control system
4. Monitoring system
5. Power unit

6. Alarm system

Features To Be Tested

1. The ERS panel should confirm the user what floor he request for as his destination.
2. ERS should send the correct signal to the elevator logic controller for the requested floor by the user.
3. The closest elevator to the floor should be responsible for the request for that floor.
4. Once the door of elevator is closed, ELC should send the signal to elevator for direction in which it needs to move.
5. Elevator should stop when there is no more request to processed.
6. The ELC should check which floor the elevator is reaching and send the stop signal to elevator if there is a request for tha floor.
7. Control system should receive data like position and direction, weight of elevator and send control signal to respective elevator without delay.
8. Monitoring system should determine the elevator number to which it has to send control signal accurately based on data like position, direction, weight from elevators

Approach

We decided to follow the testing approach in which each test case will have priority like low, medium and high. And test cases will be tested based on the priority in order like high priority test cases will test first followed by medium and then low.

1. Some high priority test cases may require the testing of low priority test cases as prerequisite.
2. More resources may require for low priority test cases.
3. One of parts of approach is to test some test cases among high priority test cases such as testing of control system, monitoring system, Elevator request system which can help tester to understand whole system and get overview of system as whole.
4. UNIT Testing will be done by the developer and will be approved by the development team leader. Proof of unit testing (test case list, sample output, data printouts, defect information) must be provided by the programmer to the team leader before unit testing will be accepted and passed on to the test person. All unit test information will also be provided to the test person.
5. If tester is not available for testing low priority test cases then these test cases can test later.

6. When system is operating at specific level (e.g. Elevator or Elevator Request system), only components operating at that level should test. Other functionality and component testing may waste of time.

Item Pass/Fail Criteria

If the system is unable to operate correctly, it must be able to detect the failure and power off the system

- **Elevator unit**

  Criteria: Components of elevator system functioning properly like weighting system, position direction tracker etc. Once control signal received from ELC, elevator should work accordingly.

  Priority: High

- **Elevator Request system**

  Criteria: ERS should send the correct signal to the elevator logic controller for the requested floor by the user.

  Priority: Medium

- **Control System**

Criteria: Control system should receive data like position and direction, weight of elevator and send control signal to respective elevator without delay.

Priority: High

- **Monitoring System**

Criteria: Monitoring system should determine the elevator number to which it has to send control signal accurately based on data like position, direction, weight from elevators. There should not be any latency or delay.

Priority: High

- **Alarm system**

Criteria: Elevator should ring the alarm in any emergency situations like fire or if some functions of elevator stop working

Priority: High

Suspension Criteria And Resumption Requirements

1. If no testing team is free for testing this project then project will be delayed until a new team is set for the deliverables. No additional elements will be added to the Reassigned Sales project during this delay.
2. New testing requirements will not be facilitate until these requirements are tested.
3. if there is Issues in Test case management system then project will be delayed until a system is up.

Test Deliverables

Below are test deliverables –

1. Acceptance test plan
2. System/Integration test plan
3. Unit test plans/turnover documentation
4. Master test plan
5. Test log for each phase
6. Test summary reports for each phase
7. Supporting test data
8. Test case scenario

Testing Tasks

Once the Multi Elevator system (MES) has installed in the vehicle, the following testing tasks has to be perform

1. Create Acceptance Test Plan
2. Create System/Integration Test Plan
3. Define Unit Test rules and Procedures
4. Define procedures for each level

Environmental Needs

The following elements are required to support the overall testing effort at all levels within the reassigned sales project:

a. Access to Multi Elevator system (MES) systems. For development, data acquisition and testing.
b. The embedded software compatibility and other third party software.

Responsibilities:

	TM	PM	DEV TEAM	Test Team	Client
Acceptance test Documentation	⊗	⊗		⊗	⊗
System/Integration test Documentation	⊗		⊗	⊗	
Unit test documentation & execution	⊗		⊗	⊗	
System Design Reviews	⊗	⊗	⊗	⊗	⊗
Test procedures and rules	⊗	⊗	⊗	⊗	

Staffing And Training Needs:

there is a need of at least 2 full time tester assigned to the project for system integration. 1 full time for the acceptance testing phase of the project. 1 part time will be required in starting to review the test cases etc. we will need these dedicated test resources for at least 6 months.

In case of absence of these resources project manager or test manager can work in these roles.

for proper testing we would require to train testers for.

1. system integration training.
2. Unit test case writing in junit training.

3. System design knowledge training.

Schedule

For following each testing activity time has been allocated in the project plan. all the dates and times can be found on the project plan timeline. The person required for each process can be found on project timeline.

1. review of required document by test team.
2. development of master test plan by test manager.
3. review of the system design document by test team personnel.
4. acceptance test plans by test manager.
5. unit test time within the development process.
6. time allocated for both system and integration.

Risks And Contingencies

There is a shortage of testing team and available teams also have few positions unfilled. As a result of this staff shortage there may be delays in getting staff to review appropriate documents and to participate in the Acceptance test process. No attempt will be made to bypass any part of the review and testing processes.

Approvals

1. Project Sponsor
2. Development Management
4. Test Manager
5. Development Team Manager