**SHWOZ**

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Railway Train System Simulation

Test Plan

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Feburary 14th 2014

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1. **INTRODUCTION**

**Purpose**

The purpose of this document is to describe and detail the test plan for the Track Controller of the North Shore Light Rail Transit System Simulation.

**Project References**

1. IEEE-1016 Software Design Description.
2. IEEE Test Plan Outline.
3. System Design Document for Train Controller.
4. SRS Document for the Rail Train simulation suite from SHWOZ.

**Abbreviations**

Authority – the distance the train is allowed to travel

Block – a section of the track

CTC – Centralized Traffic Control

GUI – Graphical User Interface

MVC – Model View Control Architecture Pattern

1. **FEATURES TO BE TESTED**

The following is a list of the features to be focused on during testing of the system.

|  |  |
| --- | --- |
| Key features | Reference to the SRS |
| Regulate speed of train | 3.2.3.1 |
| Information input from Train Model | 3.2.3.2 |
| Information output to Train Model | 3.2.3.3 |
| Control Door Status | 3.2.3.4 |
| Control Light Status | 3.2.3.5 |
| Make Announcements | 3.2.3.6 |
| Report Failure | 3.2.3.7 |
| Trigger emergency brake | 3.2.3.8 |

1. **Approach**

Unit, Module and System tests will be performed in Train Controller System. The tests should check for the completeness and consistency of the system.

Unit test will cover all public and private methods. Different types of data will be sued to test the functions to see if they are valid or not. To make sure the system will behave correctly under the current environments, the unit tests will be run automatically after each implementation was made. All the tests will have to be passed in order for the implementation to become official.

Module Testing will be used to test all use cases (Refer to the SRS and module design of the train controller) from the train controller module. Since the test is only intend to test the Train Controller module, A GUI was specially designed for the train controller module. This test will be done in a black box test mode, which inputs and outputs are the only concern. The system outputs will be displayed on the GUI for the test to compare tot eh correct outputs to ensure the system behaves correctly.

System Testing will be applied when the module is about to be integrated with other modules. This test will be done in a black box mode as well, which the inputs and the outputs are the only concern. Similar to module testing, the outputs will be displayed on the GUI, and be compared with the expected output to ensure the system functions correctly.

1. **Item Pass/Fail Criteria**

All the unit test and Module tests are required to pass. The system tests may have one or two major defects, and the severity shall be assessed and determined by the developer team. The final decision will be made based on the time schedule resources and defects themselves

1. **Responsibility**

The entire develop team will be responsible for the verification and acceptance of the system testing, and the Train controller module developer will be responsible for the unit testing and the module testing. The entire project team will participate in the review of the system and detail designs as well as review of any change requests that are generated by the user or as a result of defects discovered during development and testing.