Test Plan

Final Version



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# Introduction

The purpose of this test-plan is to see whether all functionalities described in the URS document are working correctly and whether certain undesired actions affect the program’s workflow.

We will conduct a small test with a handful of testers and conduct a final reconfiguration before the final acceptance test with the client.

# Test Action:

**This test action are based on URS document we already made.**

**Programmers will provide test files to the testers, so the testers can test faster and independently form each other.**

Scenarios:

* Add crossing.
* Delete crossing.
* Change crossing.
* Rotate crossing.
* Modify traffic Light System.
* Change traffic Light Setup.
* Alter Flow.
* Navigate.
* Play Simulation.
* Pause Simulation.
* Stop Simulation.
* Create New Project.
* Load Project and Statistics.
* Save Project and Statistics.
* Exit Application.
* Go to Main Screen.
* Undo.
* Redo.
* Reset.

# Table explanation:

## Pre-Condition:

The conditions that have to be met before the test can take place.

## Target on screen:

The actual screen commands the user will interact with.

## Test Data/Simulation:

Test our actions under different kinds of conditions and with different kinds of data to check if we have captured all the exceptions and if we take necessary precautions to prevent the action from crashing.

## Expected Result:

What is the expected result in each different case we ran the test.

## Actual Result:

The actual result that occurred during the test.

## Outcome and actions required:

Compare the Expected results and the actual results to come to conclusions what kind of actions are to be taken to fix the inaccuracies.

# Test Tables:

| No. | Test Name | Pre-Condition | Target on screen | Test Data/Simulation | Expected Result | Actual Result | Outcome and Actions required | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. | Create new project | None | Main Screen -> New Project-> Chooses location to save project. | 1. When the user starts the application. The user opens a new project by clicking create new project button at the Main-Screen. 2. The user is at Project-grid screen, the user clicks main menu icon and a pop-up menu appears. The user chooses the Create a new project option. 3. The user is working on a file and the user is at Project-grid screen, the user clicks main menu icon and a pop-up menu appears. The user chooses the Create a new project option. | 1. The new file is created and the user will be at the Project-grid screen. 2. The new file is created and shown in the Project-grid screen. 3. A pop-up message will be shown that asks user wants to save the existing file or not. After closing the existing file, the user clicks main menu icon and a pop-up menu appears. The user chooses the Create a new project option. |  | |  |
| 2. | Exit Application | 1. Test case “Create new Project” have been successfully tested. | Power-grid screen->File->close button/Red x at the top right corner of application. | 1. (Test after Save Projects and statistics test case)The user clicks close button and the project is already saved by user. 2. The user clicks close button and the project is not saved yet. 3. (Test after test case Play simulation)The user clicks close button and the simulation is still running. 4. (Test after test case Pause simulation)The user clicks close button and the simulation is still paused. | 1. The project is closed. 2. A message shows to notify user that his project has not been saved. Asks user if he’d like to save. 3. The button is disabled. A warning message will be shown that the file is still running (exiting by the Red x at the top right corner of application.). 4. A message shows to ask the user if he’d like to stop the simulation. If the user chooses to stop the simulation and clicks the stop button. A message shows to notify user that his project has not been saved. Asks user if he’d like to save the project. |  | |  |
| 3. | Save project and statistics | 1. Test case “Create Project” has been successfully tested. | Power-grid screen->File->save button | 1. When simulation is not running or paused and crossings are existing on grid. 2. When simulation is not running or paused and crossings are not existing on grid. 3. When simulation is running. | * 1. The user has already simulated the project. Grid project and statistics will be saved to default location.   2. The user has not simulated the project yet. Grid project can be saved and statistics will be saved to an empty txt file.   2. Save button is not available.  3. Save button is not available. |  | |  |
| 4. | Load Project | 1. Test cases “Create new Project” and “Save project” have been successfully tested.  2. A project “Load project” has been created beforehand. Cell B2 will be occupied with crossing Type A and cell B3 will be occupied with crossing Type B. | Main screen -> Load Project option | 1. User Opens Application and clicks the “Load Project” option. Then find and chooses to open the  “Load project” file. | 1. Premade project “Load project” is loaded, and Cell B2 will be occupied with crossing Type A, cell B3 will be occupied with crossing Type B. |  | |  |
|  |  |  |  |  |  |  | |  |
| 5. | Add crossing | 1. Test case “Load Project” has been successfully tested.  2. Premade project “Add crossing” is loaded, and Cell B2 will be occupied with crossing Type A, cell B3 will be occupied with crossing Type B. | User chooses crossing -> user drags a crossing to a cell-> User drops the crossing | 1. User chooses a crossing Type A, by left clicking the mouse, and then drags it to a cell (cellB4).  2. User chooses a crossing Type B by left clicking the mouse, and then drags it to a cell (cellB3).  3. User chooses a crossing Type B, by left clicking the mouse, and then drag it to a cell (cellC4).  4. User chooses a crossing Type B, by left clicking the mouse, and then drag it to a cell (cellC4).  5. User clicks the “run” button and tries steps 1-4. | 1. A crossing with Type A shows in cell B4.  2. Systems give an error message “cell occupied”. Cell B3 does not change.  3. A crossing with Type B shows in cell C4.  4. Systems give an error message “cell occupied”. Cell B4 does not change.  5. All the previous steps will be disabled, so the user will not be able to do that. |  | |  |
| 6. | Delete crossing | 1. Test case “Load Project” has been successfully tested.  2. Premade project “Delete crossing” is loaded , and Cell B2 will be occupied with crossing Type A, cell B3 will be occupied with crossing Type B. | User right click on a crossing -> Choose the “Delete crossing” option-> confirm deletion. | 1. User right clicks in cell B2.  2. Chooses “Delete crossing option”.  2.1 User confirms deletion  2.2 User cancels deletion  3. User right clicks on cell B4. | 1. The system shows a delete option.  2. System will ask for confirmation “Do you really wish to delete?”  2.1 System will remove crossing from the grid  2.2 Nothing changes  3. Nothing will appear |  | |  |
| 7. | Change crossing | 1. Test case “Load Project” has been successfully tested.  2. Premade project “Change crossing” is loaded , and Cell B2 will be occupied with crossing Type A, cell B3 will be occupied with crossing Type B. | Right click on a crossing -> “change a crossing” option -> choose a new crossing -> set the traffic light options | 1. Right click on cell B2 (with crossing) then choose “Change crossing” option. Choose crossing type B. 2. Right click on cell C4 (without crossing). Choose “Change crossing” option. 3. Start simulation. Right click on any cell. 4. Pause simulation. Right click on any cell. 5. Stop simulation. Right click on cell B2. | 1. Crossing on B2 has now changed (From A to B) 2. No such option should be available to user. 3. Nothing happens and no options pop up. 4. Nothing happens and no options pop up. |  | |  |
| 8. | Rotate crossing | 1. Test case “Load Project” has been successfully tested.  2. Premade project “Rotate crossing” is loaded , and Cell B2 will be occupied with crossing Type A, cell B3 will be occupied with crossing Type B. | Grid->Crossing->Right click menu->Rotate | 1. Right click on cell B2 then choose rotate crossing option. 2. Right click on cell C4 then choose rotate crossing option. 3. Start simulation. Right click on any cell. 4. Pause simulation. Right click on any cell. 5. Stop simulation. Right click on cell B3. Choose rotate crossing option | 1. Crossing on B2 now has rotated 90 degrees clockwise. 2. No such option should be available to user 3. Nothing happens and no options pop out 4. No Nothing happens and no options pop out 5. The crossing on B3 now has rotated 90 degrees clockwise |  | |  |
| 9. | Modify traffic light | Test case “Load Project” has been successfully tested.  2. Premade project “Rotate crossing” is loaded, and Cell B2 will be occupied with crossing Type A, cell B3 will be occupied with crossing Type B. All stages of the traffic light systems in each crossing have default value. (30 seconds) | Grid->Hover over a crossing->click left corner output icon->setting window-> traffic light intervals | 1. Hover over cell B2 Click icon on top left corner. Change interval for stage 1 to 40. 2. Hover over cell B2. Click icon on top left corner. Change interval for stage 2 to 1000 3. Hover over cell C4 4. Play simulation. Hover over cell B2. 5. Pause simulation. Hover over cell B2. 6. Stop simulation. Hover over cell B2 click icon on top left corner. Change interval for stage 1 to 30. | 1. Stage 1 for the traffic light system on cell B2 now has interval of 40 seconds. 2. System shows pop-up “Interval too high. Possible values 20-60”. System doesn’t change interval. 3. No icon should appear in the top left corner. 4. No icon should appear in the top left corner. 5. No icon should appear in the top left corner. 6. Stage 1 for the traffic light system on cell B2 now has interval of 30 seconds. |  | |  |
| 10. | Change traffic light setup | Test case “Load Project” has been successfully tested.  2. Premade project “Rotate crossing” is loaded, and Cell B2 will be occupied with crossing Type A and traffic light setup 1, cell B3 will be occupied with crossing Type B and traffic light setup 2. | Project-grid screen -> Right click crossing -> “Change traffic light setup” option -> List of possible options to change from | 1. Right click on cell B2. Choose Change traffic light setup option. Choose a traffic light setup 2. 2. Right click on cell C4. Choose “Change traffic light setup” option. 3. Start simulation. Right click on any crossing. 4. Pause Simulation. Right click on any crossing. 5. Stop Simulation. Right click on cell B3. Choose Change traffic light setup option. Choose traffic light setup 1. | 1. The crossing on cell B2 now has a different setup for the stages of the traffic light. (From 1 to 2.) 2. No such option should appear to the user. 3. No options should appear. 4. No options should appear. 5. The crossing on cell B2 now has a different setup for the stages of the traffic light. (From 2 to 1). |  | |  |
| 11. | Alter Flow | 1. Test case “Load Project” has been successfully tested.  2. Premade project “Alter flow” is loaded, and Cell B2 will be occupied with crossing Type A and each lane will have default flow (5). | Project-grid screen->Hover over a crossing->click left corner output icon->setting window-> flow | 1. Hover over cell B2 Click icon on top left corner. Change flow for lane 3 to 10. 2. Hover over cell B2. Click icon on top left corner. Change flow of lane 5 to 100. 3. Hover over cell C4 4. Play simulation. Hover over cell B2. 5. Pause simulation. Hover over cell B2. 6. Stop simulation. Hover over cell B2 click icon on top left corner. Change flow of lane 2 to 4. | 1. Lane 3 on crossing B2 now has flow of 10. 2. System shows pop-up “Interval too high. Possible values 0-20”. System doesn’t change flow. 3. No icon should appear in the top left corner. 4. No icon should appear in the top left corner. 5. No icon should appear in the top left corner. 6. Lane 2 on crossing B2 now has flow of 4. |  | |  |
| 12. | Navigate | 1. Test case “Load Project” has been successfully tested.  2. Premade project “Navigate” is loaded, and Cell B2 will be occupied with crossing Type A, cell B3 will be occupied with crossing Type B and C3 will be occupied with crossing of Type A. | Project-grid screen->Navigation button | 1. When simulation is not running or paused and crossings are existing on grid.  2. When simulation is not running or paused and crossings are not existing on grid.  3. When simulation is running. | 1. User clicks the navigation start point button, then user selects start point ,then clicks the destination point button and selects end point and input the flow numbers, click confirm button and the data saved or back to default value. After save value, system calculates the new data. 2. Navigation button is unavailable for users 3. Navigation button is unavailable for users |  | |  |
| 13. | Play Simulation | 1. Test case “Load Project” has been successfully tested.  2. Premade project “Play simulation” is loaded, and Cells B2, B3 and C3 are occupied with crossings. | Project-grid screen ->Play simulation button | 1. Press play button. 2. Press Pause. Then Play again. 3. Press Stop. Delete Crossing on cell B3 (refer to “Delete crossing” test case). Press Play. | 1. Play simulation button become pause simulation button, it can only achieve pause function. The simulation is running. 2. The simulation will continue to run from the point it was paused. 3. System will show “The map is disconnected” and will not start the simulation. |  | |  |
| 14. | Pause Simulation | 1. Test case “Load Project” has been successfully tested.  2. Premade project “Pause simulation” is loaded, and Cells B2, B3 and C3 are occupied with crossings. | Power-grid screen->Pause button. | 1. Run simulation then Press pause. 2. Stop simulation. Press pause. | 1. The pause button changes to play button. The grid is still and everything is the same as the moment it was paused. 2. User will not see the pause button and cannot press it. |  | |  |
| 15. | Stop Simulation | 1. Test case “Load Project” has been successfully tested.  2. Premade project “Stop simulation” is loaded, and Cells B2, B3 and C3 are occupied with crossings. | Power-grid screen->Stop button. | 1. Run simulation then Stop it. 2. Try to stop simulation when it’s not running. | 1. The simulation is stopped and user can alter the grid as he pleases. 2. The stop button is disabled. |  | |  |
| 16. | Go to main menu | The user is at “Project-Grid screen” | File -> Go to “main menu” | 1. The simulation is not running and the user clicks on the file menu and chooses option “Go to main menu”. 2. The simulation stops and is not saved. 3. The simulation is paused. 4. The simulation is running. | 1. User is automatically redirected to the “Main Menu” screen. 2. A message shows to notify user that his project has not been saved. Asks user if he’d like to save. 3. A message shows to ask the user if he’d like to stop the simulation. If the user chooses to go to main menu, the simulation and clicks the stop button. A message shows to notify user that his project has not been saved. Asks user if he’d like to save. 4. The button is disabled. A warning message will be shown that the file is still running. |  | |  |
| 17. | Undo | 1. Test case “Load Project” has been successfully tested.  2. Premade project “Undo” is loaded. | Project-grid screen-> Undo button | 1. Start the application and click undo button. 2. Add 1 crossing into cell B2, then click button undo. 3. Add 1 crossing into cell C2 and start the simulation then click button undo. 4. Stop the simulation then click the button undo. | 1. The button should be disabled, so the user should not be able to click the redo button. 2. The system will remove the crossing in the cell B2. 3. The button should be disabled, so the user should not be able to click the redo button while the simulation is running. 4. The system will remove the crossing in the cell C2. |  | |  |
| 18. | Redo | 1. Test case “Undo” has been successfully tested.  2. Premade project “Redo” is loaded. | Project-grid screen -> Redo button | 1. Start the application and click the redo button. 2. Adding a crossing to the cell B2, and then click the redo button. 3. Adding a crossing to cell B3, and then click the undo button, then click the redo button. 4. Adding crossings to cell B3, B3 and C3, and then click the undo button, then click start button, then click the redo button. 5. Adding crossings to cell B2, B3 and C3, and then click the undo button, then click start button, after a while, click the stop button, then click the redo button. | 1. The button should be disabled, so the user should not be able to click the redo button. 2. Same as 1. 3. The system should show the crossing in B2 again. 4. The button should be disabled, so the user should not be able to click the redo button while the system is running. 5. After clicking the undo button, the system should remove the crossing in the cell C3, after clicking the redo button, the system should add the crossing back to the cell C3. |  | |  |
| 19. | Reset | 1. Test case “Load Project” has been successfully tested.  2. Premade project “Reset” is loaded. | Project-grid screen ->Reset button | 1. Start the application and click the reset button. 2. Add some crossings and click the reset button. 3. Add some crossings successfully and set the traffic light setting then click the reset button. 4. Add some crossings successfully and set the traffic lights then start simulation, then click reset button. 5. Add some crossings successfully and set the traffic lights then start simulation, after a while, stop it, then click reset button. | 1. System should give you a proper message indicating that the application is reset. 2. System should remove all the crossing in the grid and give you a proper message indicating that the application is reset. 3. Same as 2. 4. System will give you an error message indicating that it is not possible to reset the application while it is running the simulation. 5. Same as 2. |  | |  |