# Mapping Tests

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|---|---|
| Test Scenario | Check if the car can navigate to the optimal position to start mapping the maze. |
| Test Case | Car is placed in the corner with the front ultrasonic sensors not blocked. |
| Pre-Conditions | All the 4 ultrasonic sensors must be working. |
| Test Steps | 1. Place the car on the specified orientation in the maze.<br>2. Call the initializeCarPosition() function. |
| Test Data | - |
| Expected Result | Car starts mapping the maze. Print statement to show that the car is currently mapping. |
| Actual Result | Car starts mapping the maze. |
| Pass/Fail | **Pass** |

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|---|---|
| Test Scenario | Check if the car can navigate to the optimal position to start mapping the maze. |
| Test Case | Car is placed in the corner with the front and right ultrasonic sensors blocked. |
| Pre-Conditions | All the 4 ultrasonic sensors must be working. |
| Test Steps | 1. Place the car on the specified orientation in the maze.<br>2. Call the initializeCarPosition() function. |
| Test Data | - |
| Expected Result | Car turns 90 degrees to its left and starts mapping the maze. Print statement when the car is making the turn and starting to map the maze. |
| Actual Result | Car turns 90 degrees to its left and starts mapping the maze. |
| Pass/Fail | **Pass** |

| | |
|---|---|
| Test Scenario | Check if the car can navigate to the optimal position to start mapping the maze. |
| Test Case | Car is placed in the corner with the front and left ultrasonic sensors blocked. |
| Pre-Conditions | All the 4 ultrasonic sensors must be working. |
| Test Steps | 1. Place the car on the desired orientation in the maze.<br>2. Call the initializeCarPosition() function. |
| Test Data | - |
| Expected Result | Car turns 90 degrees to its right and starts mapping the maze. Print statement when the car is making the turn and starting to map the maze. |
| Actual Result | Car turns 90 degrees to its right and starts mapping the maze. |
| Pass/Fail | **Pass** |

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|---|---|
| Test Scenario | Check if the car can navigate to the optimal position to start mapping the maze. |
| Test Case | Car is placed in the middle with the front and back ultrasonic sensors blocked. |
| Pre-Conditions | All the 4 ultrasonic sensors must be working. |
| Test Steps | 1. Place the car on the desired orientation in the maze.<br>2. Call the initializeCarPosition() function. |
| Test Data | - |
| Expected Result | Car turns 90 degrees to its left and moves till it reaches the end and makes a 90 degree turn to its right. Print statement when the car is making the turns, moving forward and starting to map the maze. |
| Actual Result | Car turns 90 degrees to its left and moves till it reaches the end and makes a 90 degree turn to its right. |
| Pass/Fail | **Pass** |

| | |
|---|---|
| Test Scenario | Check if the car can navigate to the optimal position to start mapping the maze. |
| Test Case | Car is placed in the middle with only the back ultrasonic sensor blocked. |
| Pre-Conditions | All the 4 ultrasonic sensors must be working. |
| Test Steps | 3. Place the car on the desired orientation in the maze.<br>4. Call the initializeCarPosition() function. |
| Test Data | - |
| Expected Result | Car turns 90 degrees to its left and moves till it reaches the end and makes a 90 degree turn to its right. Print statement when the car is making the turns, moving forward and starting to map the maze. |
| Actual Result | Car turns 90 degrees to its left and moves till it reaches the end and makes a 90 degree turn to its right. |
| Pass/Fail | **Pass** |

| Causes | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| C1 | initializeCarPosition() function is called | Y | Y | Y | Y | N | N | N | N |
| C2 | Car reached optimal position | Y | Y | N | N | - | - | - | - |
| C3 | Car started mapping | Y | N | - | N | - | - | - | - |
| | | | | | | | | | |
| Effects | | | | | | | | | |
| E1 | Car reached optimal position and Mapping Successful | X | | | | | | | . |
| E2 | Car reached optimal position and mapping unsuccessful | | X | | | | | | |
| E2 | Car never reach optimal position and mapping unsuccessful | | | X | X | X | X | X | X |