VTP

**Description:**

This file Contains the required tests as a validation plan for the SRS Document.

**Version Information:**

Current Version: 1.4

Edited by : We

Notes : In this version we added more details and tests about each test and its tools used.

**Test Setup – Tools needed:**

1. Android Application
2. Stopwatch
3. Distance Gauge
4. Oscilloscope
5. Test board (AVR Micro Controller Included)
6. Connections

The following tests should be applied to the noted setup …

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| --- | --- | --- | --- |
| VTP ID | VTP\_001 | | |
| Steps & Expectations & Result | 1. Press ‘ up ‘ from Application | 1. The car moves forward | 1. ----- |
| Covers | REQ\_SRS\_001 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_002 | | |
| Steps & Expectations & Result | 1. Press ‘ down ‘ from Application | 1. The car moves backward | 1. ----- |
| Covers | REQ\_SRS\_002 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_003 | | |
| Steps & Expectations & Result | 1. Press ‘ right ‘ from Application | 1. The car rotates right | 1. ----- |
| Covers | REQ\_SRS\_003 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_004 | | |
| Steps & Expectations & Result | 1. Press ‘ left ‘ from Application | 1. The car rotates left | 1. ----- |
| Covers | REQ\_SRS\_004 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_005 | | |
| Steps & Expectations & Result | 1. Press ‘ Stop ‘ from Application | 1. The car stops | 1. ----- |
| Covers | REQ\_SRS\_005 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_006 | | |
| Steps & Expectations & Result | 1. Press ‘ forward ‘ then instantly press ‘ backward ‘ | 1. The car moves forward then stops then moves backward | 1. ----- |
| Covers | REQ\_SRS\_008 | | |
| Test Result |  | | |

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| VTP ID | VTP\_007 | | |
| Steps & Expectations & Result | 1. Press ‘ left ‘ then instantly press ‘right ‘ | 1. The car turns left then stops then turns right | 1. ----- |
| Covers | REQ\_SRS\_008 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_008 | | |
| Steps & Expectations & Result | 1. Move forward towards an object | 1. The car stops If the distance is less than 20 cm | 1. ----- |
| Covers | REQ\_SRS\_006 | | |
| Test Result |  | | |

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| VTP ID | VTP\_009 | | |
| Steps & Expectations & Result | 1. Start timing since the distance between the car and the front object reaches 20 cm till the car stops | 1. The car should stop in less than 1 second | 1. ----- |
| Covers | REQ\_SRS\_006 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_010 | | |
| Steps & Expectations & Result | 1. Move backward towards an object | 1. The car stops If the distance is less than 20 cm | 1. ----- |
| Covers | REQ\_SRS\_007 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_011 | | |
| Steps & Expectations & Result | 1. Start timing since the distance between the car and the back object reaches 20 cm till the car stops | 1. The car should stop in less than 1 second | 1. ----- |
| Covers | REQ\_SRS\_007 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_012 | | |
| Steps & Expectations & Result | 1. Keep pressing for at least 10 seconds on the ‘Forward’ button | 1. The car should keep moving forward and will stop if forward button is released | 1. ----- |
| Covers | REQ\_SRS\_009 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_013 | | |
| Steps & Expectations & Result | 1. Keep pressing for at least 10 seconds on the ‘Forward’ button | 1. The stop response after the release should not be more than 1 second | 1. ----- |
| Covers | REQ\_SRS\_009 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_014 | | |
| Steps & Expectations & Result | 1. Open the mobile application without pressing any buttons | 1. The motor should be still without any motion | 1. ----- |
| Covers | REQ\_SRS\_010 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_015 | | |
| Steps & Expectations & Result | 1. When speed (1) button is pressed, read analog output on oscilloscope | 1. The duty cycle should be 25% (with tolerance 2%) | 1. ----- |
| Covers | REQ\_SRS\_011 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_016 | | |
| Steps & Expectations & Result | 1. When speed (2) button is pressed, read analog output on oscilloscope | 1. The duty cycle should be 50% (with tolerance 2%) | 1. ----- |
| Covers | REQ\_SRS\_011 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_017 | | |
| Steps & Expectations & Result | 1. When speed (3) button is pressed, read analog output on oscilloscope | 1. The duty cycle should be 75% (with tolerance 2%) | 1. ----- |
| Covers | REQ\_SRS\_011 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_018 | | |
| Steps & Expectations & Result | 1. While speed (4) button is pressed, read analog output on oscilloscope | 1. The duty cycle should be 100% (with tolerance 2%) | 1. ----- |
| Covers | REQ\_SRS\_011 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_019 | | |
| Steps & Expectations & Result | 1. While right button is pressed, read analog output on oscilloscope | 1. The duty cycle should be 25% (with tolerance 2%) | 1. ----- |
| Covers | REQ\_SRS\_012 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_020 | | |
| Steps & Expectations & Result | 1. While left button is pressed, read analog output on oscilloscope | 1. The duty cycle should be 25% (with tolerance 2%) | 1. ----- |
| Covers | REQ\_SRS\_013 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_021 | | |
| Steps & Expectations & Result | 1. Read the frequency of bit sent then map it to the baud rate mentioned . | 1. The bit period should be same as the baud rate with tolerance 10% | 1. ----- |
| Covers | REQ\_SRS\_014 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_022 | | |
| Steps & Expectations & Result | 1. Move the car forward to an object and observe the LED at distance between car and object is less than 20 cm | 1. The LED is turned on | 1. ----- |
| Covers | REQ\_SRS\_015 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_023 | | |
| Steps & Expectations & Result | 1. Measure the time that the car used to cover 10 meter | 1. The time should be the (10/Speed) | 1. ----- |
| Covers | REQ\_SRS\_016 | | |
| Test Result |  | | |

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| --- | --- | --- | --- |
| VTP ID | VTP\_024 | | |
| Steps & Expectations & Result | 1. Assign AVR Rx Pin( Connected to the Application) to Oscilloscope and read the period between two consecutive received messages | 1. Period should be 100 ms (tolerance 10%) | 1. ----- |
| Covers | REQ\_SRS\_017 | | |
| Test Result |  | | |