

NGOs

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Chapter 1: Requirement Set: NGOs

Description

Need: Our vehicle is for abled body college students between 5" and 6'4" ft, with a max weight limit of 300 lbs.

The ideal geography is in mid-Atlantic urban areas, and it is used for commuting only 10 miles a day via this bike.

The vehicle will be used for small grocery runs, going to and from class, and going for brief leisure rides.

It will withstand elements such as rain and snow and have a sporty aspect that is conducive to driving.

The vehicle will have sensing capabilities to relay the vehicle's performance to the driver.

Implementation Status

Total	Implemented	Justified	None
58	1	0	57

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
58	0	0	0	0	58

Change Information [Change issue\(s\) found in 1 requirement\(s\).](#)

1

Requirement Type Functional

ID Safety

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
16	0	0	16

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
16	0	0	0	0	16

1.1

Requirement Type Functional

ID Rollover and Fall Protection

Description

R0: 90deg+ of falling tilt

Fall: Up to 90 deg of falling tilt

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
2	0	0	2

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
2	0	0	0	0	2

1.1.1

Requirement Type Functional

ID Driver immovability

Description

When is in a crash, we dont want them to move out of their seat or for their head to experience too much whiplash.

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

1.2

Requirement Type Functional

ID Electrical Protection

Description**Change Information** No change issue detected.**Implementation Status**

Total	Implemented	Justified	None
3	0	0	3

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
3	0	0	0	0	3

1.2.1**Requirement Type** Functional**ID** Emergency Shutoff Capabilities**Description****Change Information** No change issue detected.**Implementation Status**

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

1.2.2**Requirement Type** Functional**ID** Component Preservation**Description**

Some components may overheat or draw too much current. We need to mitigate that.

Change Information No change issue detected.**Implementation Status**

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

1.3**Requirement Type** Functional**ID** Health Safety**Description****Change Information** No change issue detected.**Implementation Status**

Total	Implemented	Justified	None
8	0	0	8

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
8	0	0	0	0	8

1.3.1**Requirement Type** Functional**ID** Preventing Cuts**Description****Change Information** No change issue detected.**Implementation Status**

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

1.3.2**Requirement Type** Functional**ID** Cardiology Safety**Description**

Want to be mindful of drives heart rate and making sure they dont over exhaust themselves

Change Information No change issue detected.**Implementation Status**

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

1.3.3**Requirement Type** Functional**ID** Legal Health Aspects**Description****Change Information** No change issue detected.**Implementation Status**

Total	Implemented	Justified	None
4	0	0	4

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
4	0	0	0	0	4

1.3.3.1**Requirement Type** Functional

ID Head Safety

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

1.3.3.2

Requirement Type Functional

ID Leg Safety

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

1.3.3.3

Requirement Type Functional

ID Arm Safety

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

1.3.4

Requirement Type Functional

ID Driver Ingress and Egress

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

1.4

Requirement Type Functional

ID Road Safety

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
2	0	0	2

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
2	0	0	0	0	2

1.4.1

Requirement Type Functional

ID Road Visibility

Description

To see and be seen

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

2

Requirement Type Functional

ID Flexible anthropology of a person

Description

Change Information [Change issue detected.](#)

Links

Artifact [EHPV2425.slx](#)

⚠ EHPV2425:1 (←Implemented by)

Implementation Status

Total	Implemented	Justified	None
12	1	0	11

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
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12	0	0	0	0	12
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2.1

Requirement Type Functional

ID Height Compensation

Description

5' – 6' 4"

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
5	0	0	5

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
5	0	0	0	0	5

2.1.1

Requirement Type Functional

ID Fit in seat

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
2	0	0	2

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
2	0	0	0	0	2

2.1.1.1

Requirement Type Functional

ID Lower Lumbar Support

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

2.1.2

Requirement Type Functional

ID Comfortable Handlebars

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

2.1.3

Requirement Type Functional

ID Reaching pedals

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

2.2

Requirement Type Functional

ID Weight Compensation

Description

<300 lbs

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
2	0	0	2

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
2	0	0	0	0	2

2.2.1

Requirement Type Functional

ID Structure is Unable deform under 300 lbs load

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
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1	0	0	0	0	1
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2.3

Requirement Type Functional

ID Endurance / Strength Compensation

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
4	0	0	4

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
4	0	0	0	0	4

2.3.1

Requirement Type Functional

ID Pedal Strength Compensation

Description

Force needed to do work on the pedals

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

2.3.2

Requirement Type Functional

ID Steering Compensation

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

2.3.3

Requirement Type Functional

ID Aerodynamic Drag Mitigation

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

3

Requirement Type Functional

ID Built for Urban Destinations

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
13	0	0	13

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
13	0	0	0	0	13

3.1

Requirement Type Functional

ID Travel to class

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
4	0	0	4

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
4	0	0	0	0	4

3.1.1

Requirement Type Functional

ID Be able to secure the vehicle when not in operation

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
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1	0	0	0	0	1
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3.1.2

Requirement Type Functional

ID Sleek Design

Description

We dont want to look

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

3.1.3

Requirement Type Functional

ID Comfortably move around people

Description

Ability to comfortably move around people

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

3.2

Requirement Type Functional

ID Sport Driving Conditions

Description

Speeds reach 20+mph

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
3	0	0	3

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
3	0	0	0	0	3

3.2.1

Requirement Type Functional

ID Must reach a velocity of 30mph forward

Description**Change Information** No change issue detected.**Implementation Status**

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

3.2.2**Requirement Type** Functional**ID** Acceleration Goals**Description****Change Information** No change issue detected.**Implementation Status**

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

3.3**Requirement Type** Functional**ID** Small Grocery Runs**Description****Change Information** No change issue detected.**Implementation Status**

Total	Implemented	Justified	None
3	0	0	3

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
3	0	0	0	0	3

3.3.1**Requirement Type** Functional**ID** Cargo Compartment**Description****Change Information** No change issue detected.**Implementation Status**

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

3.3.2

Requirement Type Functional

ID Secured Cargo

Description

Being able to

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

3.4

Requirement Type Functional

ID Leisure Riding Conditions

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
2	0	0	2

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
2	0	0	0	0	2

3.4.1

Requirement Type Functional

ID Minimal Effort for Actuation

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

4

Requirement Type Functional

ID Mid-Atlantic Weather/Geography Conditions

Description

The goal is to ride in the same conditions as a car.

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
6	0	0	6

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
6	0	0	0	0	6

4.1

Requirement Type Functional

ID Rain

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

4.2

Requirement Type Functional

ID Snow

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

4.3

Requirement Type Functional

ID Heat

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

4.4

Requirement Type Functional**ID** Mud**Description****Change Information** No change issue detected.**Implementation Status**

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

4.5

Requirement Type Functional**ID** Hills**Description****Change Information** No change issue detected.**Implementation Status**

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

5

Requirement Type Functional**ID** Enhanced Driver Situational Awareness**Description****Change Information** No change issue detected.**Implementation Status**

Total	Implemented	Justified	None
11	0	0	11

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
11	0	0	0	0	11

5.1

Requirement Type Functional**ID** Sensors

Description**Change Information** No change issue detected.**Implementation Status**

Total	Implemented	Justified	None
9	0	0	9

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
9	0	0	0	0	9

5.1.1**Requirement Type** Functional**ID** Wheel Rotation Speed**Description****Change Information** No change issue detected.**Implementation Status**

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

5.1.2**Requirement Type** Functional**ID** Lane Position Localization**Description**

Being able to stay in your own lane

Change Information No change issue detected.**Implementation Status**

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

5.1.3**Requirement Type** Functional**ID** Wattage**Description****Change Information** No change issue detected.**Implementation Status**

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

5.1.4

Requirement Type Functional

ID Temperature

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

5.1.5

Requirement Type Functional

ID Battery / Voltage level

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

5.1.6

Requirement Type Functional

ID Accel/ decel

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

5.1.7

Requirement Type Functional

ID Speed

Description

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

5.1.8

Requirement Type Functional

ID Sensor Operation Validation

Description

The Idea here is to indicate whether or not a sensor is working "in condition" or in other words, providing accurate measurements. (TLDR: Working or faulty)

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

5.2

Requirement Type Functional

ID Ergonomic Indicators

Description

The ability to see the system diagnostics at a glance

Change Information No change issue detected.

Implementation Status

Total	Implemented	Justified	None
1	0	0	1

Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
1	0	0	0	0	1

Appendix

Artifact List

Simulink models:

#	Name	Folder	Version
1	EHPV2425.sl x	C:\Users\el2jo\Documents\EHPV2425\EHPVs ystemComposer2425	1.2