

# NGOs

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Published on:17-Jan-2025

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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
57	1	0	56

### Verification Status

Total	Passed	Justified	Failed	Unexecuted	None
57	0	0	0	0	57

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
10	0	0	10

**Verification Status**

Total	Passed	Justified	Failed	Unexecuted	None
10	0	0	0	0	10

5.1

**Requirement Type** Functional**ID** Sensors

**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

**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** 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

**5.1.3****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
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1	0	0	0	0	1
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#### 5.1.4

**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

#### 5.1.5

**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

#### 5.1.6

**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

#### 5.1.7

**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