Customer Requirements Specification

**Speed Bump ES**

**ـــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــ**

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# 

# **Document Status:**

|  |  |  |
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| **Name** | PO\_SB\_CRS\_ES | |
| **Version** | V1.0 | |
| **Status** | Proposed | |
| **Author** | Mohamed Mostafa | |
| **Date** | [30-10-2022] | |
| **Team approval** |  |  |
| **Mentor approval** |  |  |
| **final approval** |  |  |

## 

## Document History:

|  |  |  |  |
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| **Version** | **Author** | **Date** | **Change** |
| 1.0 | Mohamed Mostafa | [30-10-2022] | * Initial Creation |

### 

### Reference Document:

|  |  |  |  |
| --- | --- | --- | --- |
| **Ref.number** | **Doc.Name** | **Version** | **Status** |
| 1 | PO\_SB\_CR\_ES | V1.1 | Released |

#### 

#### Project Description:

Definition:

* The device detects speed bumps.

Features:

* The device can capture images.
* ECU protection and maintenance
* The device uses real time OS

Key Elements:

* The ECU shall connect to a camera that supports real-time capturing.
* The ECU shall monitor the battery’s voltage level.
* The ECU shall monitor its heat level.
* The ECU shall be connected to a DC fan to decrease heat

System Context:



CRS Requirements:

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | PO\_SB\_CRS\_***001***-V1.0 | **Covers** | PO\_SB\_CR\_***001***-V1.0 |
| **Description** | The ECU will then connect to the mobile with Bluetooth and takes the signal to start operation. | | |

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| **Req\_ID** | PO\_SB\_CRS\_***002***-V1.0 | **Covers** | PO\_SB\_CR\_***001***-V1.0 |
| **Description** | After taking the signal, the camera starts capture images to the road. | | |

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| **Req\_ID** | PO\_SB\_CRS\_***003***-V1.0 | **Covers** | PO\_SB\_CR\_***001***-V1.0 |
| **Description** | The camera sends the image format to the ML program. | | |

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| **Req\_ID** | PO\_SB\_CRS\_***004***-V1.0 | **Covers** | PO\_SB\_CR\_***001***-V1.0 |
| **Description** | When the ML program finishes the process, it sends the Detects info to Mobile App. | | |

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| **Req\_ID** | PO\_SB\_CRS\_***005***-V1.0 | **Covers** | PO\_SB\_CR\_***002***-V1.0 |
| **Description** | The operating system checks battery’s voltage level. | | |

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| **Req\_ID** | PO\_SB\_CRS\_***006***-V1.0 | **Covers** | PO\_SB\_CR\_***002***-V1.0 |
| **Description** | If the battery’s voltage level drops to a certain level, it will send a note to Mobile App. | | |

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| **Req\_ID** | PO\_SB\_CRS\_***007***-V1.0 | **Covers** | PO\_SB\_CR\_***003***-V1.0 |
| **Description** | The operating system checks Motherboard’s temperature sensors. | | |

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| **Req\_ID** | PO\_SB\_CRS\_***008***-V1.0 | **Covers** | PO\_SB\_CR\_***004***-V1.0 |
| **Description** | If the heat level rises to a certain level, The ECU sends a command open/close to DC fan to decrease heat. | | |