Customer Requirements Specification

**Speed Bump ES**

**ـــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــ**

**Table of Contents**

[Document Status:](#_lp71t726spji) ……………………………………………………………………………………………...1

[Document History:](#_edfh8stv33cy) …………………………….………………………………………………………………..2

[Reference Document:](#_cnrt6zvbitch) …………………………..…………………………………………………………....3

[Project Description:](#_jhjnw0jh1mna) …………………………………………………………………………………………....4

# **Document Status:**

|  |  |
| --- | --- |
| **Name** | PO\_SB\_CRS\_XX |
| **Version** | V1.0 |
| **Status** | Proposed |
| **Author** | Abdullah Mohamed |
| **Date** | [1\11\2022] |
| **Team Approval** | Mohamed Mostafa |
| **Mentor Approval** | Esraa Abdelnaby |
| **Final Approval** | Esraa Abdelnaby |

## Document History:

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Author** | **Date** | **Change** |
| 1.0 | Abdullah Mohamed | [1\11\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 mobile with Bluetooth
* 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:



|  |  |  |  |
| --- | --- | --- | --- |
| **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. | | |

CRS Requirements:

|  |  |  |  |
| --- | --- | --- | --- |
| **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. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **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. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | PO\_SB\_CRS\_005-V1.0 | **Covers** | PO\_SB\_CR\_002-V1.0 |
| **Description** | The operating system checks battery’s voltage level. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **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. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **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. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | PO\_SB\_CRS\_007-V1.0 | **Covers** | PO\_SB\_CR\_003-V1.0 |
| **Description** | The operating system checks Motherboard’s temperature sensors. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **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. | | |