## Customer Requirements Speciﬁcation

**PO\_ٍSAG\_CRS\_ML\_OR ـــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــ**

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# Document Status:

|  |  |  |
| --- | --- | --- |
| **Name** | PO\_ٍSAG\_CRS\_ML\_OR | |
| **Version** | V1.1 | |
| **Status** | proposed | |
| **Author** | Mouhammed | |
| **Date** | [10-11-2022] | |
| **Team approval** |  |  |
| **Mentor approval** |  |  |
| **Final approval** |  |  |

# Document History:

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Author** | **Date** | **Change** |
| 1.0 | Aya | [7-11-2022] | * Initial Creation * Add definition * Add features * Add Key elements * Add System Context * Add CRS Requirements |
| 1.1 | Mouhammed | [10-11-2022] | * Covered distance requirement |

# Reference Document:

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

# Project Description:

## Definition:

The project aims to help the blind using computer vision to help them identify different things around them and NLP to interact with the user using voice commands.

The project simulates the natural vision of humans using AI techniques enabling the blind to function more normally and independently.

## Features:

* Object detection
* Face recognition
* Activity recognition
* Text recognition
* Speech recognition

## Key Elements:

* A resize algorithm shall resize the input frames to suit the model.
* The model shall process the frames to classify different objects of different classes within each frame
* The model shall localize each object within the frame
* After we trained model shall take the weights to detect the distance between the objects and the lens of camera
* The model shall detect the places of every object on the frame
* The model shall measure the distance between obj and the lens
* The model shall output the class and in the form of text
* Output formatter shall format the text output to mp3 format
* Return identified objects to ECU

## **object detection**

## System Context:

Diagram

Description automatically generated



## CRS Requirements:

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO\_SAG\_CRS\_ML\_OR\_***001***-V1.0 | **Covers** | PO\_SAG\_CR\_ML\_001-V1.1 |
| **Description** | The model shall resize the input frames to suit the model -> | | |

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO\_SAG\_CRS\_ML\_OR\_***002***-V1.0 | **Covers** | PO\_SAG\_CR\_ML\_001-V1.1 |
| **Description** | The model shall process the frames to classify different objects of different classes within each frame | | |

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| **Req\_ID** | Req\_PO\_SAG\_CRS\_ML\_OR\_***003***-V1.0 | **Covers** | PO\_SAG\_CR\_ML\_001-V1.1 |
| **Description** | he model shall localize each object within the frame | | |

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| **Req\_ID** | Req\_PO\_SAG\_CRS\_ML\_OR\_***004***-V1.0 | **Covers** | PO\_SAG\_CR\_ML\_002-V1.0 |
| **Description** | After we trained model shall take the weights to detect the distance between the objects and the lens of camera | | |

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| **Req\_ID** | Req\_PO\_SAG\_CRS\_ML\_OR\_***005***-V1.0 | **Covers** | PO\_SAG\_CR\_ML\_002-V1.0 |
| **Description** | The model shall detect the places of every object on the frame | | |

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| **Req\_ID** | Req\_PO\_SAG\_CRS\_ML\_OR\_***006***-V1.0 | **Covers** | PO\_SAG\_CR\_ML\_002-V1.0 |
| **Description** | The model shall measure the distance between obj and the lens | | |

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| **Req\_ID** | Req\_PO\_SAG\_CRS\_ML\_OR\_***007***-V1.0 | **Covers** | PO\_SAG\_CR\_ML\_001-V1.1 |
| **Description** | The model shall output the class and in the form of text | | |

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| **Req\_ID** | Req\_PO\_SAG\_CRS\_ML\_OR\_***008***-V1.0 | **Covers** | PO\_SAG\_CR\_ML\_001-V1.1 |
| **Description** | Output formatter shall format the text output to mp3 format | | |

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO\_SAG\_CRS\_ML\_OR\_***009***-V1.0 | **Covers** | PO\_SAG\_CR\_ML\_001-V1.1 |
| **Description** | The model shall return identified objects to ECU | | |