## Customer Requirements Speciﬁcation

**SAG CRS ML FaceRecog ــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــ**

# Table of Contents

[Document Status](#_heading=h.gjdgxs) 1

[Document History](#_heading=h.30j0zll) 2

[Reference Document](#_heading=h.1fob9te) 3

[Project Description](#_heading=h.3znysh7) 3

Features 3

Key Elements 3

System Context4

CRS Requirements4

# Document Status:

|  |  |  |
| --- | --- | --- |
| **Name** | Po\_SAG\_CRS\_ML\_Face\_Recog | |
| **Version** | V1.3 | |
| **Status** | Released | |
| **Author** | MEQ | |
| **Date** | [7-12-2022] | |
| **Team approval** | AA | Approved |
| **Mentor approval** | EA | Approved |
| **Final approval** | EA | Approved |

# Document History:

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Author** | **Date** | **Change** |
| 1.0 | MEQ | [13-11-2022] | * Initial Creation * Add CRS Requirements |
| 1.1 | MEQ | [17-11-2022] | * Edit name of document * Edit initial name * Edit the definition * Edit the context diagram * Add require id |
| 1.2 | MEQ | [24-11-2022] | * Req\_SAG\_ML\_FaceRecog\_CRS\_Review\_001 -V1.1 * Req\_SAG\_ML\_FaceRecog\_CRS\_Review\_002 -V1.1 * Req\_SAG\_ML\_FaceRecog\_CRS\_Review\_003 -V1.1 * Req\_SAG\_ML\_FaceRecog\_CRS\_Review\_004 -V1.1 * Req\_SAG\_ML\_FaceRecog\_CRS\_Review\_005-V1.1 * Req\_SAG\_ML\_FaceRecog\_CRS\_Review006-V1.1 * Req\_SAG\_ML\_FaceRecog\_CRS\_Review\_007-V1.1 |
| 1.3 | MEQ | [7-12-2022] | * Edit the table of context * Edit the date and version * Edit the CRS Requirements * Req\_SAG\_ML\_FaceRecog\_CRS\_Review\_***003***-V1.2 |

# Reference Document:

|  |  |  |  |
| --- | --- | --- | --- |
| **Ref.number** | **Doc.Name** | **Version** | **Status** |
| 1 | PO\_SAG\_CR\_ML | V1.2 | Released |

# Project Description:

## Definition:

## Face recognition is the process of taking a face in an image and identifying who the face belongs to.

## Face recognition is a form of person identification.

## Features:

* Face recognition.

## Key Elements:

* The face recognition model shall recognize people determined by the user.

# Face Recognition System Context:

# Diagram Description automatically generated



# CRS Requirements:

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_SAG\_ML\_FaceRecog\_CRS\_***001***-V1.1 | **Covers** | PO\_SAG\_CR\_ML\_005-V1.1 |
| **Description** | The Face\_Recog\_Class shall take the Input\_Frames to identify and crop the faces. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_SAG\_ML\_FaceRecog\_CRS\_***002***-V1.2 | **Covers** | PO\_SAG\_CR\_ML\_005-V1.1 |
| **Description** | The Face\_Recog\_Class shall use the ResNet50 model to extract the INN\_Face\_Recog\_Feature\_Map from edited Input\_Frames. | | |

|  |  |
| --- | --- |
| **Info\_ID** | INFO\_PO\_SAG\_CRS\_ML\_ FaceRecog\_CRS\_***001***-V1.0 |
| **Description** | The INN\_Face\_Recog\_Feature\_Map is an inner signal from ResNet50 models which represent extracted feature given to cosine similarity. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_SAG\_ML\_FaceRecog\_CRS\_***003***-V1.3 | **Covers** | PO\_SAG\_CR\_ML\_005-V1.1 |
| **Description** | The Face\_Recog\_Class shall compare the INN\_Face\_Recog\_Feature\_Map with the faces in the database based on the "cosine similarity" concept. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_SAG\_ML\_FaceRecog\_CRS\_***004***-V1.3 | **Covers** | PO\_SAG\_CR\_ML\_005-V1.1 |
| **Description** | The Face\_Recog\_Class shall recognize the face and outputs the INN\_Text\_Face\_Recog\_Result. | | |

|  |  |
| --- | --- |
| **Info\_ID** | INFO\_PO\_SAG\_CRS\_ML\_ FaceRecog\_CRS\_***002***-V1.0 |
| **Description** | The INN\_Text\_Face\_Recog\_Result is an inner signal that represent the output from The Face\_Recog\_Class. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_SAG\_ML\_FaceRecog\_CRS\_***005***-V1.2 | **Covers** | PO\_SAG\_CR\_ML\_005-V1.1 |
| **Description** | The Face\_Recog\_Class shall send the the INN\_Text\_Face\_Recog\_Result to the Formatter and get the Output\_Audio\_Files\_Face\_Recog. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_SAG\_ML\_FaceRecog\_CRS\_***006***-V1.2 | **Covers** | PO\_SAG\_CR\_ML\_005-V1.1 |
| **Description** | The Face\_Recog\_Class shall return the Output\_Audio\_Files\_Face\_Recog to ECU. | | |