Software Requirements Specification

SAG ML Face Recognition

**ــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــ**

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## Document Status:

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| --- | --- | --- |
| **Name** | PO\_SAG\_SRS\_ML\_Face\_Recg | |
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## Document History:

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Author** | **Date** | **Change** |
| 1.0 | SAM | 9/2/2023 | Initial creation |

## Reference Document:

|  |  |  |  |
| --- | --- | --- | --- |
| **Ref.number** | **Doc.Name** | **Version** | **Status** |
| 1 | Po\_SAG\_CRS\_ML\_Face\_Recog | V1.3 | 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.

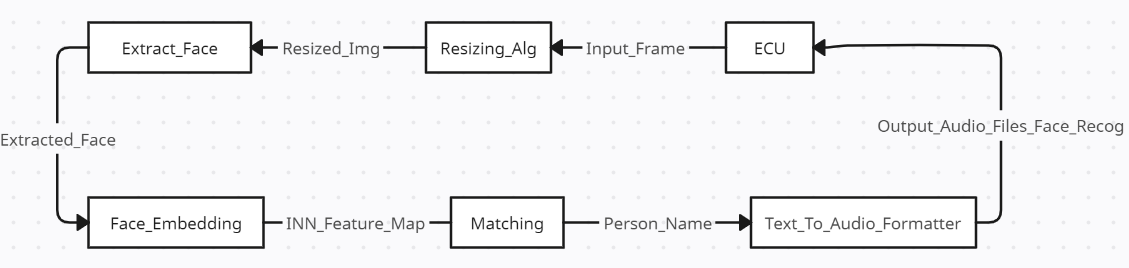
### Features:

* Face recognition.

### Key elements

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

## Software context:



## SRS Requirements:

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO\_ٍSAG\_SRS\_ML\_Face\_Recog \_001-V1.0 | **Covers** | Req\_SAG\_ML\_FaceRecog\_CRS\_***001***-V1.1 |
| **Description** | The Resizing\_Alg shall resize the Input\_Frames to suit the model. | | |
| **Inputs** | Input\_Frames | **Outputs** | Resized\_Img |

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| **Req\_ID** | Req\_PO\_ٍSAG\_SRS\_ML\_Face\_Recog \_002-V1.0 | **Covers** | Req\_SAG\_ML\_FaceRecog\_CRS\_***001***-V1.1 |
| **Description** | The MTCNN shall extract face from image. | | |
| **Inputs** | Resized\_Img | **Outputs** | Extracted\_Face |

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| **Req\_ID** | Req\_PO\_ٍSAG\_SRS\_ML\_Face\_Recog \_003-V1.0 | **Covers** | Req\_SAG\_ML\_FaceRecog\_CRS\_***002***-V1.2 |
| **Description** | The VGGFace with resnet50 weights shall extract Face\_embedding. | | |
| **Inputs** | Extracted | **Outputs** | INN\_Feature\_Map |

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| **Req\_ID** | Req\_PO\_ٍSAG\_SRS\_ML\_Face\_Recog \_004-V1.0 | **Covers** | Req\_SAG\_ML\_FaceRecog\_CRS\_***003***-V1.3 |
| **Description** | The cosine similarity algorithm shall compare entire INN\_Feature\_Map with stored embeddings. | | |
| **Inputs** | INN\_Feature\_Map | **Outputs** | Passed\_feature |

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| **Req\_ID** | Req\_PO\_ٍSAG\_SRS\_ML\_Face\_Recog \_005-V1.0 | **Covers** | Req\_SAG\_ML\_FaceRecog\_CRS\_***004***-V1.3 |
| **Description** | The cosine similarity algorithm shall output person name as text. | | |
| **Inputs** | Passed\_feature | **Outputs** | Person name |

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| **Req\_ID** | Req\_PO\_ٍSAG\_SRS\_ML\_Face\_Recog \_006-V1.0 | **Covers** | Req\_SAG\_ML\_FaceRecog\_CRS\_***005***-V1.2 |
| **Description** | The Text\_To\_Audio\_Formatter shall convert person name from text to Output\_Audio\_Files\_Face\_Recog. | | |
| **Inputs** | Person name | **Outputs** | Output\_Audio\_Files\_Face\_Recog |

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO\_ٍSAG\_SRS\_ML\_Face\_Recog \_007-V1.0 | **Covers** | Req\_SAG\_ML\_FaceRecog\_CRS\_***006***-V1.2 |
| **Description** | The Text\_To\_Audio\_Formatter shall return Output\_Audio\_Files\_Face\_Recog to ECU. | | |
| **Inputs** | Output\_Audio\_Files\_Face\_Recog | **Outputs** | Output\_Audio\_Files\_Face\_Recog |