## Customer Requirements Speciﬁcation

**SAG CRS ML Act Recog ــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــ**

**Table of Contents**

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

[Document History](#_heading=h.30j0zll) 1

[Reference Document](#_heading=h.1fob9te) 2

[Project Description](#_heading=h.3znysh7) 2

# Document Status:

|  |  |  |
| --- | --- | --- |
| **Name** | PO\_ٍSAG\_CRS\_ML\_Act\_Recog | |
| **Version** | V1.2 | |
| **Status** | Released | |
| **Author** | SAM | |
| **Date** | [18-11-2022] | |
| **Team Approval** | EID | Approved |
| **Mentor Approval** | EA | Approved |
| **Final Approval** | EA | Approved |

# Document History:

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Author** | **Date** | **Change** |
| 1.0 | SAM | [8-11-2022] | * Initial Creation * Add CRS Requirements |
| 1.1 | SAM | [18-11-2022] | * Edit CRS\_REVIEW\_001 * Edit CRS\_REVIEW\_002 * Edit CRS\_REVIEW\_003 * Edit CRS\_REVIEW\_004 * Edit CRS\_REVIEW\_005 * Edit CRS\_REVIEW\_006 * Edit CRS\_REVIEW\_007 |
| 1.2 | SAM | [18-11-2022] | * Edit CRS\_REVIEW\_008 * Edit CRS\_REVIEW\_009 |

# Reference Document:

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

# Project Description:

## Definition:

# Activity recognition is the process of identifying the actions surrounding the blind and describing it.

## Features:

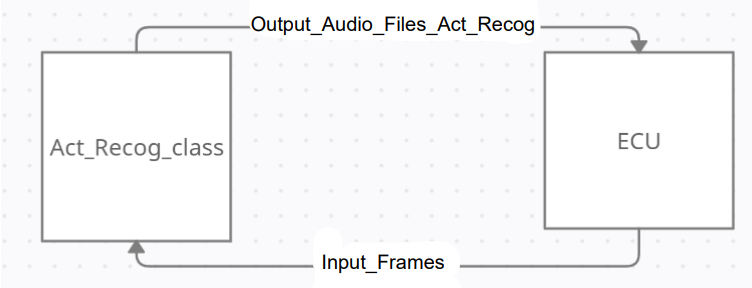
* Activity recognition.

## Key Elements:

* The activity recognition model shall describe the different activities and actions around the user.

# Activity recognition System Context:





# CRS Requirements:

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | PO\_SAG\_CRS\_ML\_Act\_Recog\_001\_V1.2 | **Covers** | PO\_SAG\_CR\_ML\_003-V1.1 |
| **Description** | The Act\_Recog\_Class shall use resizer algorithm to resize the Input\_Frames to suit the model. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | PO\_SAG\_CRS\_ML\_Act\_Recog\_002\_V1.2 | **Covers** | PO\_SAG\_CR\_ML\_003-V1.1 |
| **Description** | The Act\_Recog\_Class shall use CNN layers to process the frames to extract INN\_ActRecog\_Feature\_Map. | | |

|  |  |
| --- | --- |
| **Info\_ID** | PO\_SAG\_CRS\_ML\_Act\_Recog\_001\_V1.0 |
| **Description** | The INN\_Act\_Recog\_Feature\_Map is an inner signal from CNN layers which represent extracted feature given to RNN. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | PO\_SAG\_CRS\_ML\_Act\_Recog\_003\_V1.2 | **Covers** | PO\_SAG\_CR\_ML\_003-V1.1 |
| **Description** | The Act\_Recog\_Class shall use RNN layers to understand the INN\_Act\_Recog\_Feature\_Map. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | PO\_SAG\_CRS\_ML\_Act\_Recog\_004\_V1.2 | **Covers** | PO\_SAG\_CR\_ML\_003-V1.1 |
| **Description** | The Act\_Recog\_Class shall use RNN layers to output the expressive description as text. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | PO\_SAG\_CRS\_ML\_Act\_Recog\_005\_V1.2 | **Covers** | PO\_SAG\_CR\_ML\_003-V1.1 |
| **Description** | The Act\_Recog\_Class shall use Text\_To\_Audio\_Formatter to format the text output to audio file. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | PO\_SAG\_CRS\_ML\_actRecog\_006\_V1.2 | **Covers** | PO\_SAG\_CR\_ML\_003-V1.1 |
| **Description** | The Act\_Recog\_Class shall return Output\_Audio\_Files\_Act\_Recog to ECU. | | |