

Safety Plan Lane Assistance

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# Document history

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| Date | Version | Editor | Description |
| 19.12.2017 | 1.0.0 | Bernhard Rode | Initial version of the safety plan |
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# Introduction

## Purpose of the Safety Plan

The purpose of the project lane assistance feature safety plan is an overview of the projects safety strategy. It only addresses the electrical and electronic systems failure and does not cover mechanical or hydraulic failures as governed by ISO 26262.

## Scope of the Project

For the lane assistance project, the following safety lifecycle phases are in scope:

Concept phase

Product Development at the System Level

Product Development at the Software Level

The following phases are out of scope:

Product Development at the Hardware Level

Production and Operation

## Deliverables of the Project

The deliverables of the project are:

Safety Plan

Hazard Analysis and Risk Assessment

Functional Safety Concept

Technical Safety Concept

Software Safety Requirements and Architecture

# Item Definition

The lane assistance is an advanced driver assistance system or active safety feature that serves the following two functions:

1. **Lane Departure Warning (LDW):** This function warns the driver if he is unintentionally departing a lane.
2. **Lane Keep Assist (LKA):** This function helps or aides the driver to return the vehicle to the center of the lane by making small and incremental changes to the steering. This function is designed in a manner that it cannot be misused by the driver as an autonomous feature.

The system consists of three subsystems as shown in the following Figure 1. The three subsystems are:

1. Camera Subsystem
2. Electronic Power Steering Subsystem
3. Display Subsystem

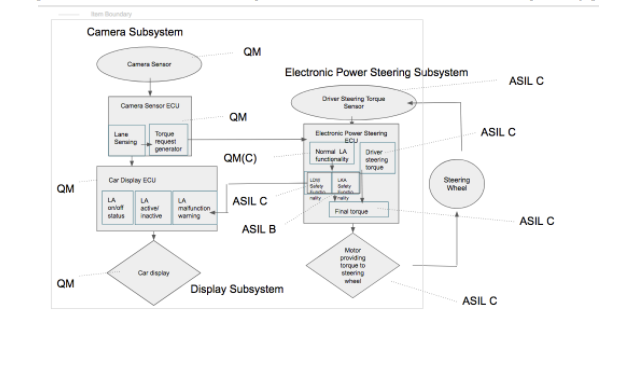


Figure : System architecture and subsystems

Overview

# Goals and Measures

## Goals

**[Instructions:**

**Describe the major goal of this project; what are we trying to accomplish by analyzing the lane assistance functions with ISO 26262?]**

## Measures

**[Instructions:**

**Fill in who will be responsible for each measure or activity. Hint: The lesson on Safety Management Roles and Responsibilities.**

**The options are:**

**All Team Members**

**Safety Manager**

**Project Manager**

**Safety Auditor**

**Safety Assessor**

**]**

|  |  |  |
| --- | --- | --- |
| Measures and Activities | Responsibility | Timeline |
| Follow safety processes |  | Constantly |
| Create and sustain a safety culture |  | Constantly |
| Coordinate and document the planned safety activities |  | Constantly |
| Allocate resources with adequate functional safety competency |  | Within 2 weeks of start of project |
| Tailor the safety lifecycle |  | Within 4 weeks of start of project |
| Plan the safety activities of the safety lifecycle |  | Within 4 weeks of start of project |
| Perform regular functional safety audits |  | Once every 2 months |
| Perform functional safety pre-assessment prior to audit by external functional safety assessor |  | 3 months prior to main assessment |
| Perform functional safety assessment |  | Conclusion of functional safety activities |

# Safety Culture

**[Instructions:**

**Describe the characteristics of your company's safety culture. How do these characteristics help maintain your safety culture. Hint: See the lesson about Safety Culture**

**]**

# Safety Lifecycle Tailoring

**[Instructions:**

**Describe which phases of the safety lifecycle are in scope and which are out of scope for this particular project. Hint: See the** [**Intro section**](#_sh22j99mm02k) **of this document**

**]**

# Roles

**[Instructions:**

**This section is here for your reference. You do not need to do anything here. It is provided to help with filling out the development interface agreement section.**

**]**

|  |  |
| --- | --- |
| Role | Org |
| Functional Safety Manager- Item Level | OEM |
| Functional Safety Engineer- Item Level | OEM |
| Project Manager - Item Level | OEM |
| Functional Safety Manager- Component Level | Tier-1 |
| Functional Safety Engineer- Component Level | Tier-1 |
| Functional Safety Auditor | OEM or external |
| Functional Safety Assessor | OEM or external |

# Development Interface Agreement

**[Instructions:**

**Assume in this project that you work for the tier-1 organization as described in the above roles table. You are taking on the role of both the functional safety manager and functional safety engineer.**

**Please answer the following questions:**

1. **What is the purpose of a development interface agreement?**
2. **What will be the responsibilities of your company versus the responsibilities of the OEM? Hint: In this project, the OEM is supplying a functioning lane assistance system. Your company needs to analyze and modify the various sub-systems from a functional safety viewpoint.**

**]**

# Confirmation Measures

**[Instructions:**

**Please answer the following questions:**

1. **What is the main purpose of confirmation measures?**
2. **What is a confirmation review?**
3. **What is a functional safety audit?**
4. **What is a functional safety assessment?**

**]**

A safety plan could have other sections that we are not including here. For example, a safety plan would probably contain a complete project schedule.

There might also be a "Supporting Process Management" section that would cover "Part 8: Supporting Processes" of the ISO 26262 functional safety standard. This would include descriptions of how the company handles requirements management, change management, configuration management, documentation management, and software tool usage and confidence.

Similarly, a confirmation measures section would go into more detail about how each confirmation will be carried out.