

Safety Plan Lane Assistance

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# Document history

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| 16 May 2018 | `1.0 | Rajagopala Rao Srinadhuni |  |
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**[In** [**Google Docs**](https://support.google.com/docs/answer/116338?co=GENIE.Platform%3DDesktop&hl=en)**, you can use headings for each section and then go to Insert > Table of Contents.** [**Microsoft Word**](https://support.microsoft.com/en-us/help/285059/how-to-create-a-table-of-contents-by-marking-text-in-word) **has similar capabilities]**

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# Introduction

## Purpose of the Safety Plan

**[Instructions: Answer what is the purpose of a safety plan?]**

## Scope of the Project

**[Instructions: Nothing to do here. This is for your information.]**

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

**[Instructions: Nothing to do here. This is for your information.]**

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

*Describe which particular vehicle system will be under analysis ->The item is lane assistance system. Describe the system and the functionalities for each system/sub system present.describe the item boundary as well. Not all outside systems may be defined but something that works with this system may be useful*

**[Instructions:**

**REQUIRED**

**Discuss these key points about the system:**

**What is the item in question, and what does the item do?**

**What are its two main functions? How do they work?**

**Which subsystems are responsible for each function?**

**What are the boundaries of the item? What subsystems are inside the item? What elements or subsystems are outside of the item?**

**OPTIONAL**

**Optionally, include information about these points as well. These were not included in the lectures, but you might be able to find this information online:**

* **Operational and Environmental Constraints. This could especially be limited to camera performance; lane lines are difficult to detect in snow, fog, etc**
* **Legal requirements in your country for lane assistance technology**
* **National and International Standards Related to the Item**
* **Records of previously known safety-related incidents or behavioral shortfalls**

**]**

# 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

*Characteristics of safety culture: high priorty(more like golden rule), accountability, rewards, penalties, independence, well defined processes(like ISO 26262), resources, diversity*

**[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 is the highest priority. All design decisions are …**

**The design team and audit team are …**

**The functional safety team has members from …**

# Safety Lifecycle Tailoring

*Mention parts of the V model that you shall follow -> Again mention phases in scope and objects out of scope*

**[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

*Defines an agreement between the OEM and Tier 1 Org.*

*Major Sections: -> Refer to Fernando’s slide 12 in Wednesday’s class*

**[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

*Points that serve purposes:*

*That a functional safety project conforms to ISO 26262*

*The project does really make the vehicle safer*

**[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.