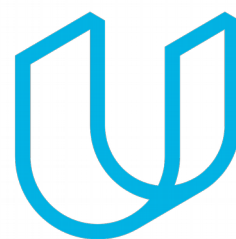




Elektrobit



UDACITY

# Safety Plan Lane Assistance

Document Version: 1.0



## Document history

Date	Version	Editor	Description
2019/03/13	1.0	Justin Simerly	Initial submission

# Table of Contents

Document history.....	1
Table of Contents.....	2
Introduction.....	3
Purpose of the Safety Plan.....	3
Scope of the Project.....	3
Deliverables of the Project.....	3
Item Definition.....	4
Goals and Measures.....	4
Goals.....	4
Measures.....	5
Safety Culture.....	5
Safety Lifecycle Tailoring.....	6
Roles.....	6
Development Interface Agreement.....	6
Confirmation Measures.....	7

# Introduction

## Purpose of the Safety Plan

The purpose of the safety plan is to provide clear and explicit documentation showing that the lane assistance project has reduced the risk of the vehicle.

## 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 item in question is the Lane Assistance System, which has two main functions. The first function is the Lane Departure Warning. This function will detect if the vehicle is leaving its current lane and provide feedback to the user in the form of vibrating the steering wheel and displaying a warning light on the dashboard. The second function is Lane Keeping Assistance, which turns the steering wheel towards the center of the lane.

The Lane Assistance Item is made up of the Camera Sensor to detect the location of the lane, the Car Display to display the warning light, and the Driver Steering Torque Sensor and Electronic Power Steering to control the steering wheel. Outside of the Lane Assistance Item is the Steering Wheel.

## Goals and Measures

### Goals

This project shall identify hazards in the Lane Assistance System and evaluate their risk. Then it will apply systems engineering to lower the risk of the system.

## Measures

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

## Safety Culture

This company always ensures safety is the highest priority. Each task is assigned a single team member to person responsible for its implementation. This assignment and the progress on the task is tracked to provide accountability. The team responsible for auditing all functional safety processes is separate from the rest of the team members to ensure independence. Managers regularly meet with individuals to discuss potential hazards and reward the member who offers “Best Catch of the Month” to promote always thinking about safety.

# Safety Lifecycle Tailoring

This project implements the following phases:

- 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

## Roles

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

The Development Interface Agreement (DIA) defines the responsibilities of both the OEM and this company regarding the lane assistance project.

This company is responsible for tailoring the safety lifecycle for the components of the Lane Assistance System by maintaining and monitoring the progress of the safety plans of each component. Additionally, this company will develop and integrate the Lane Assistance components and perform testing on each component.

# Confirmation Measures

The confirmation measures verify that the lane assistance project confirms to ISO 26262 and improves the safety of the vehicle. A confirmation review is performed by an independent person after a project has been designed and developed to ensure the work follows ISO 26262. A functional safety audit checks that the actual implementation of the project meets the requirements set by the safety plan. A functional safety assessment confirms that the lane assistance project achieves functional safety.