

PROJECT

Functional Safety of a Lane Assistance System

A part of the Self-Driving Car Program

PROJECT REVIEW

CODE REVIEW

NOTES

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Meets Specifications

Cheers! Good work documenting the *Functional Safety of a Lane Assistance System*.

All the documents have been filled completely. The documentation is quite detailed and clean.

Some suggestions have been provided for further improving the documentation. Please make sure to go through the suggestions and improve the documentation accordingly.

All the best!

Happy learning! 🙌

Project Documents



The submission should include five documents all in pdf format:

SafetyPlan

Hazard Analysis and Risk Assessment

Functional Safety Concept

Technical Safety Concept

Software Requirements and Architecture

Safety Plan



All required sections of the template should be filled out and contain reasonable answers: purpose of the safety plan, item definition, goals and measures, safety culture, safety lifecycle tailoring, development interface agreement, confirmation measures. We want to make sure that you understand what a safety plan is and how to make a safety plan.

The following sections have been documented properly.

- purpose of the safety plan
- item definition
- goals and measures
- safety culture
- safety lifecycle tailoring
- development interface agreement
- confirmation measures

The documentation is rather detailed.

The section *Development Interface Agreement* has been filled in quite precisely.

Awesome work!

Hazard Analysis and Risk Assessment



The lessons contained a hazard analysis and risk assessment for the lane departure warning and the lane keeping assistance functions. These two analyses should be documented using the Excel template.

The following is quoted from the original template.

HA-001 should be for the lane departure warning function as discussed in the lecture.
HA-002 should be for the lane keeping assistance function as discussed in the lecture.

Nice work completing the *situations, hazard identification, hazardous event classification, ASIL, and safety goals* for HA-001 and HA-002. Both of these have been well documented.

Great job!



Besides the two analyses from the lecture, the project should include two extra hazard analyses and risk assessments. These two extra analyses should include a situational analysis, hazard identification, hazardous event classification, ASIL and safety goals. The two hazards should be related to the Lane Assistance Item.

Good job brainstorming and coming up with the *situations, hazard identification, hazardous event classification, ASIL, and safety goals* for HA-003 and HA-004. Both of these have been well documented. 👍

Minor corrections

1. The *safety goal* for HA-003 has not been filled in. Please make sure to come up with a reasonable *safety goal* and fill it.

Functional Safety Concept



All required sections from the functional safety concept template are complete.

Good job! The *functional safety requirements* have been derived correctly.
Also, all required sections from the the *functional safety concept* template have been documented appropriately.

Suggestions:

1. It would be better to mention the *requirements* in the table for *Lane Departure Warning Requirements* as "The EPS ECU shall ensure that the lane departure warning torque amplitude(frequency) is below is Max_Torque_Amplitude(Max_Torque_Frequency)". This would be more technically descriptive.

Technical Safety Concept

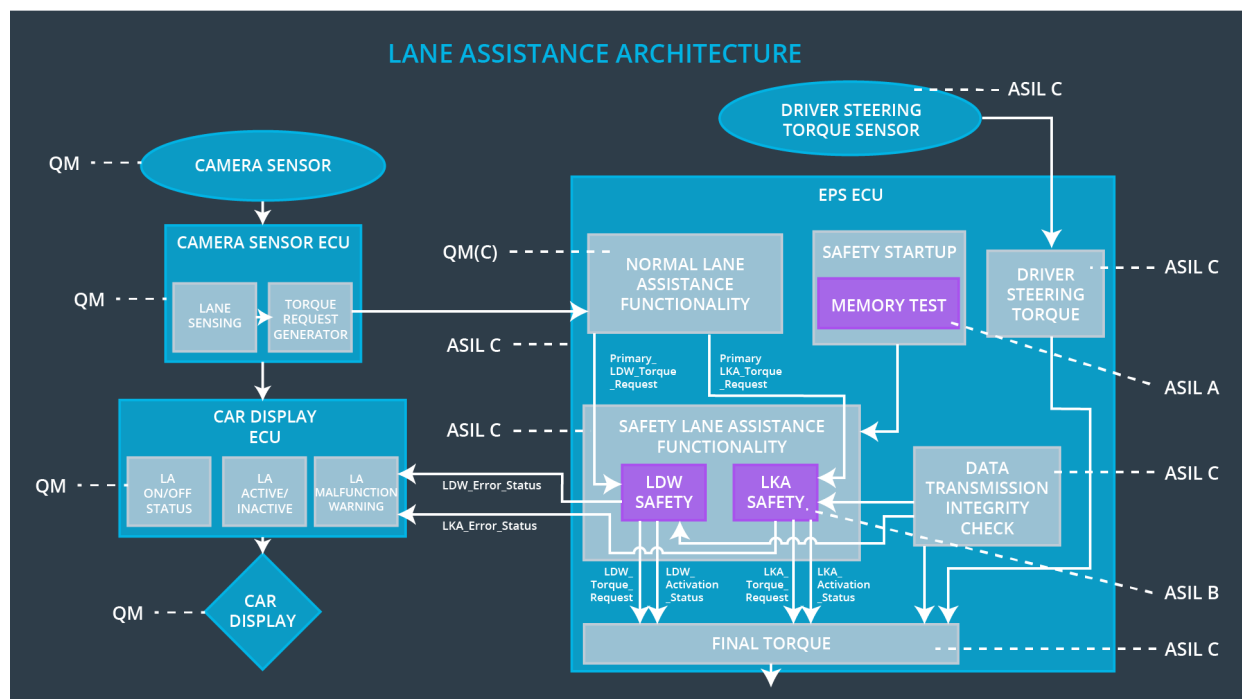


All required sections of the template should be filled out. The five technical safety requirements for the lane departure warning amplitude, as taught in the lessons, are documented correctly.

Good job filling in the required sections of the *Technical Safety Concept*.
The five *technical safety requirements* for the *lane departure warning amplitude malfunction* have been documented well.
Good work!

Minor Corrections

1. It would be good to update the section Refinement of the System Architecture with the following diagram from the course content. This contain both the the *LDW* and *LKA safety blocks*



Suggestions:

1. Please update the *Functional Safety Requirements* under *Inputs to the Technical Safety Concept* as per the suggestions given in the previous block.



Technical safety requirements should also be derived for the lane departure warning frequency malfunction and the lane keeping assistance time malfunction.

Technical safety requirements for the *lane departure warning frequency malfunction* and the *lane keeping assistance time malfunction* have been derived well. Good job!

Software Requirements and System Architecture



All required sections of the software requirement and architecture document are complete (inputs to software requirements., software requirements, and refined architecture).

The submission only needs to document software safety requirements for the lane departure warning amplitude malfunction, which were given in the lessons.

Good job documenting all the required sections of the *software requirement and system architecture* document. A very detailed documentation.

Software safety requirements for the *lane departure warning amplitude malfunction* have been derived perfectly well.

Good job!

Minor improvements

1. Please update the section *Refined Architecture Diagram from the Technical Safety Concept* with the diagram from the *Technical Safety Concept* as per the previously given suggestions.

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