INSTRUCTIONS:
Fill out the hazard analysis and risk assessment below.
HA-001 should be for the lane departure warning function as discuss
HA-002 should be for the lane keeping assistance function as discus
Then come up with your own situations and hazards for the lane assi
When finished, export your spreadsheet as a pdf file so that a reviewe

Hazard ID			
	Operational Mode	**Operational Scenario**	**Environmental Details**
HA-001	OM03 - Normal driving	OS04 - Highway	EN06 - Rain (slippery road)
HA-002	OM03 - Normal driving	OS03 - Country Road	EN01 - Normal conditions
HA-003	OM03 - Normal driving	OS09 - Road tunnel	EN01 - Normal conditions
HA-004	OM03 - Normal driving	OS03 - Country Road	EN03 - Fog (degraded view)

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stance system. Fill in the HA-003 and HA-004 rows.
er can easily see your work.

Situational Analysis

Situation Details	Other Details (optional)	Item Usage (function)	Situation Description
SD02 - High speed		IU01 - Correctly used	Normal driving on a highway during rain at high speed and active Lane Departure Warning function
SD02 - High speed		IU02 - Incorrectly used	Normal driving on country road during normal conditions with high speed and incorrectly use of the Lane Keeping Assistance.
SD02 - High speed		IU01 - Correctly used	Normal driving in road tunnel with high speed and active Lane Departure Warning function.
EN06 - Rain (slippery road)		IU01 - Correctly used	Normal driving on a country roads during rain with high speed and active Lane Keeping Assistance function.

			Hazard Identification
Function	**Deviation**	**Deviation Details**	**Hazardous Event (resulting effect)**
Lane Departure Warning (LDW) function shall apply an oscillating steering torque to provide the driver with haptic feedback	DV04 - Actor effect is too much	The LDW function applies an oscillating torque with very high torque amplitude (above limit)	EV00 - Collision with other vehicle
Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane	DV03 - Function always activated	The LKA function is not limited in time duration which leads to misuse as an autonomous driving function	EV00 - Collision with other vehicle
Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane	DV19 - Sensor detection is wrong	The LKA function is not able to detect lane markings in darken tunnel properly	EV00 - Collision with other vehicle
Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane	DV02 - Function unexpectedly activated	LKA corrects driver input while driver attempts to evade obstacle	EV11 - Car spins out of control

Event Details	Hazardous Event Description	Exposure (of situation)
High haptic feedback is too much and the driver could oversteer and as a consequence lose control of the vehicle.	Driver loses control of vehicle	E3 - Medium probability
The lane keeping assistance function is always activated and the driver loses control of the vehicle.	Driver loses control of vehicle	E2 - Low probability
Vehicle crashes into traffic or road infrastructure with injury to driver and any others present	Driver loses control of vehicle	E2 - Low probability
Vehicle crashes into traffic or road infrastructure with injury to driver and any others present	Driver loses control of vehicle	E2 - Low probability

Hazardous Event Classification			
Rationale (for exposure)	**Severity (of potential harm)**	**Rationale (for severity)**	**Controllability (of hazardous event)**
Activation of the LDW system on a highway and driving at high speed has a medium probability.	S3 - Life-threatening or fatal injuries	driving with high speed	C3 - Difficult to control or uncontrollable
Misusing the LKA as an autonomous driving function on a country road driving at high speed has a low probability.	S3 - Life-threatening or fatal injuries	driving with high speed	C3 - Difficult to control or uncontrollable
Driving in road tunnel at high speed is not a regular activity for most drivers	S3 - Life-threatening or fatal injuries	driving with high speed	C3 - Difficult to control or uncontrollable
Evading obstacle on a country road in the rain at high speed has a low probability.	S3 - Life-threatening or fatal injuries	driving with high speed	C3 - Difficult to control or uncontrollable

	Determination of ASIL and Safety Goals	
Rationale (for controllability)	**ASIL Determination**	**Safety Goal**
When steering was lost or biased at high speeds, a vehicle accident would hard to control.	C	The oscillating steering torque from the LDW function shall be limited.
Since driver has his hands off the wheel, he cannot control the vehicle.	B	The LKA function shall be time limited and the additional steering torque shall end after a given time interval so that the driver cannot misuse the system for autonomous driving
At high speed most drivers will not be able to control the situation since the LKA malfunction led to an undefined steering torque application.	B	The LKA function shall deactivate when the camera sensor stops detecting road markings and shall warn the driver of this deactivation
Driver does not expect extra torque in steering wheel and loses control in already difficult to control situation	B	The LKA function shall be deactivated during heavy steering input by the driver.