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

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	OM04 - Backward driving	OS05 - Mountain Pass	EN07 - Snow (slippery road)
HA-004	OM03 - Normal Driving	OS03 - Country Road	EN01 - Normal conditions

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ce system. Fill in the HA-003 and HA-004 rows.
n 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 (slippery road) with high speed and correctly used system.
SD02 - High speed		IU02 - Incorrectly used	Normal driving on a country road during normal conditions with high speed and incorrectly used systam.
SD04 - High acceleration		IU01 - Incorrectly used	Normal backward driving on mountain pass during snow with high acceleration and incorrectly used system
SD02 - High speed		IU01 - Correctly used	Normal driving on a country road during normal conditions with high high and correctly used systam.

			Hazard Identification
Function	**Deviation**	**Deviation Details**	**Hazardous Event (resulting effect)**
Lane Departure Warning (LDW) function shall apply an oscillating steering	DV04 - Actor effect is too much	The Lane Departure Warning function applies an oscillating torgue with very high torque (above	EV00 - Collision with other vehicle.
Lane Keeping Assistance (LKA) function shall apply	DV03 - Function is always	Lane Keeping function is always activated	EV00 - Collision with other vehicle.
ABS should prevent for locking the tyres.	DV01 - Function not activated	ABS stop working	EV03 - Car spins out of control
Lane Departure Warning (LDW) function shall apply an oscillating steering	DV19 - Sensor detection is wrong	Sensor detects wrong lane	EV00 - Collision with other vehicle.

Event Details	Hazardous Event Description	Exposure (of situation)
High haptic feedback can affect driver's ability to steer as intented. The driver loose control and could collide with another vehicle or	The Lane Departure Warning function applies an oscillating torgue with very high torque (above limit.)	E3 - Medium probability
Driver use the function as if the car was a self-driving car and loose driving attention.	The driver do not use the function properly.	E2 - Low probability
Due to high acceleration and slippery road, the car can spins out of control as brakes get	The function fails to execute properly.	E2 - Low probability
The lane keeping system malfunctions and steering system warns incorrectly.	The driver turns the car because camera function malfunctioned	E4 - High probability

Hazardous Event Classification			
Rationale (for exposure)	**Severity (of potential harm)**	**Rationale (for severity)**	**Controllability (of hazardous event)**
Driving on a highway with rain could happen between 1% and 10% of the time operating the vehicle.	S3 - Life-threatening or fatal injuries	Collision at high speed could cause fatal injuries.	C3 - Difficult to control or uncontrollable
The conviation beween driving at a country road and misusing system should not happen oftern.	S3 - Life-threatening or fatal injuries	Collision at high speed could cause fatal injuries.	C3 - Difficult to control or uncontrollable
Driving on highway during snowfall and and misuing the acceleration sub system and ABS	S3 - Life-threatening or fatal injuries	Driving backwards at high acceleration during snow is not a	C3 - Difficult to control or uncontrollable
People drive daily on country roads.	S3 - Life-threatening or fatal injuries	Collision at high speed could cause fatal injuries.	C0 - Controllable in general

	Determination of ASIL and Safety Goals	
Rationale (for controllability)	**ASIL Determination**	**Safety Goal**
It is difficult to stay calm and react properly when the steering well is moving too much.	C	The oscillating steering torque from the Lane Departure Warning function shall be limited.
When the driver loose focus on driving, it is difficult to re-focus in the case of inmminent collition.	B	The Lane Keeping Assistance function shall be time limited, and additional steering torque shall end after a given
It would be difficult for the driver to control on steep slopes as the roads will be slippery.	B	The ABS system should be checked everytime when the vehicle starts and warning should be given if it fails to start
It is easy to control the steering and bring back to correct lane.	QM	The camera should be calibrated everytime system boots up to check if it performing correctly.