**INSTRUCTIONS:**
**Fill out the hazard analysis and risk assessment below.**
**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.**
**Then come up with your own situations and hazards for the lane assistance system. Fill in the HA-003 and HA-004 rows.**
**When finished, export your spreadsheet as a pdf file so that a reviewer can easily see your work.**

| Hazard ID | Situational Analysis | | | | |
|---|---|---|---|---|---|
| | Operational Mode | Operational Scenario | Environmental Details | Situation Details | Other Details (optional) |
| HA-001 | OM03 - Normal Driving | OS03 - Country Road | EN01 - Normal Condition | SD02 - High Speed | |
| HA-002 | OM03 - Normal Driving | OS03 - Country Road | EN01 - Normal Condition | SD02 - High Speed | |
| HA-003 | OM03 - Normal Driving | OS02 - City Road | EN01 - Normal | SD01 - Slow Speed | |
| HA-004 | OM03 - Normal Driving | OS04 - Highway driving | EN04 - Snowfall | SD02 - High Speed | |

| Item Usage (function) | Situation Description | Function | Deviation |
|---|---|---|---|
| IU01 - Correctly | Normal Driving on a Country Road in Normal | Lane Departure | DV04 - Actor |
| IU02 - Incorrectly | Normal Driving on a Country Road in Normal | Lane Keeping | DV03 - Function |
| IU01 - Correctly | Normal Driving on a City Road in Normal | Lane Departure | DV07 - Actor |
| IU02 - Incorrectly | Normal Driving on a Highway during snowfall | Lane Keeping | DV03 - Function |

| Hazard Identification | |
|---|---|
| **Deviation Details** | **Hazardous Event (resulting effect)** |
| Haptic feedback is too high | EV00 - Collision with |
| Lane Keeping assistance continues to work when driver doesn't engage | EV00 - Collision with |
| Haptic feedback has a delay | EV02 - Side collision |
| Lane Keeping assistance continues to work when driver doesn't engage | EV03 - Car spins out of |

| Event Details | Hazardous Event Description | Exposure (of situation) |
|---|---|---|
| Vehicle can cause a collision with other vehicle | Driver might remove hands | E2 - Low |
| Vehicle can cause a collision with other vehicle | Vehicle is not autonomous | E2 - Low |
| Vehicle can cause a collision with other vehicles on the side | Driver hasn't been warned about | E4 - High |
| Vehicle can skid away due to slippery conditions (snowfall) | Vehicle is not autonomous | E3 - Medium |

| Hazardous Event Classification | | | |
|---|---|---|---|
| **Rationale (for exposure)** | **Severity (of potential harm)** | **Rationale (for severity)** | **Controllability (of hazardous event)** |
| Country road driving doesn't happen | S3 - Life-threatening or | Driver is travelling at | C3 - Difficult to control |
| Country road driving doesn't happen | S3 - Life-threatening or | Driver is travelling at | C3 - Difficult to control |
| City road driving is common | S1 - Light and moderate | Driver is travelling at | C2 - Normally controllable |
| Highway driving may not be as | S3 - Life-threatening or | Driver is travelling at | C3 - Difficult to control |

| | Determination of ASIL and Safety Goals | |
|---|---|---|
| **Rationale (for controllability)** | **ASIL Determination** | **Safety Goal** |
| Hands are not on the wheel and vehicle is on high speed | B | The lane departure warning haptic |
| Hands are not on the wheel and vehicle is on high speed | B | The lane keeping assistance function shall be time limited and th |
| Driver still has hands on the wheel so can control the situation | A | The lane departure warning haptic |
| Hands are not on the wheel and vehicle is on high speed | C | The lane keeping assistance function shall be time limited and th |

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