Goals:

* Keep a safe distance to lead vehicle
* Respect the speed limit
* Smooth driving without unnecessary braking unless necessary

Input Data:

* Ego vehicle:
  + Speed (4 Wheelspeed Sensors?)
  + Acceleration
  + Distance
  + Communication Strength
  + Road Condition (friction coefficient)
* Other vehicle:
  + Speed (Wheelspeed?)
  + Acceleration
  + Distance (?)
  + Braking Light
  + Emergency Braking
  + Throttle, Brake values (?)
* Environment:
  + Weather
  + Speed Limit

Changes in the scenario:

* Weather:
  + Rain
    - Braking light can’t be detected anymore
    - Road becomes slippery 🡪 longer braking distance
  + Fog
    - Braking Light can’t be detected anymore
  + Sunshine
    - No drawbacks
* Speed Limit
* Target speed lead vehicle:
  + Slower than the speed limit
  + Faster than the speed limit
* Defect of different sensors
  + Other vehicle:
    - Speed 🡪 assume as 0 🡪 increase distance
    - Acceleration 🡪 assume as max deceleration 🡪 increase distance
    - Emergency brake 🡪 we have to rely on our sensors 🡪 increase distance
    - (Throttle, Brake)
  + Ego
    - Communication Strength
      * Increased delay 🡪 increase distance
      * When 0 commuication strength:
      * No information from the leader is available
    - Braking Light
    - Wheel Speed Sensor
    - Acceleration
    - Road Condition 🡪 Rain assumed 🡪 increased distance