TEKNOFEST

**AVIATION, SPACE AND TECHNOLOGY FESTIVAL**

**ROBOTAXY – PASSENGER AUTONOMOUS VEHICLE COMPETITION CRITICAL DESIGN REPORT**

**UNIVERSITY:**

**TEAM NAME:**

**TEAM ID:**

**TEAM LEADER NAME SURNAME: ACADEMIC ADVISOR:**

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# Set organization

This section should provide general introductory information about team organization and capabilities. An organizational chart showing the work sharing during the Robotaksi Autonomous Vehicle design process and who is working should be shown.

# Preliminary Design Report Evaluation

In this section, preliminary design report evaluation is made. If any, the changes after the preliminary design report and the reasons for the changes are explained. In the preliminary design, a comparison is made between the planned budget and the final budget.

# Vehicle Features

Competition in the scope of, autonomous drive to interfaces owner a vehicle will be used. Most importantly, This vehicle must support electronic steering (steer-by-wire), electronic accelerator (pedal-by-wire) and electronic brake (brake-by-wire) functionality. In this part of the report, autonomous driving interfaces by focusing to be used vehicle about detailed information should be given. Vehicle features technical drawing, photography, etc. with images like should be explained.

In this context, the following information about the autonomous vehicle is expected to be shared:

* General CHAD design should be given. Lower of the system (if any) all pieces should be listed and material information should be specified.
* Material and mechanical properties should be mentioned.
* Part & its Subsystems in the vehicle should be explained.
* system product breakdown
* Electronic architecture details
* Subsystem and basic intercomponent physical interfaces

# sensors

In this section, information about the final sensors (lidar, radar, camera, etc.) to be used in the vehicle should be given and why they were chosen should be emphasized. Information should be given about the number of sensors, their location on the vehicle, and the sensor fission algorithms used.

# Vehicle Control unit

Information about the final control unit to be used in the vehicle should be conveyed. Wireless communication system should be explained. Control software features must be transferred.

# Autonomous Driving Algorithms

In this section, information should be given about autonomous driving algorithms and software processes used in the vehicle, such as recognizing traffic signs, lane tracking.

# Original Components

In this section, the unique aspects of the vehicle specified in the preliminary design report in terms of design and/or software should be evaluated. In these aspects, if there are any, why the ones that are not included in the final design are not implemented? should be explained.

# Security Precautions

In this section, the precautions and solution methods taken to meet the security needs specified in the competition specifications are explained. The materials used for safety precautions are indicated.

* 1. **simulation and Test**

In this section, the competing teams will introduce the simulation environment related to autonomous driving, the general architecture of the competition simulation development environment, software hardware (Operating System, ready and developed ) programs) information will give. in simulation used algorithm about information will be given.

Competitors will share their simulation results. For example, detection results with real images This title in the scope of will be detailed. Sample a competition scenario for simulation results in detail. will be given.

In addition, in this section, the results of engineering analyzes performed during the hardware, software or vehicle design process (structural, aerodynamic, thermal, etc.) will be shared.

addition , in this section, the development tests that have been made or will be made will be mentioned and their details will be given. It will be discussed how compatible the design made with the test result applied to the vehicle is.

# References

# Additional Notes:

* Each report should begin with the cover page and the “Contents” page. should contain.
* Reports pages consecutively should be numbered.
* Font "Times New Roman" as "Punto: 12" should be selected.
* Compliance with academic reporting standards is sought.

**Critical Design Report scoring will be done according to the template below.**

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| --- | --- | --- |
| **Section** | | **Scoring** |
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