**TEKNOFEST**

**AEROSPACE AND TECHNOLOGY FESTIVAL**

**ROBOTAXI-FULL SCALE AUTONOMOUS VEHICLE COMPETITION**

**(UNIQUE VEHICLE CATEGORY)**

**PRELIMINARY DESIGN REPORT**

**APPLICATION ID**

**CONTEST**

[1. Summary 3](#_Toc63619759)

[2. Team Organization 3](#_Toc63619760)

[3. Vehicle Features 3](#_Toc63619761)

[4. Originality 3](#_Toc63619761)

[5. Sensors 3](#_Toc63619762)

[6. Vehicle Control Unit 3](#_Toc63619763)

[7. Autonomous Driving Algorithms 4](#_Toc63619764)

[8. Security Precautions](#_Toc63619765) 4

[9. References 4](#_Toc63619767)

1. **Summary**

In this section, general introductory information about the software system to be prepared for the competition should be given. Emphasis should be placed on the design process, acquired skills, and unique aspects of design. The task to be performed by the autonomous vehicle should be briefly explained and general information about the performance of the vehicle that will perform this task should be conveyed.

1. **Team 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. At this stage, brief information about the team members should be conveyed. **Personal information of team members should not be shared at this stage**. The work packages to be used in the vehicle design process should be shown with a "timeline graphic”. Also, the main work packages should be briefly described with their requirements and objectives.

1. **Vehicle Features**

Within the scope of the competition, a vehicle with autonomous driving interfaces 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 section of the report, detailed information should be given about the vehicle to be used, focusing on autonomous driving interfaces.

1. **Originality**

In the works to be carried out within the scope of the competition, those with unique features in terms of design and/or software should be targeted. Whether these targets have been achieved or not will be evaluated in the detailed design report.

1. **Sensors**

In this section, information will be given about the sensors (lidar, radar, camera, etc.) to be used in the vehicle. Information should be given about the number of sensors, their location on the vehicle, how much volume the sensors can cover around the vehicle for autonomy purposes, and the sensor fusion algorithms used.

1. **Vehicle Control Unit**

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

1. **Autonomous Driving Algorithms**

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

1. **Security Precautions**

During the test phase and during the competition, the precautions to be taken for possible dangerous situations will be determined and information about the vecihle systems planned for this will be conveyed.

1. **References**

You should specify the resources, websites, trainings, books, articles, etc. you have used in this section.

***Additional Notes:***

* Each report should begin with a cover page and include a “Contents” page.
* Reports pages should be numbered consecutively.
* Font should be selected as “Times New Roman”, “Point: 12”.
* Compliance with academic report standards is sought.
* Reports should have a maximum of 40 pages. Reports exceeding the page limit will not be considered.

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

|  |  |  |
| --- | --- | --- |
| **Section** | | **Scoring** |
| 1 | Summary | 5 |
| 2 | Team Organization | 5 |
| 3 | Vehicle Features | 10 |
| 4 | Originality | 15 |
| 5 | Sensors | 10 |
| 6 | Autonomous Driving Algorithms | 25 |
| 7 | Vehicle Control Unit | 20 |
| 8 | Security Precautions | 5 |
| 9 | References | 5 |