FLYING CAR DESIGN
CONTEST TERMS AND CONDITIONS
1 OBJECTIVE

Whether for personal or public use, the idea of creating a vehicle able to move on land and in the air has been attempted since the beginning of the 20th century. To this day the idea is still viable and it is most likely to live on into the future. Many opinions suggest one of the vehicles of the future will be a flying car.

The aim of this competition is to introduce a “Flying Car” concept that can be used safely on land and in the air, which can use the highway and the airline if necessary, from one point to another in human living areas or between residential areas, including densely populated areas.

2 CONTENT

The Flying Car concept to be presented at the competition is expected to effectively implement the transportation scenario outlined below in a feasible fashion with a logical setup.

Concept of the car, reason for the preferred course outlined in the scenario and the means to overcome it, travel time and similar matters must be explained clearly.

How fundamental issues such as preferred method of flight, taking off and landing method, propulsion method, fuel type and security precautions will be approached must be indicated.

3 SCENARIO AND VEHICLE FEATURES

3.1 SCENARIO

Owner of the flying car will travel from city A to city B for a meeting beginning at 10 am. There will be documents arriving at 8:30 am so the journey cannot begin until then.

After the owner leaves his house, he can reach the river bank by taking 5 km. The nearest bridge on the river is 15 km away. The distance to the ring road after the bridge is 6 km. After 15 km from the point where the ring road is reached, there is a city center road separation. After this separation, the distance to the city center destination is 20 km.

The owner of the flying car from the car park at the entrance to his home in A will reach the street following the 7m wide and 400m long road. The street is in the form of an undivided road. The owner of the flying car may prefer to fly over the wooded area instead of using the bridge to avoid being late for the meeting. In order not to be late for the meeting you must pass through the river 60 m wide then leading up to the dense forest with trees 30 m high and 1 km deep and no roads.

An alternative route to A to B is available. There is a recreational facility on this alternative route, 20 km from the entrance to the city of B. Behind this facility, there is an area of 200 m in length and 20 m in width with a flat hard ground.
With this route, the owner can first land in this area and then reach the city B using the ring road.

There is a very congested parking area at the arriving destination. Vehicles in this parking area can only park by backing up in a 90 degrees angle. There is also an open and flat area 100x50 m wide, 1 km from the parking area.

In addition to these routes; The flying car user can board the flying car at a particular point and go directly to the destination without using the road.

Within this scenario, from the starting point of city A to the arriving point of city B:

- What type of flying car concept is it,
- Using which routes,
- Through which roads and at what speed
- From where will it be airborne, at what altitude and with what speed,
- How long will it take? (time must be consistent with previous answers).
3.2 Necessary Features of Car

During the presentation and reporting, how the tool that will implement the specified scenario will meet the following requirements should be stated.

1. Reliability of Power-Propulsion-Drive Systems
2. Noise Reduction
   - Passenger Cabin Noise
   - Environmental Noise
3. Navigation System - Air Traffic Control
   - Ground Station Based
   - Satellite Based
4. Security - Safety
   - Flight Safety
   - Cyber Security

The above-mentioned issues should be emphasized and explained in detail in the reports.

4 GENERAL INFORMATION ABOUT THE COMPETITION

4.1 Competition Participation Requirements

- You may enter the competition with a team or individually.
- Teams must be formed amongst middle school, high school, graduate and post graduate students themselves.
- Teams can be formed from a single school or can be a collaboration of different schools. Competition category for teams is designated according to the highest educated member of the team.
• Competition is composed of two categories; Freestyle Category and Advanced Category.
• Participants can only register to one of the categories.
• Middle/High School attendees may only compete in either Freestyle Category.
• Participants in university level may only compete in Advanced Category.
• A team member cannot be a member of another team.
• Teams in Middle/High School level are required to have their school teacher as a consultant.
• Teams in university level are required to have a faculty member serve as their consultant.
• Applications of the teams that do not meet the above conditions will be void.
• Applications are submitted through the official website (www.teknofest.org) of TEKNOFEST Aviation, Space and Technology Festival Technology Competitions.
• All application forms must be submitted before the deadline of 28.02.2020.

4.2 Competition Calendar

The competition calendar is below.

<table>
<thead>
<tr>
<th>No</th>
<th>Date</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>28 February 2020</td>
<td>Application Deadline</td>
</tr>
<tr>
<td>2</td>
<td>15 March 2020</td>
<td>Project Preliminary Design Report Deadline</td>
</tr>
<tr>
<td>3</td>
<td>13 April 2020</td>
<td>Explanation of the teams that have passed the pre-selection according to the results of the Project Preliminary Design Report.</td>
</tr>
<tr>
<td>4</td>
<td>29 May 2020</td>
<td>Final Design Report Deadline</td>
</tr>
<tr>
<td>5</td>
<td>30 June 2020</td>
<td>Announcement of Final Design Report Results and Disclosure of Final Teams</td>
</tr>
<tr>
<td>6</td>
<td>22-27 September 2020</td>
<td>TEKNOFEST GAZİANTEP</td>
</tr>
</tbody>
</table>

4.3 Competition Process

The evaluation process will be carried out under five different phases. These are; Preliminary Design Report, Final Report, Use of Local Sources, Originality and Competition Scoring. Teams failing to submit Preliminary Design Report and Final Design Report will not be able to take part in the competition. Two reports will be prepared as part of the competition. These are; Preliminary Design Report and Final Design Report.
4.3.1 Preliminary Design Report

The teams are obliged to submit the Preliminary Design Reports on 15 March 2020. The Preliminary Design Report has been prepared separately for those who will compete in two different categories as Freestyle Category and Advanced Category. PDR templates for both categories can be downloaded from Teknofest website. A pre-selection will be carried out according to the PDR results. Teams that have passed the Final Design Report (FDR) stage as a result of the PDR assessments will be announced on 13 April 2020.

4.3.2 Final Design Report

Teams that have passed the Final Design Report (FDR) stage are required to submit the Final Design Report on 29 May 2020. The templates and other requirements of the Final Design Report will be announced after the application deadline.

Each team accepted to the competition is obliged to prepare final design reports and submit their reports by the deadline specified in the competition calendar. Teams that do not submit their reports by the deadline specified will be deemed unsuccessful and shall not be eligible to participate.

Final design reports of the teams participating in the Flying Car Design Competition will be evaluated and scored by the Advisory Board and Referees of the Flying Car Design Competition in accordance with the “Final Design Report Template”. As a result of the evaluations, the teams that will be accepted to the competition will be determined and the teams that will not be accepted to the competition will be eliminated. The evaluation results of the final design reports will be announced to the teams on the date specified in the competition calendar.

Final Design Report Template will be announced on the contest website.

4.3.3 Competition Evaluation Presentation

All teams registered to the Flying Car Design Competition must prepare (submit) and submit a “Contest Evaluation Report” in order to be evaluated and to receive awards.

The following evaluation criteria should be used for the content of the presentations.

- Giving information about topics. design visuals of Flying Car Design, usage, original aspects, benefits to users, explanation of block diagram including all systems, subsystems and sensors used, controllability etc.
  (This can be supported by materials such as drawings and photographs.)

- Specify the design and simulation program you use.
- Presentation of the competition scenario specified in the simulation.
- Including the video on the subject.
➢ Indicate the reason for choosing the simulation program you are using.

➢ Mounting of Flying Car subsystems and used sensors on the vehicle and specifying the reasons for preference.

➢ Introduction of the control platform (equipment) you use, why you choose it mentioned.

➢ Indicating the sensor data used in the form of graphics and tables in the presentation.

➢ Providing information about whether each scenario has accomplished or not, explaining the reasons for achieving or failing, specify what hardware, algorithm, method they should use.

➢ Indicating their winnings from this competition.

➢ Demonstrating professional presentation skills.

Presentation times, 15 min. presentation + 5 min will be question-answer. It should be noted that presentation times are not flexible. The technical competence of the project team will be tested in the Q & A section. This report and presentation template will be announced on the website.

5 COMPETITION DETAILS

5.1 Rating and Evaluation

Scoring and evaluation will be evaluated differently for the Free and Advanced Category.

5.1.1 Evaluation Criteria and Scoring for the Free Category

Competitors are expected for the free category:

- Originality: How innovative the design is and how it differs from the others.

- Concept Expression: A sufficient and clear explanation of the concept design based on the answers given to the questions in the PRE DESIGN REPORT and FINAL DESIGN REPORT.

Concept Drawing: Consistent and understandable design drawing with design expression.

5.1.1.1 Total Score Account

The total score calculation for the two categories will be as follows.
Final Design Report Account for Free Category

<table>
<thead>
<tr>
<th>NUMBER</th>
<th>DESCRIPTION</th>
<th>POINT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ORIGINALITY</td>
<td>25</td>
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<tr>
<td>2</td>
<td>CONCEPT EXPRESSION</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>CONCEPT DRAWING</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>100</td>
</tr>
</tbody>
</table>

5.1.2 Evaluation Criteria and Scoring for the Advanced Category

Competitors are expected for the advanced category:

- Originality: How innovative the design is and how it differs from the others.
- Scope of Concept Design: Adequate and clear explanation of the scope of design.
- Consistency of Concept Design: Consistency of design with those described by ETR, FTR and drawings.
- Realization of Design: In terms of design reproducibility evaluation

Video, Models and Drawings: Consistent and understandable with the design described in the PRE-drawing / model / video

DESIGN REPORT and FINAL DESIGN REPORT

5.1.2.1 Total Score Account

The total score for the advanced category is the sum of the Final Design Report and the individual scores of the accompanying visuals. Related evaluation criteria and score calculation below It indicated.
Final Design Report Account for Advanced Category

<table>
<thead>
<tr>
<th>NUMBER</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Originality</td>
<td>35</td>
</tr>
<tr>
<td>2</td>
<td>Scope</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>Consistency</td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>Performability</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>100</strong></td>
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</tbody>
</table>

Free Category and Advanced Category Total Score Account

<table>
<thead>
<tr>
<th>NUMBER</th>
<th>DESCRIPTION</th>
<th>POINT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FINAL DESIGN REPORT</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>Concept Illustrations and Presentation</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

6. AWARDS

Free and advanced in their category among the award winning teams The prize money given in the table below will be awarded to the teams that are ranked. In this table the prizes indicated are the total amount to be awarded to the teams awarded individual rewards will not be made. First, second and third place awards, Team The amount of members divided by equal amount according to the total number of each bank account specified It will be deposited.

No payment will be made to the team advisors.

<table>
<thead>
<tr>
<th></th>
<th>ADVANCED CATEGORY</th>
<th>FREE CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRST</strong></td>
<td>30.000 TRY</td>
<td>15.000 TRY</td>
</tr>
<tr>
<td><strong>SECOND</strong></td>
<td>20.000 TRY</td>
<td>10.000 TRY</td>
</tr>
<tr>
<td><strong>THIRD</strong></td>
<td>10.000 TRY</td>
<td>5.000 TRY</td>
</tr>
</tbody>
</table>

6.1.1. Minimum Achievement Criteria for Award Ranking In order to receive an award, the competing team must:

- Must be handled in a correct, logical fiction
- Implementation of Vehicle Concept Design
• Explaining how the requirements specified in the specification are met Teams that meet the specified criteria will be considered successful.

The ranking between the teams fulfilling all the criteria will be first looked at the score.

Honorable mention is given to the teams that do not meet the specified conditions but are eligible to be ranked.

7 GENERAL RULES

• Teams have the right to object to the concerned judge through their team leaders. Objections can be made verbally, provided that they are submitted in writing at a later time. Verbal objections must be put in writing within 24 hours. In any case, non-written objections will not be taken into consideration. Objections will be finalized within 24 hours after having examined by the judge panel.

• Each contestant is responsible for taking the necessary precautions and showing the expected attention to his/her peers and the environment.

• Turkish Technology Team (T3) Foundation and the organization committee reserve the right to make any amendments to the specifications in order for the contest to take place in accordance with the specified impartial criteria so that any violations may result in judicial outcomes, to better meet any sorts of requirements by the contestants, to provide necessary safety precautions and to maintain the functionality of the contest specifications.

• Having made the necessary evaluations following the application deadline, the T3 Foundation and the organization committee reserve the right to cancel the contest given that sufficient number of applications is not reached with the required technical knowledge and skills.

• TEKNOFEST Safety and Security Terms and Conditions will be communicated to all contestants, delegations and concerned parties. All competing teams are responsible for observing the safety terms and conditions specific to their respective categories specified in TEKNOFEST Safety and Security Terms and Conditions. In this regard, with the exception of security precautions contained in the aforementioned security instructions, it is the contestants’ responsibility to take additional precautions arising from the systems employed.

• The T3 Foundation and the organization committee retain to exclude any and all teams from the contest who do not fulfill the terms and conditions of TEKNOFEST Safety and Security Terms and Conditions to provide a safe environment for holding the contest. T3 Foundation and organization officials cannot be held responsible for damages arising from the violation of terms and conditions by the contestants, delegations and concerned parties.
• Regarding the competition, the competitor hereby accepts and consents to any kind of written or visual promotion, publication, social media and internet broadcasting to be made by the T3 Foundation and / or TEKNOFEST before or after the competition. In addition, the competitor agrees and submits that any and all intellectual property generated as pertains to the competition, including but not exclusive to designs, code, and manufactured products, belongs exclusively to the T3 Foundation and / or TEKNOFEST and that the competitor does not have any rights to or demands on these artifacts. T3 reserves the right to disclose all intellectual property thereby for public consumption in a manner it deems fitting.

• In the event that a competitor infringes upon the intellectual property rights of any product, and T3 Foundation and/or TEKNOFEST incur damages, the responsibility for such damages will be borne entirely by the relevant participant(s).

• All teams who qualify to compete in the contest will be given a Participation Certificate.

Statement of Liability

The Turkish Technology Team Foundation and TEKNOFEST are in no way liable for any injury or damage caused by any entry, any entrant, or by the disqualification of an entry. The Turkish Technology Team Foundation and TEKNOFEST at large are not responsible for ensuring teams operate their systems within the law of the Turkish Republic. The Turkish Technology Team Foundation and TEKNOFEST, and organization officials cannot be held responsible for the damages inflicted upon third parties by the contestants.

Turkish Technology Team Foundation has the right to make any amendments to these terms and conditions.