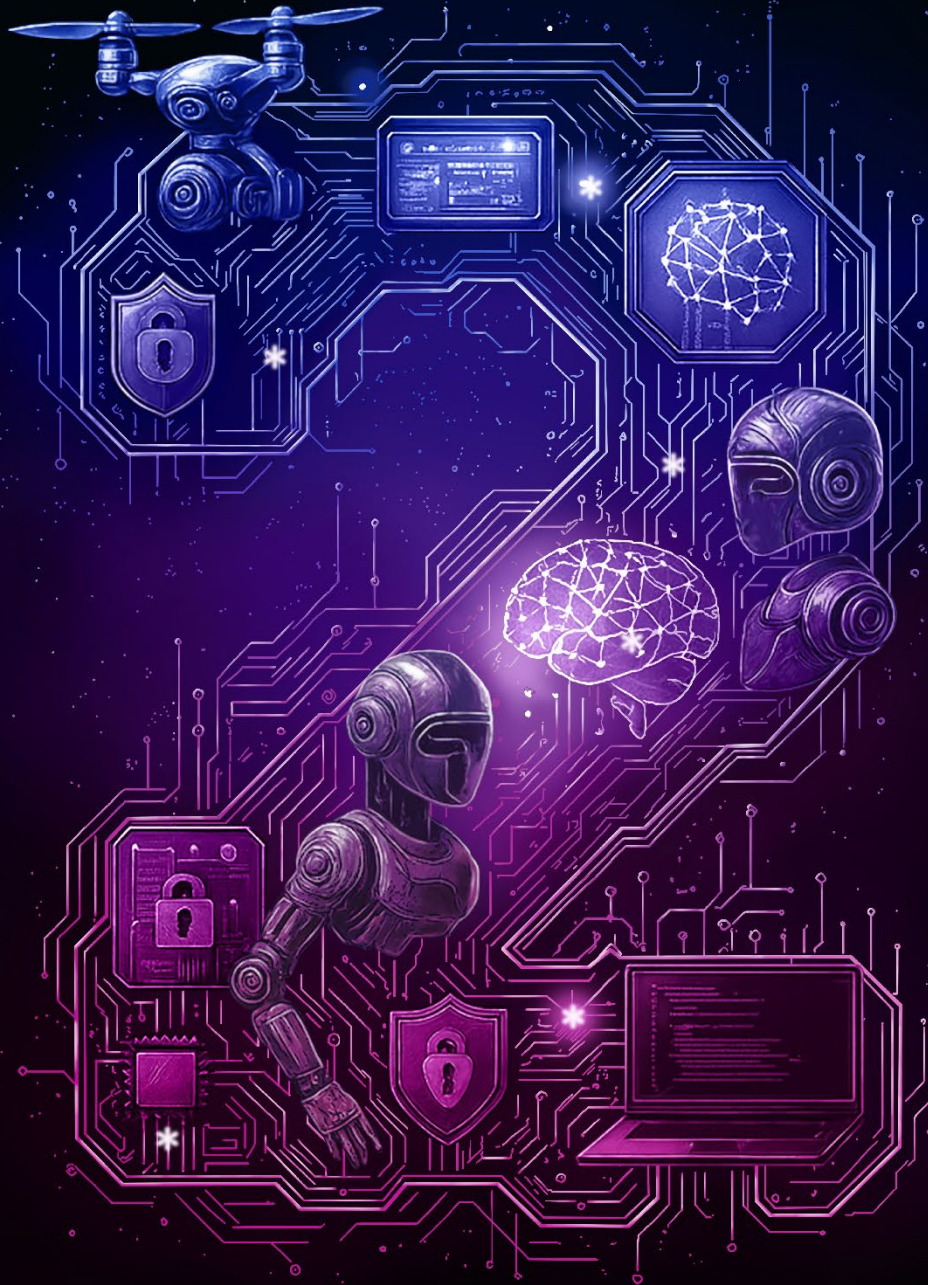


THE 2ND EDITION OF THE INTERNATIONAL TECHNOLOGY OLYMPICS

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دومین دوره رقابت‌های بین‌المللی المپیک فناوری



RoboFighters League

Lightweight Robots
Rules and Regulations
Version 1.0

رقابت ربات‌های جنگجو

لیگ ربات‌های جنگجو سبک وزن
نسخه ۱،۰

Introduction

This document outlines the official rules and scoring procedures for the Lightweight RoboFighter League, part of the 2025 Tech Olympics RoboFighter Competition.

General Rules

- Each team must designate a team leader. The team leader must be of legal age and is fully responsible for the team and its members.
- All teams are required to complete and upload a Technical Design Paper (TDP) using the official template available on the competition website at RoboNIT.ir during the preliminary registration phase.

***Note:** Teams will not be considered registered without submitting the TDP. The document will be used for evaluation in the preliminary round.*

- Teams are allowed to use multiple robots throughout the competition.

Robot Specifications

- The combined dimensions of all robots must not exceed 60 × 60 × 80 cm.
- The total weight of all robots must not exceed 32 kilograms.

***Note:** Robots that do not comply with the specified size and weight limits will not be allowed to participate in the competition.*

***Important:** In case of non-compliance, teams will be given a maximum of **10 minutes** to make the necessary adjustments. Failure to do so within this time will result in disqualification from the match.*

***Important:** Teams that use this grace period for adjustments will not be granted additional repair time during the match.*

- Robots must be wirelessly controlled.
- The use of permanent or non-permanent magnets, disruptive magnetic fields, or radio frequency interference is strictly prohibited. All battles must be fought face-to-face through direct physical combat. Any team violating this rule will be disqualified.

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Note: The organizing committee holds no responsibility for environmental interference or frequency noise. Teams must take appropriate precautions. It is recommended to support multiple frequency bands.

- The robot's weapon must be **active**.
- The use of various weapons (e.g., hydraulic, hammer, rotary) is permitted, provided that their safety and operator control are verified and approved by the referees before each match. All teams must use safe and standard tools, tanks, and connectors. Robots deemed unsafe will not be allowed to enter the arena.

Note: Any weapon that sprays acidic or non-acidic liquids is strictly prohibited.

Note: Weapons that generate high voltage differentials intended to interfere with the opponent's robot are forbidden.

Note: Teams using pressurized tanks must submit a valid safety certification for the tank, along with the robot's technical specifications. (Tanks must be certified to meet relevant safety standards.)

- Robots may undergo partial or complete modifications during the competition. Such modifications must be approved by the referee committee.

Arena Specifications

- The arena is a square platform with dimensions of 8×8 meters.
- The floor surface is made of textured steel sheet (checkered iron).
- The height variation across the arena, due to material properties and construction precision, may be up to ±10 millimeters.
- Designated operator zones are located around the arena, providing both teams with clear visibility of the entire battle area.
- The arena may include uneven terrain, pits, simple obstacles, or robot-damaging elements to increase the complexity and challenge of the battlefield.

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Competition Procedure

- Based on the number of registered teams, the tournament format will be determined as either a round-robin (group stage) or a knockout format (single or double elimination). The final decision will be made on the competition day and announced during the pre-match briefing session.

Note: In certain phases, matches may be arranged according to a ranking table. The rankings will be based on the cumulative points earned by each team in previous rounds. (Scoring details are explained in the "Scoring" section.)

- Following the opening ceremony, a draw ceremony and rules briefing will be held according to the announced schedule, with the presence of all team leaders.

Note: Attendance at the briefing session is mandatory. Teams that miss the session will not be allowed to raise objections regarding refereeing decisions or competition procedures.

- During each match, only two members from each team are allowed in the designated operator zone: one for robot control and one for robot restart.

- The minimum duration for each match is 5 minutes.

Note: Depending on the number of participating teams and the overall event schedule, the match duration may be modified at the discretion of the league's technical committee. Any such changes will be announced during the team briefing.

Note: Only the effective time of each match will be considered in official records.

- Prior to each match, teams will be given 3 minutes to prepare their robot.

- Clause: If both teams agree, the preparation time can be extended to 5 minutes (i.e., 2 extra minutes).

Note: If a team fails to prepare its robot within the allocated time, it will be considered as a withdrawal from that match.

Scoring System

- Points are categorized into positive and negative scores. The total score of a team in a match is the raw score, calculated by summing both positive and negative points.

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Positive Points

1. Pushing / Dragging

A robot that pushes or drags its opponent 50 cm in a direction opposite to or perpendicular to the opponent's intended movement earns a push/drag score. (+10 points)

Note: This score is awarded only once per engagement. For instance, if a robot pushes its opponent more than 50 cm during one continuous clash, it earns 10 points. Further points will not be awarded until the robots completely disengage.

2. Lifting

A robot that lifts a part of the opponent at least 10 cm off the ground and holds it for 10 seconds without the opponent restoring its position earns the lifting score. (+25 points)

3. Immobilizing

A robot that successfully immobilizes its opponent for 10 seconds in one spot earns the immobilization score. (+25 points)

4. Heavy Impact

A robot that strikes its opponent and causes a displacement of at least 10 cm in any direction earns the heavy hit score. (+100 points)

Note: Referees are responsible for determining whether a hit qualifies as a heavy impact.

5. Flipping

A robot that flips its opponent onto its side or back earns the flip score. (+100 points)

6. Damaging the Opponent

If a robot causes visible damage to its opponent, such as detachment of components or inability to continue without requesting repairs, it earns the damage score. (+150 points)

7. Final Platform Win

A robot that successfully pushes or throws its opponent onto the final platform wins the match.

Definition: The final platform is a raised square zone measuring 2×2 meters and 50 cm in height. Any robot ending up on this platform ends the match immediately.

8. Obstacle Collision

A robot that causes its opponent to hit an obstacle or fall into a pit earns this score. (+100 points)

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9. Technical Knockout (TKO)

A robot that disables its opponent through legal movement or attack such that the opponent cannot continue the match earns the TKO score. (+1000 points)

Negative Points

1. Inactivity

A robot that remains stationary for 20 seconds without interference from the opponent is penalized. (-25 points)

2. Violation/Foul

Any rule violation, including but not limited to: touching the robot without repair permission, entering the arena unauthorized, starting before the referee's signal, arguing with the referee, or any behavior deemed a foul by the judging committee. (-50 points)

3. Passivity Warning

Robots showing passive behavior (e.g., fleeing, not attacking) receive a 20-second warning to engage. Failure results in a penalty.

- 1st warning: (-25 points)
- 2nd warning: (-50 points)
- 3rd warning: (-75 points), and soon.

Note: Determining passivity is at the sole discretion of the referees.

4. Repair Timeout

Each robot may request one repair timeout per 5-minute match, and two per 10-minute match, incurring a penalty of: (-50 points)

Note: Repair requests are only allowed during stoppage. Maximum repair time is 3 minutes. Failure to resume after this period will result in forfeit.

Additional Notes: When multiple maneuvers are executed consecutively, their points accumulate.

Example: If a robot flips its opponent (+100 points) and the opponent remains inactive for 20 seconds (-30 points), the attacking robot gains 100 points, and the opponent is penalized with 30 points.



Match Reset Protocol

Referees may announce a reset during the match under the following conditions. When a reset is declared, both robots must return to their designated positions and resume the match only upon the referee's signal:

1. After execution of:
 - a 10-second lift,
 - a 20-second immobilization, or
 - a 20-second inactivity.
2. In case of a lock-up where both robots are unable to disengage by themselves.

Note: Unless a reset is officially announced by the referees, no team member is allowed to enter the arena. Any violation of this rule will result in a penalty for misconduct.

Winning Conditions

A team can win a match through one of the following methods:

1. Opponent Forfeiture

If a team withdraws from the match for any reason, the opposing team is declared the winner and awarded +500 points, while the forfeiting team receives -500 points.

Note: Failure to present the robot for official weighing at the scheduled time will be considered a forfeit and penalized accordingly.

Note: If a team withdraws during a match, all points (positive and negative) earned up to that moment will be recorded.

2. Technical Knockout (TKO)

If a robot disables its opponent such that it cannot continue the match, the referee will stop the match and declare a win by TKO, awarding +1000 points to the winner. The losing team retains its previously earned points (positive and negative).

3. End of Match Time

If the match reaches its scheduled time limit, the team with the higher total score will be declared the winner.

Note: In the event of a tie, the robot with the lower weight will be declared the winner. If weights are equal, the smaller-sized robot will be declared the winner.

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Dispute Resolution

- No objections or complaints may be raised during the match; doing so will result in a point deduction.
- All official complaints must be submitted in writing by the team leader to the league's Dispute Resolution Committee.

Note: Complaints directed toward the referees, technical staff, or event organizers are prohibited. The technical committee reserves the right to deduct points or disqualify any violating team.

- Complaints will be reviewed after the end of each match round, and responses will be communicated to team leaders.
- *Note: If the complaint is upheld and the review is ruled in the team's favor, they retain the right to use another review request in future rounds.*
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Amendments to Rules

No major changes to the rules will be made; however, minor updates or clarifications may occur. Teams are advised to check the official competition website for the latest rule updates at least **10 days** prior to the event.

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