UOKROBOTGAMES2K26

ROBOT BATTLE GUIDELINES

GREATNESS SHOWS NO MERCY

ECSC
UNIVERSITY OF KELANIYA

UOK ROBOT GAMES 2K26

ELECTRONICS AND COMPUTER SCIENCE CLUB
UNIVERSITY OF KELANIYA

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TABLE OF CONTENTS

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1. Introduction

The Robot Battle Competition is a **public** robotics event **open to participants from across Sri Lanka**, including individuals from universities, schools, and the general public. The event is organized to encourage wider participation and provide a competitive platform for robotics enthusiasts to demonstrate their creativity, technical knowledge, and practical engineering skills.

The competition focuses on battle bot matches, where two robots compete against each other inside a designated arena. Participants are challenged to design and operate robots that demonstrate strength, control, durability, and strategy during competition.

2. Competition Categories

The competition will be conducted in two categories,

1. Heavy-Weight
2. Light-Weight

NOTE: One team can compete in only one category.

3. Robot Specifications

Table 1: shows the dimensions and weight of the robot for each category.

Component	Heavy-Weight	Light-Weight
Maximum Weight	20.0 kg	3.0 kg
Maximum Robot Dimensions (length x width)	45 cm x 45 cm	25 cm x 25 cm

NOTE: The robot's height will be defined by whatever ceiling is available in the battle arena.

a. The robot's chassis must be custom-made. Fully or semi-assembled robot kits or any other manufacturer-made, market-available robot kits and chassis are not allowed. Not even a part of a ready-made robot chassis should be used.

b. Once a battle is started, the robot can expand itself up to a limit of 60 cm for the Heavy-Weight category and 35 cm for the Light-Weight category in any direction, if necessary, provided it does not damage the arena in any way.

c. The robot’s power supply must be internal (no external power is allowed), and the maximum voltage between any pair of points inside the robot cannot exceed 24 V at any time. No internal combustion engines will be allowed.

d. Since robots may get flipped upside-down during competitions, permitted batteries shall have a construction that utilizes immobilized electrolytes only. Common types of these batteries are nickel-cadmium, lithium-ion, lithium polymer, and sealed lead-acid gel cells.

e. Entrants should use extreme care when operating battery-powered systems. All power sources must be protected sufficiently (i.e., guard to protect the power source) to withstand the abuse that is expected during the battle.

f. It is advised to bring fully charged batteries and extra batteries to the competition. In the event any additional charge is required, a limited number of charging bays (230 V socket outlets) will be provided.

g. The robot should have a clearly indicated START/STOP switch.

h. All robots with active weapons must have a Master Kill Switch that deactivates the weapon immediately or be designed to cease operation when the radio signal is lost or the tether is cut. This is for the safety of the audience and the other competitors.

i. Once the robot is switched on, it should be able to be controlled by the controller remotely.

j. No robot may, under any circumstances, present a hazard to the judges, spectators, or the opposing team(s). In its operation, no robot may cause damage to anything other than the opposing robot. Any robot that impairs the viewing areas will be ruled ineligible for the competition.

k. All robots will be subject to a technical inspection before combat. Failure to disclose any operating principle will be grounds for immediate disqualification. Judges may restrict any function deemed excessively hazardous.

l. Liquids may not be used in combat situations (except water). If any substance comes from a robot that, in the opinion of the judges, cannot be completely cleaned up after combat, the robot will then be declared ineligible.

m. Robots should be able to operate in a way that avoids radio frequency conflicts or have a digital transmitter capable of non-conflicting frequencies (or an R/C tether combination).

4. Weapon Types

a. Sharp Edges: All sharp edges should be covered with a soft protective covering all the time, except inside the battle arena.

b. Forbidden Weapons: The following weapons should not be used.

i. Electricity - The use of electricity as a weapon shall be forbidden. This includes, but is not limited to, the following:

- Stun Guns/Cattle Prods
- RF jamming equipment, etc.
- EMP bursts

ii. Liquids - The use of any liquid as a weapon shall be forbidden (except water). This includes, but is not limited to, the following:

- Liquids (other than water)
- Liquefied gases
- Foams, Adhesives, etc.

iii. Explosives or Flammable Solids - This includes, but is not limited to, the following:

- DOT Class C devices
- Gunpowder/ Cartridge Primers
- Military Explosives, etc.

iv. Lights - Lights that are bright enough to obstruct an Official, Entrant, or Judge's vision shall be forbidden. This includes, but is not limited to, the following:

- Lights/ lasers directed at the Entrants, etc.

v. Projectiles (ammunition, missiles, etc.)

vi. Heat - Heat specifically generated to damage an opponent is forbidden.

vii. Entanglement Devices - Any device specifically designed to entangle another robot shall be forbidden. This includes but is not limited to the following:

- Any type of net.
- Fishing Line, String, etc.
- Tape

5. Team Composition

Heavy-Weight & Light-Weight Categories

a. A maximum of 5 members will be allowed for a team.

b. All team members must be Sri Lankan nationals.

c. One person can be registered with only one team.

d. A team must have a team/robot name and a team leader.

e. A team can only compete in one of the two categories.

6. Arena Specifications

a. Tables 2 and 3 show the specifications of the arena, including the specifications of its different components.

Light-Weight Arena

Item	Specification
Arena (length x width)	250 cm x 250 cm
Starting square (length x width)	35 cm x 35 cm
pit (length x width)	36 cm x 36 cm

Heavy-Weight Arena

Item	Specification
Arena (length x width)	300 cm x 300 cm
Starting square (length x width)	45 cm x 45 cm
pit (length x width)	50 cm x 50 cm

b. There will be two pits located at the two opposite corners of the arena.

c. The arena lattice will be made of iron box bars, and the arena floor will be made of aluminum checker plates. (Figure 1)

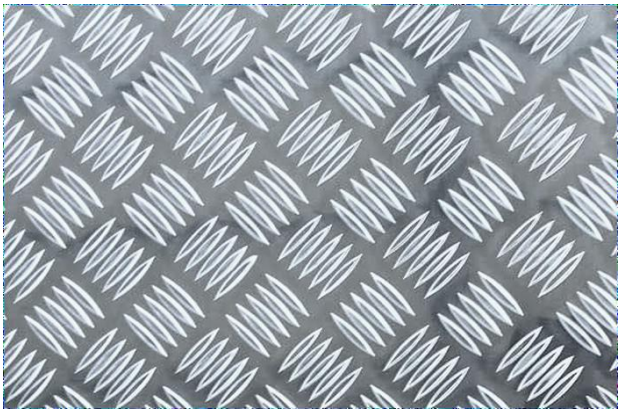
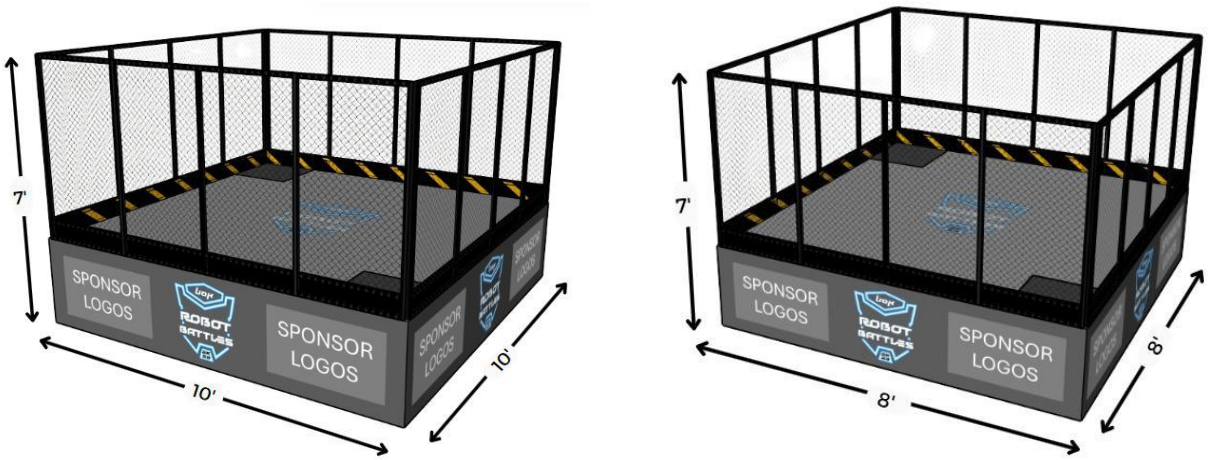


Figure 1 - Aluminum checker plates

d. Figures 2 and 3 illustrate the layout of the arena.



Figures 2 and 3 - Heavy-Weight and Light-Weight arena layouts

7. Combat & Competition Format

a. The combat volume is defined as the combat surface and the airspace above it to the height of whatever ceiling is present.

b. Leaving the combat volume entirely is prohibited. Major portions of the robot may leave the combat volume provided that some part of the robot remains inside. You will immediately be declared defeated if your robot has entirely left the combat volume or has come in contact with any restricted surface.

c. No contact with the ceiling is permitted.

d. No part of any operator's body may impinge on the combat volume during combat.

e. Jamming your opponent's controller, either electronically or physically, is prohibited. Any robot with EMP capabilities will be disqualified from the competition.

f. The same robot must be used in all rounds; hence, consider having sufficient spare parts.

g. Flying robots are not allowed.

h. Match Time: There is a 3-minute time limit for each combat round. If neither robot has achieved a victory condition within the time limit, the winner will be decided by the judges. From the semifinals onwards, there will be 3 rounds each for a battle.

i. Match type: Robots will compete in one-on-one knockout matches. Winners will proceed to the next round. First-round defeated robots will get a chance to compete in a wild-card round. Winners of the wild-card round will go to the second round.

j. Match Frequency: It is recommended that any routine maintenance should take no longer than 20 minutes (especially battery charging and/or replacement). Teams that are not prepared to compete after this period may be forced to forfeit.

k. Initial round competing opponents will be selected randomly. Objections over the selected contender will not be entertained.

l. After any match, officials may request the robot and/or transmitter to be placed in impound for inspection. The entrant shall immediately move his/her robot to the impound area, completely render it safe, leave the transmitter, and exit the impound area. If the robot needs to be disassembled, officials may ask the entrant to remove the parts requested. All work should be performed in the impound area.

m. Power of Officials: Entrants must follow the verbal instructions of the competition officials at all times. This is necessary to maintain the safety of the audience and participants. Circumstances beyond the scope of the rules and guidelines shall be up to judges' decisions and will be final.

8. Technical & Safety Inspection

a. To be eligible to compete, entrants must pass a technical and safety inspection. The points covered at the technical / safety inspection shall include (not limited to):

i. Eligibility - compliance with competition Rules & Guidelines.

ii. Weight and size check.

iii. Appearance suitable for competition.

iv. There shall be no fluid/gas leaks.

v. Confirmation of component ratings.

vi. Adequate sharp edge covers.

vii. Functionality test - A functionality test is used to prove that a robot is capable of reasonably safe control. A simple “driving” test may be set up as part of the technical / safety inspection.

b. The organizers will not be responsible for any damages that may occur during the competition.

9. Judging of Matches

a. At the start of a match, each of the two robots should be placed within the starting squares. Any part of the robot should not exceed the starting square (of the maximum allowable dimensions). The robots must be motionless with all rotary and other types of weapons switched off. After the official start, robots should exhibit motion on a regular basis so that they are not declared “incapacitated”.

b. Deciding a Winner: The winner of each match will be decided by the following criteria.

i. Violation of rules: If the judges agree that one team’s robot was violating any tournament rule, then the opposing team will be declared the winner.

ii. Single Incapacitation: Match referees/judges can request that a team’s operators show any translational movement of the robot during combat for any reason. After the request, the referee will allow approximately 20 seconds (the final 10 seconds of which will be counted down) for the operators to demonstrate controlled translational movement. If the Robot cannot show any controlled translational movement before the end of the countdown, it is a single incapacitation. Then, the opposing team will be declared the winner. The referees’ decision in regard to when this situation is deemed Knocked Out shall be final and not subject to challenge or appeal.

iii. Multiple Incapacitation: If both robots become incapacitated, but not simultaneously, the judges will decide which robot was last incapacitated and declared the winner.

iv. Simultaneous Incapacitation: If both Robots become incapacitated within 5 seconds of some action of any robot or both robots, a “Simultaneous-Action” Incapacitation will be declared. If the Action occurred more than 60 seconds after the start of the Match, the Judges will decide the winner with the scoring. If the Action occurred less than 60 seconds after the start of the match, a rematch may be scheduled. If a rematch is not possible, the Judges will decide the winner with the scoring.

v. Fall into any arena pit: If one robot falls into any pit, the referee will allow approximately 10 seconds for the operator to bring the robot back into the battle area. If it fails, the opposing team will be declared the winner. If both robots fall into any pit, the Judges will decide the winner.

c. Judges' Determination of Match Winner: When the winner is not determined during the course of a match (i.e. neither robot is Incapacitated, Knocked Out, Disqualified, etc., during the duration of the match), the winner is decided by the judges with the scoring. The judges will give marks for each robot during the match based on the damage, aggression, control, and strategy.

d. Decisions are Final: All Judges' decisions in regard to the outcome of a match are final and binding upon all competitors. Judges' decisions are not subject to challenge or appeal.

10. Pit Area

a. Any repairs or modifications that are done to the robots must be executed in the allocated pit area.

b. A limited number of tools may be available in the pit area. However, it is advised to bring the necessary tools and equipment that may be useful to repair a damaged robot.

c. While it is impossible to list all the safety, behavior and attitude requirements of the competition, especially in the pit area, contestants should practice common sense and good sportsmanship at all times.

11. Rules & Regulations

- The above specifications and guidelines may slightly change depending on the decisions of the organizing committee and the judges.
- All entries must conform to the general rules of the facility and the event.

12. Winning Criteria

- All judges' decisions regarding rules, regulations, guidelines, or match results of the competition are final. Judges' decisions are not subject to challenge or appeal.
- When the winner is not determined during the course of a match, the winner is decided by the judges with the scoring based on damage, aggression, control, and strategy.