



robotex

International

KO Bots rules

This category is an Exhibit competition and in cooperation with
the LEAGUELBT Robotics

COMPETITION COORDINATOR

Eric Yongwoo
eric@robotex.international



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1 Introduction

KO Bots is a competitive competition in which the players use the wheeled robot developed and modified by themselves, which meets the competitive standards, and use any technical means other than those listed in the negative list within a limited time, by remote control or intelligent system control. KO Bots is a tabletop level robot competition, with 3d printing as the core, 3d modeling technology as the basis, through the control system, technical and tactical application to gain advantages, to achieve the final victory. "KO Bots" hopes to open the infinite possibilities of children in the way of edutainment.

2 The specifications of the competition field

2.1 Match venue size: length 1000mm, width 1000mm.

2.2 Venue material: Transparent polycarbonate is used around the venue, and the ground of the venue shall be kept smooth and without gaps.

2.3 Site design:

2.3.1 Red and blue starting areas shall be set on both sides of the battle cabin.

2.3.2 Set the cross center line in the opposing station cabin.

2.3.3 Setting OOTA (out of the area) in two corners of the battle cabin is the out of bounds area.

2.3.4 Two trigger switches are set in the battle pod. When the tank touches the switch, the traps in the OOTA zone will be lowered until the end of the game.

2.3.5 There is a preparation area outside the battle pod.

2.4 Personnel configuration: There is one referee at each side of the battle tank in the KO Bots competition area.

3 Robot specifications

3.1 Robot requirements

Since the purpose of the competition is to conduct safety competition and exchange learning in multiple dimensions, such as players' control technology, robot maintenance and transformation, structural design creativity, and technical and tactical team cooperation. **The hardware requirements of the competition are as follows:**

If the relevant electronic equipment selected by yourself is involved, please combine the power that the receiving system can bear, to avoid illegal operation affecting the safety of the event. Please report to the event party in advance if you choose non-specified robot accessories.

3.2 Modification Rules

Robot weight: The maximum weight of the robot shall not exceed 260g.

Robot size: Under the maximum weight limit, the length and width of the machine should not exceed 200mm and the height should not exceed 170mm when the machine is fully deployed.

Robot material:

- 1) The main body of the robot shall not use materials containing metal components, it is recommended to use 3D printing materials (such as PLA, ABS, TPU, nylon, photosensitive resin, etc.).
- 2) The main body of the robot and the attack weapon are not made of metal materials, except for the necessary parts of the weapon shaft, screws, nuts, electronic components, etc. No metal objects are allowed. The surface of the robot's weapon, especially the surface of striking and attacking the other robot, is prohibited to have metal materials, such as metal fasteners, metal patches, etc. There shall be no malicious weapons damaged and exposed metal parts, serious circumstances will be disqualified.
- 3) The basic principle of the use of materials is that the robot should not pollute the field of play, cause unmanageable chaos, and under no circumstances risk causing personal injury. The list of prohibited materials is as follows:

1. Radioactive materials;
2. Dangerous loose fibers (asbestos, carbon fiber, fiberglass, etc.), powders and particles (flour, steel balls, etc.)
3. Cadmium, mercury, lithium (except batteries, electrical components, trace compounds), etc
4. Living objects are not allowed
5. No wood products are allowed as machine housings
6. Toxic heavy metals such as lead containing metal (except solder)
7. high hardness materials
8. The shell must not use glass, ceramics, diamond and other similar
9. entanglement and affect the normal progress of the game
10. Rope and mesh structures and materials that are prone to
11. Other materials prohibited by law
12. flammable, explosive, corrosive and toxic materials outside the scope of these rules before the competition for safety reasons. If you are not sure whether certain materials will be prohibited, please contact the Organizing Committee to report

Robot voltage:

13. Robot battery full charge voltage shall not exceed 7.2V.
14. The maximum voltage of any position in the electronic system in the robot shall not exceed 7.2V.

Robot control:

15. The robot must use a 2.4GHz remote control system.
16. There must be multiple adjustable pairings between the transmitter and receiver.
17. The remote control system signal must not interfere with the system signal of other equipment.
18. The robot's remote control system must be easy to turn on or off, and the activation process must be able to be completed by the competitor within 10 seconds.

Robot Weapons: Each robot may have one or more active weapons or be designed without any offensive weapons. In the case of multiple modular weapons used by the robot, each weapon module shall be subject to acceptance and pass the test.

Weapon Definition:

19. The weapon must be operated remotely by the player, independently of the robot's other systems.
20. The robot is allowed to have an autonomous weapon system, but it must be able to be manually turned on or off by the competitor.

Ejection weapons:

21. compressed gas or other explosives as a power source.
22. Catapult weapons are allowed, which prohibit the use of source is permitted.

Multiple weapons:

23. The use of steering gear, springs, rubber bands, etc. as a power that is mobile, does damage, incapacitates the opposing robot, or assists the robot in knocking the opponent into the OOTA zone.
24. A robot can have more than one weapon, but there must be one or spare weapons must be reviewed and recorded by the organizing committee during the pre-match taping.

Rotating Weapons:

25. The use of modular weapons is encouraged, but any replacement features: Its rotating weapon can rotate from full speed to full stop in 30 seconds.
26. A robot equipped with a rotating weapon must have the following prevent damage caused by misoperation when the weapon is activated.

The following weapons are prohibited for this tournament:

27. The rotating weapon must be designed with a mechanical limit to mesh, thread, etc.
28. Devices that make it difficult to remove remnants, such as goo, nitrogen, water, etc.
29. Spray liquid or liquefied gases, including but not limited to liquid with an opponent's signal.
30. An EMP generator or other weapon used to damage or interfere
31. Weapons that actively produce smoke.
32. Bright lights, lasers, and other weapons that can cause visual damage and affect play when used.
33. Destroy the opponent's weapons by destroying yourself.
34. Other devices or institutions prohibited by law.
35. Pneumatic technology is very dangerous. Pneumatic related mechanisms such as pressure vessels are prohibited. Other power systems are recommended to replace the energy source of the robot.

Flame and flammable products:

36. Robots are prohibited from using flame as a weapon form or in any other form.
37. The robot is prohibited from carrying any flammable, combustion-supporting liquid or other combustion-supporting material.

Safety of appearance: Any robot with sharp edges or corners must be equipped with removable protective devices to prevent injury, and the protective devices must be removed before the start of the competition.

Appearance: The appearance content must comply with the relevant national laws and regulations. The Organizing Committee reserves the sole and absolute right to change or remove any design elements, graphics or wording on the robot at any time.

Decoration or marking: Competitors must decorate, mark or unify the basic color of the robot to distinguish their own team's robots and clearly distinguish which team they

belong to; If the base color of the robot is too close or the same, it will mislead the referee's decision. Be sure to equip them with distinguishable decorations or markings to distinguish; These decorations and marks should not affect the course of the competition, and the weight of the decorations and marks should be included in the total weight of the robot.

4 The participating team

Each team is made up of 1 - 4 members.

Under normal circumstances, a team member is not allowed to move the robot by hand without permission, and may be responsible for taking, moving, and replacing the robot within the scope permitted by the rules or at the direction of the referee.

During the competition, if the robot runs out of power and stops or is unable to move due to battle damage, it will be judged as K.O.

Participants should be familiar with the relevant regulations of the competition. All activities and behaviors must follow the rules and obey the instructions of the field staff and judges.

5 Rules of the Competition

5.1 Recording

Teams enter the preparation area according to the competition schedule. Teams can debug robots in the preparation area. Teams may bring spare parts for maintenance.

Before each competition, the participating robot must be checked whether the weight, material battery and other aspects comply with the robot construction rules of the competition. The competitors shall cooperate with the race inspector to complete the inspection work.

The non-compliant robot shall be allowed to adjust within a limited time, and the adjustment time shall not exceed 10 minutes. If the robot is modified during the competition, it must be checked again.

After being checked and passed, teams will be issued a sticker with the entry number to show that they have passed the check and qualified for the competition. Teams need to put the sticker on the robot body in a prominent position for the referee's observation.

Any participant who fails to attend or pass the pre-race test will be disqualified.

5.2 Enter the competition area

According to the schedule, teams should be guided into the competition area 3 minutes before the start of the race.

The KO Bots Robot Fighting competition shall be a 1-on-1 competition; Each match is 3 minutes long.

If a team is late and delays the game, it will be called a foul and punished according to Rule 6.2, depending on the circumstances.

5.3 Preparation before the competition

Safety protection: Before the tank enters the battle module, all systems must be cut off and closed, and the tank weapons must be protected by limiting and safety devices.

Tank activation operation: Send the tank to the war preparation area outside the battle pod, and the judge will activate the tanks of both sides in turn (red first, then blue) and place them in the battle pod. After closing the hatch, the operator will test the tank's driving and weapon system and move the tank to the corresponding area according to the judge's instructions, waiting for the start of the race.

After the start of the race, neither party shall open the hatch or touch the tank in the hatch without permission. Otherwise, the result of this round will be cancelled.

5.4 Race Decision

The duration of each match shall be 3 minutes. If there is a K.O., the match ends immediately and the K.O. team loses. If there is no K.O., then the judges judge from the score of each team's tanks.

K.O. Adjudication:

38. When a vehicle appears to be incapacitated, the executive judge will require that competitor to demonstrate the vehicle's directional mobility and count the seconds. Within 10 seconds, if the vehicle is still unable to demonstrate mobility, it will be ruled incapacitated, i.e. K.O. If the race time ends during the count, the count continues until the count ends and the K.O. is judged according to the same criteria as above, and the opponent wins outright.
39. When a tank is hit into the OOTA zone, if it can return to the battle field within 10 seconds, it will not be considered as a K.O. If it cannot return to the battle field within 10 seconds, it will be ruled as a K.O. and the opponent will win directly.
40. When a tank is hit into the OOTA zone trap, it is ruled to be incapacitated, i.e. K.O. and the opponent wins directly.
41. If both tanks fall into the OOTA trap within 1 second of each other during the match, the first vehicle to fall into the fall trap is awarded the K.O. and the opponent wins.
42. If there is any dangerous situation such as fire or smoke, the referee will terminate the game immediately. The team that smokes and catches fire will be judged as K.O. and the opponent will win directly.

Suppression adjudication:

43. When a tank pushes the opposing tank to the edge or corner of the field, so that the opponent tank is unable to move, it will be considered a suppression action, the duration of a single suppression action must exceed 5 seconds, when the referee announces the suppression score, the player of the opposing team must immediately control the tank to stop the suppression action, and maneuver around at least one center line to continue the attack.

Scoring:

44. The opponent tank successfully suppress 2 points, the score can be added to the base.
45. Damage to an opponent's tank, armor, or weapon is worth 3 points, which is worth a base.
46. 5 points are awarded for hitting an opponent's tank into the OOTA zone without producing a K.O.
47. 3 points are awarded to the vehicle that triggers the OOTA trap trigger switch first, and no bases are added.

6 Pit zone

It is forbidden to start the weapon of the tank in the maintenance area, and the system should be in a cut off and closed state to avoid damage to personnel or facilities in the maintenance area. Chariot testing needs to be carried out in the test area provided by this event.

No running, playing or making loud noises are allowed in the maintenance area.

7 Competition flow

According to the number of registered teams, the competition will adopt the appropriate competition system as the main form of promotion, including but not limited to group round points, single elimination, double elimination, etc., or other forms of promotion. The complete competition system will be released to all participants before the official competition, and the final champion will be determined.

The race will be divided into groups according to the number of registered teams, including but not limited to age, gender, chariot category, etc., or other groups. The complete group information will be released to all participants before the official race.

Group Round Robin Points Race rankings will be based on the following points system:

K.O WINS	+3
JUDGE DECISION WINS	+2
JUDGE DECISION LOSE	+1
K.O. LOST	0
OPPONENTS ABANDONMENT WINS	+1

FORFEIT	-2
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The order and pairing of the chariots will be determined by random drawing. If the chariot is missing the pairing of the wheel, it will be judged that the chariot is "empty" in the round and can directly participate in the next round.

8 Objections

The decisions of the referees are not subject to appeals. Complaints must be submitted during or immediately after the match. If no settlement is reached with the referee, claims must be submitted immediately to the Robotex Head referee. Any later complaints will not be accepted. In case of any conflicts or disputes, the final word will be said by the referees and/or the organisers. **NB! Rude behaviour is not tolerated and the team who does not respect the referee's / head referee's decisions can be disqualified by the head referee and/or event organisers.**

9 Changes and cancellations in the rules

Changes and cancellations made to the rules are adopted by the main organizer of the competition according to the regulation of the regulatory committee of the competition.

10 Organizing

10.1 Lighting and infrared noise

The arena has at parts uneven lighting and infrared noise, which may disrupt the work of sensors during the competition. For this reason, the organizers recommend using covers or blinds for sensors, testing the sensors under intense lighting conditions or even under direct sunlight to imitate the lighting conditions of the competition arena.

11 Revision History

48. 20.10.2026 Rules are created.

