2025TIRT Remote-Controlled Soccer

Competition Regulations

Project Background:

ShaYangYe is committed to advancing robotics education and promoting industry collaboration, with the aim of establishing Taiwan as an international stage for robotics competitions. Since 2018, we have collaborated with the Taoyuan City Government to organize the INTERNATIONAL ROBOTIC FESTIVAL IN TAOYUAN for seven consecutive years. This pioneering event brings together four major robotics competition fields: land, sea, air, and maker. Over the past seven years, it has attracted over 12 million participants both online and offline, with teams from 20 countries participating and a total of 10,750 teams from domestic and international regions. Our goal is to connect robot training and competitions with relevant industries, expand the international perspectives of Taiwanese participants, and create a cross-domain international robotics extravaganza that shines in Taoyuan and the world!

For the 2025 INTERNATIONAL ROBOTIC FESTIVAL IN TAOYUAN, in order to promote Taiwan's robotics industry and self-made brands, we are planning a series of events, including the TIRT Autonomous Vehicle Racing Competition. This competition combines diverse control systems to showcase Taiwan's technological prowess in intelligent manufacturing. Furthermore, it serves as a link to the TIRT International Competition and Conference.

Project Goals:

1. Through competition activities and study exchanges, increase opportunities for domestic and international teams to observe program design, mechatronics integration, and sharing exchanges to stimulate student learning motivation.
2. By combining various open control systems and planning different competition targets, integrate and expand students' creativity, design ability, integration skills, and programming ability.

更新日期：2025/03/28

2025TIRT Remote-Controlled Soccer

Competition Regulations

Supervising Units:

Taoyuan City Government, Taoyuan City Council

Organizer:

Department of Economic Development. Taoyuan

Implementing Unit:

ShaYangYe Charity and Education Foundation, Taoyuan City

Participants:

1. Students from elementary schools, junior high schools, senior high schools, vocational high schools, and colleges nationwide (including master's and doctoral students).
2. Athletes must have a valid student status recognized by the Ministry of Education.
3. International teams of the same age are allowed to participate (must provide proof of valid student status in their country).

Event Categories:

Remote-Controlled Soccer

Competition Grouping:

1. Elementary School Group: Restricted to elementary school students, with a maximum of 3 players per team.
2. Junior High School Group: Restricted to junior high school students, with a maximum of 3 players per team.
3. Senior High School/Vocational School/College Group: Restricted to high school, vocational school, and college students (including master's and doctoral students), with a maximum of 3 players per team.

更新日期 : 2025/03/28

APRA Remote-Controlled Soccer Competition Details, Rules, and Format

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ASIA PACIFIC ROBOT ALLIANCE

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ASIA PACIFIC ROBOT ALLIANCE

Remote-Controlled Soccer Competition Details, Rules, and Format

Contents

A. Introduction

Team size: 2–3 members + 1 coach
Hardware: No restrictions on equipment
Controller: No restrictions on remote controllers
Software: No restrictions on programming languages

A1. Each soccer team is composed of two to three members. Each team uses two soccer robots to engage in a remote-controlled match against another team. The team that achieves the higher score within the allotted time is declared the winner.

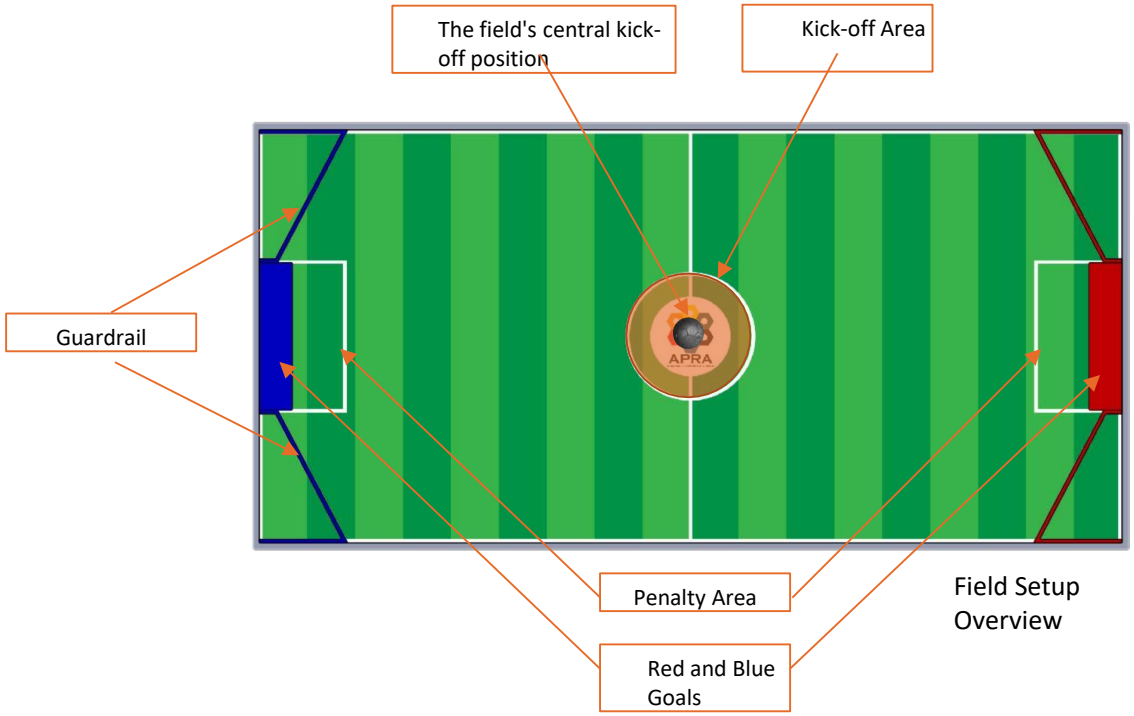
Remote-Controlled Soccer Competition Details, Rules, and Format

B. Soccer Field Setup and Ball Specifications

B1. A printed mat will be laid as the soccer field, measuring approximately 2360 mm by 1140 mm, with perimeter barriers around the field approximately 80 mm in height.

B2. Each goal is about 400 mm wide, 90 mm deep, and 70 mm high.

B3. A trapezoidal guardrail is placed in each of the four corners of the field.



Field Setup Overview

Remote-Controlled Soccer Competition Details, Rules, and Format

B. Soccer Field Setup and Ball Specifications

B4. The soccer ball used in the competition will have a diameter of 55 mm and will be 3D printed.

B5. The ball is black, hollow, and has a wall thickness of 2 mm.

B6. The ball weighs approximately 9 g to 11 g.

Soccer Ball

Remote-Controlled Soccer Competition Details, Rules, and Format

C. Competition Rules

Match Duration

C1. The competition is divided into a group stage and a knockout stage.

C2. During both the group stage and the knockout stage, each match consists of two halves, each lasting three minutes.

C3. There will be a two-minute preparation period before the match. After the first half, teams will switch sides and have two minutes for maintenance.

C4. In the finals and the third-place match, each half lasts five minutes.

C5. If a participating team fails to report for the match within two minutes of its scheduled start, the opposing team automatically wins with a score of 2–0.

Remote-Controlled Soccer Competition Details, Rules, and Format

C. Competition Rules

Kick-off Procedure

C6. Before the match begins, both teams place their robots on the field, ensuring that all components remain completely still.

C7. The referee will insert a red or blue marker on each robot to indicate the color corresponding to its designated goal.

C8. Each team's two robots must be placed in their own half of the field, outside the kick-off area. The vertical projection of one robot must overlap with its team's penalty area (see diagram).

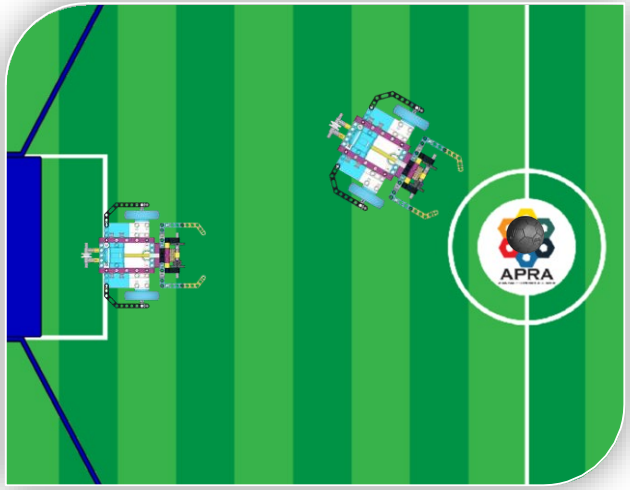
C9. After activating the program, the robots must remain outside the kick-off area until the referee signals the start of the match.

C10. The referee will place the soccer ball at the "field's central kick-off position" (see diagram).

C11. The kick-off procedure begins when the referee counts down "3, 2, 1, GO!" at which point all robots are free to move.

C12. Once the match has started, participants must stand behind their own goal to operate their robots.

C13. After each goal is scored, a new kick-off is required.



Robot kickoff method

Remote-Controlled Soccer Competition Details, Rules, and Format

C. Competition Rules

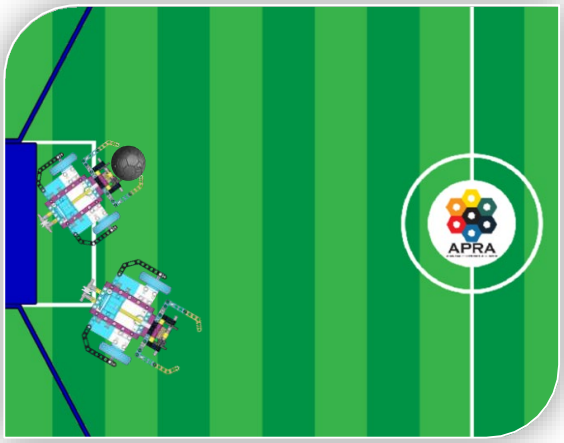
Scoring a Goal

C14. A goal is scored once the ball makes contact with the back wall of the goal. The stopwatch will be paused until the next kick-off.

C15. Goals scored through multi-player defense still count, and own goals are also counted as valid goals.

C16. “Multi-player defense” refers to a situation where both robots from the same team have their vertical projections overlapping their own penalty area simultaneously.

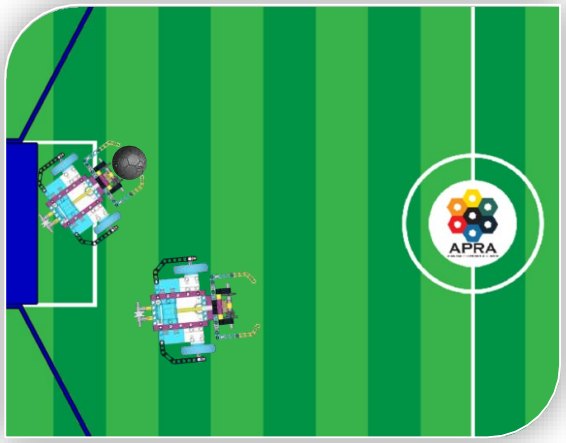
C17. Under a multi-player defense scenario, if one of a team’s robots touches the goal while also making contact with the ball, the goal is considered scored (see diagram).



Situation 1: Successful goal and score

Multiple robots defending

One of the robots touches both the goal and the ball

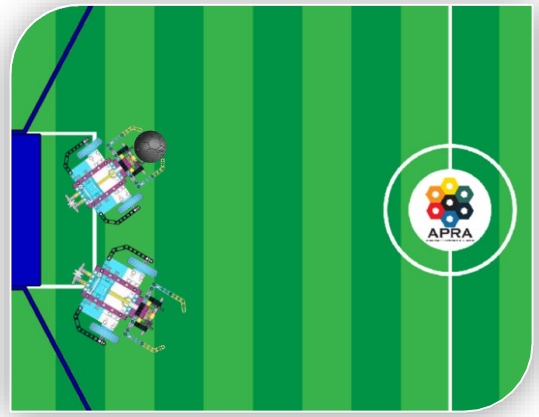


Situation 2: Unsuccessful goal

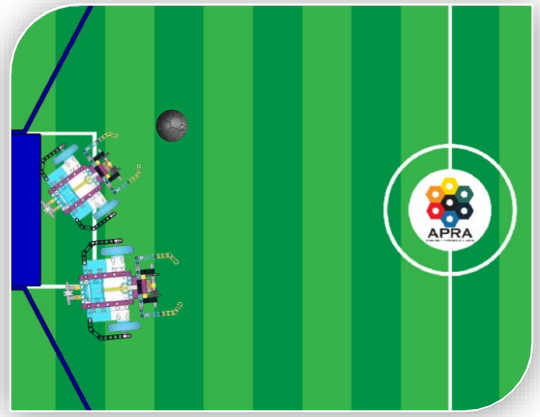
Multiple robots defending

One of the robots touches both the goal and the ball

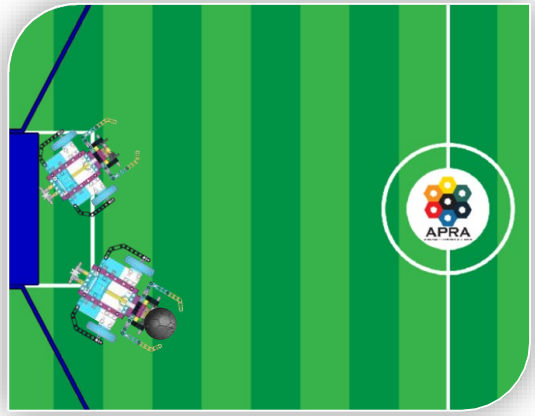
Remote-Controlled Soccer Competition Details, Rules, and Format



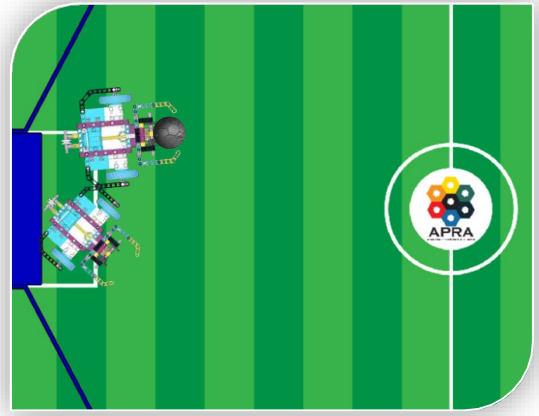
Situation 3: Unsuccessful goal
Multiple robots defending ✔
One of the robots touches both the goal and the ball ✖



Situation 4: Unsuccessful goal
Multiple robots defending ✔
One of the robots touches both the goal and the ball ✖



Situation 5: Unsuccessful goal
Multiple robots defending ✔
One of the robots touches both the goal and the ball ✖



Situation 6: Unsuccessful goal
Multiple robots defending ✔
One of the robots touches both the goal and the ball ✖

Remote-Controlled Soccer Competition Details, Rules, and Format

C. Competition Rules

Faulty Robot

C18. If a robot remains motionless for more than five seconds, the referee has the authority to declare it a “faulty robot.”

C19. The referee will remove the faulty robot from the field. It may only return once a goal has been scored or when the half has ended.

C20. If a robot collides with an opponent’s robot and falls over, the referee will upright the robot so that the match may continue. If the robots become entangled after a collision, the referee will separate them before resuming play.

C21. When a robot is declared faulty, the match and the timer do not pause.

Handling the “Boundary Ball”

C22. A situation is deemed a “boundary ball” if any of the following occur:

- The soccer ball remains in the corner guardrail or along the perimeter barrier for more than five seconds without any progress in the match;
- The soccer ball remains inside the penalty area for more than ten seconds without any progress in the match;
- The soccer ball remains in any other area of the field for a prolonged period without any progress in the match; or
- The referee determines that the progress of the match is hindered.

C23. When a boundary ball occurs, the soccer ball will be placed back into the “kick-off area” without changing the position of any robots.

C24. Robots are not required to stop while the boundary ball is being moved.

C25. In the event of a boundary ball, neither the match nor the timer is paused.

Remote-Controlled Soccer Competition Details, Rules, and Format

C. Competition Rules

Intentional Fouls

C26. A participant or their robot is considered to have committed a "foul" if any of the following occur:

- The participant's robot does not move toward the ball but deliberately attacks the opposing team's robot.
- The participant deliberately damages the ball or vandalizes the field.
- During the match, the participant touches the robot or the ball without the referee's permission.
- The participant uses inappropriate language.
- Any other behavior that the referee deems to be a foul.

Handling Fouls

C27. The referee will issue a "yellow card" to the offending team. Any robot that receives a yellow card is removed from the field and may only return once a goal is scored by either side or when the half ends.

C28. If a team accumulates four yellow cards, it is immediately disqualified from the competition. All of its match records are changed to a 0–2 loss.

C29. Yellow cards remain on record until the end of that day's competition. In any special circumstances, the head referee's decision is final and may not be challenged.

C30. Only two robots may compete in each match until that match concludes. The team can choose different robots for subsequent matches. Replacing robots during a match is prohibited. Any team violating this rule will be immediately disqualified, and all of its match records will be changed to a 0–2 loss.

Remote-Controlled Soccer Competition Details, Rules, and Format

D. Detailed Competition Regulations

Robot Hardware Restrictions

D1. The robot's maximum extended dimensions (including wires) must not exceed the circumference of a 220 mm-diameter circle in both length and width, and its height must not exceed 220 mm. Before the competition starts, the referee will instruct teams to place their soccer robots in the inspection area for measurement. Once the measurement is confirmed, no further modification, disassembly, or alteration of the robot's configuration is permitted.

D2. The total weight of the robot, including its battery, must be under 1200 g, and the battery voltage must not exceed 8.4 V.

D3. There are no restrictions on the type of motor, but each robot may have a maximum of three motors. There is no limit on the number of sensors.

D4. Each robot may only use one microcomputer controller.

D5. Participants are free to modify their robots as desired.

Robot size measurement device

Remote-Controlled Soccer Competition Details, Rules, and Format

D. Detailed Competition Regulations

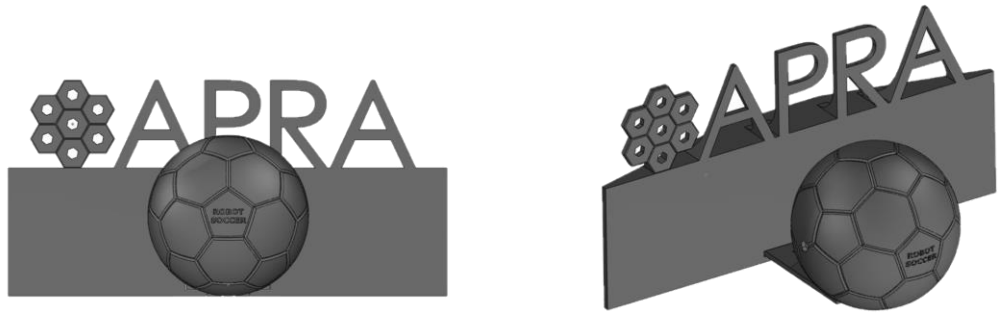
Robot “Ball-Holding Area” Restrictions

D6. The “ball-holding area” refers to the space within the vertical projection of the robot that the soccer ball can occupy, measured based on the robot’s maximum possible extension.

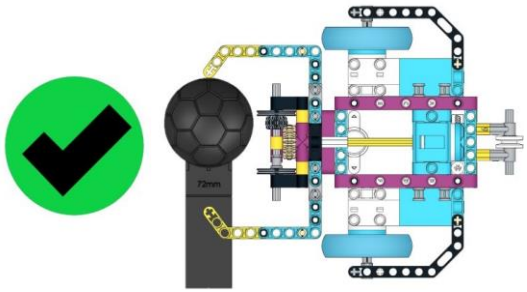
D7. The entrance to the ball-holding area must be at least 72 mm wide.

D8. The width of the ball-holding area’s entrance may be verified using a “ball-holding measurement tool” (refer to the next page for instructions).

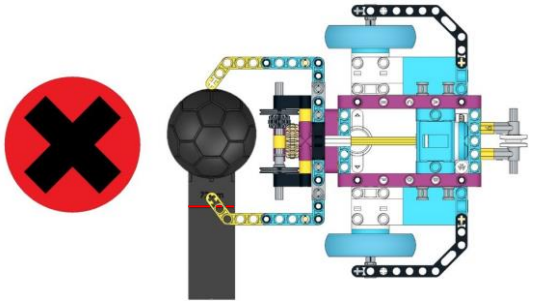
D9. The depth of the ball-holding area must not exceed 72 mm. This depth is measured from the deepest point where the ball can contact the robot to the frontmost point of the robot’s maximum extension (refer to the next page for instructions).



Ball possession measurement device

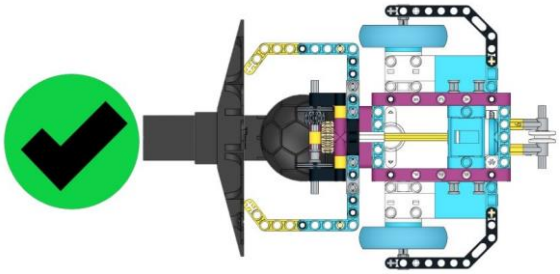


Ball possession area entrance larger than 72 mm: Passes inspection.

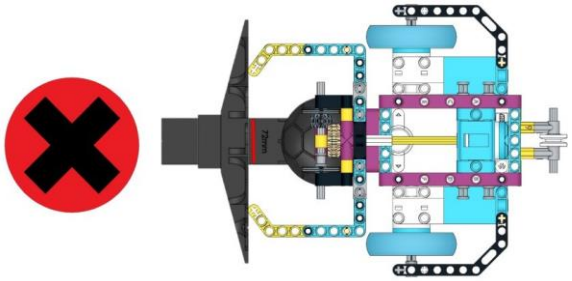


Ball possession area entrance smaller than 72 mm: Fails inspection.

Remote-Controlled Soccer Competition Details, Rules, and Format



Ball possession area depth smaller than 72 mm: Passes inspection.



Ball possession area depth larger than 72 mm: Fails inspection.

Remote-Controlled Soccer Competition Details, Rules, and Format

D. Detailed Competition Regulations

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Soccer ball

Remote-Controlled Soccer Competition Details, Rules, and Format

D. Detailed Competition Regulations

Robot Software Restrictions

D12. Teams may bring pre-assembled robots to compete.

D13. Participants must provide their own computer/tablet and remote controller for use in the competition.

D14. The robots must be controlled wirelessly; wired control is not permitted.

Remote-Controlled Soccer Competition Details, Rules, and Format

E. Other Regulations

Responsibilities of Both Teams

E1. The referee's decision is final during the competition.

E2. Any objection to the referee's decision will result in a warning. Persistent arguments will lead to immediate disqualification.

E3. After the competition ends, each team must designate one representative to sign the score sheet to confirm the results.

E4. If there is a discrepancy in the score or any issue with the competition results, objections may only be raised before the score sheet is signed. Once the score sheet has been signed, neither team may lodge any further protest.

E5. The referee may interpret the rules as necessary.

E6. In special circumstances, such as unforeseen problems during the competition or issues relating to the robots' capabilities, the rules may be changed with the head referee's approval.

Inspection of Robots

E7. During the competition, the referee has the authority to request that a robot undergo re-inspection.

E8. Any robot that fails to meet inspection requirements cannot participate until it has been properly corrected.

E9. Corrections must be completed within the designated repair time; teams may not delay the match for this reason.

E10. If a robot still fails to meet all requirements after attempts to correct it, the robot is disqualified from that match (though not from the entire competition).

Remote-Controlled Soccer Competition Details, Rules, and Format

E. Other Regulations

Fair Play

E11. No individuals other than participants and staff members are allowed in the competition area.

E12. No one apart from the participants may modify the robots or programs.

E13. During the competition, participants are not permitted to receive any form of hints or assistance.

E14. It is forbidden to touch any other team's robots.

E15. If any of the above situations occur during the competition, the team in question may be disqualified.

Competition Rules and Terms

E16. All teams must thoroughly read the relevant registration terms and competition rules when they sign up to participate.

Remote-Controlled Soccer Competition Details, Rules, and Format

F. Competition Format (Condensed)

•**F1.** The number of rounds in the knockout stage may vary according to the number of participating teams.

•**F2.** First, teams are divided into groups. The top two teams from each group advance.

•**F3.** A points system is used in group matches: 3 points for a win, 0 for a loss, and 1 for a draw.

•**F4.** If teams are tied on points, head-to-head results come first; if still tied, goal difference is considered, and then total goals.

•**F5.** In the knockout stage, group winners face group runners-up in the first round, with winners progressing to the final.

•**F6.** The final determines the champion (winner) and runner-up (loser). The losers of the semifinals compete for third place.

•**F7.** If a knockout match is tied, there is a two-minute repair break, followed by a two-minute overtime. The first goal decides the winner. If still tied, teams remove one robot each and repeat the two-minute overtime process until a winner is decided.