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## Drone Soccer

Drone Soccer® is a competition that originated in South Korea and is the latest strategic team sport in which a special drone ball covered with a spherical plastic frame is used to fight 5 to 5. As with soccer, you need to make various movements such as speedily flying a drone toward the opponent's goal, defending your own goal, and supporting your friends.

With Drone Soccer®, regardless of age or gender, from children to the elderly, "developing tactics as a team", "each playing their own role", "thinking while watching the surrounding movements, etc.", A barrier-free competition where you can share the fun in the field. In addition, by becoming proficient in sensorless drone ball operation through competition, we will improve drone flight skills and foster the enjoyment of team play, teamwork and communication in families, companies, student circles, local communities, etc. I think we can also contribute.

Drones have a difficult image, but ... Actually  
, anyone from children to the elderly can do it.

- Barrier-free competition

Even if you are new to the competition , if you get the hang of it, the drone will definitely improve.

What kind of person plays drone soccer?

I want to start a new sport that has just landed in Japan

I want to have fun and improve my skills to operate a drone at work

I want to train employees and students

I want to be the best in Japan and the best in the world

It's my first time to drone, but it looks fun

It is a competition that can be won not only by drone technology but also by strategy and teamwork.

By the end of the three sets of games, you will not only improve your drone's maneuvering skills, but also improve your teamwork and trust with your teammates.

[A team of 5 people wins the team with the most number of times they have passed the goal]

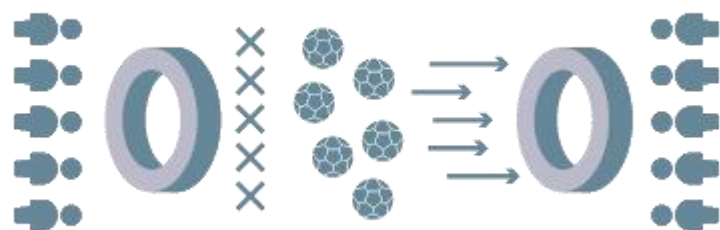
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A team of 5 pilots formed a team, controlled the "ball-shaped drone" from outside the rectangular field where the "circular goal" was set, and the team who passed through many "circular goals" of the opponent team in time "winner"

[Defend your own goal and aim for your opponent's goal]

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A highly strategic game in which you need to defend your own "circular goal" while controlling the "ball-shaped drone" aiming at the "circular goal" of the opponent team, and technique and teamwork are also important points.

[3 minutes 1 set 3 sets system]

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If the team with the most set keeps is the winner (\* 1 game 30 minutes), a 3-minute extra time or penalty shootout can be held.

[Maintenance during the interval 5 minutes between each set]

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Perform "battery replacement" and "ball-type drone" aircraft maintenance during an interval of 5 minutes between sets

#### **40cm aircraft official rules (5 vs 5)**

Established October 15, 2019

Revised February 27, 2020

##### Cage (stadium)

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- Structure that surrounds all sides and the ceiling with a net etc.
- When using cushioning material, the floor bottom material shall have a structure that does not sink more than 1 cm when the aircraft is placed.
- The size is 7m on the short side, 16m on the long side, and 5m in height.
- Set a center line in the cage (field) and set a "center mark"
- Display the "starting point" as a dot or line at least 1.5m away from the short side of the stadium.
- The "control space" should be installed with a space of 2 m or more from the short side of the cage.

##### goal

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- The goal shape is circular, and it is possible to install lighting devices and sensors using highly visible colors with an outer diameter of 100 cm to 120 cm and an inner diameter of 60 cm to 80 cm.
- The position should be at the center of the short side of the field, at least 1.5m away, and at a height of 2 to 3m above the ground.
- Install so that the goal surface does not swing from side to side

##### Advertising

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- Commercial advertising prohibited at tournaments hosted by the Japan Drone Soccer Federation (excluding those approved by the federation)
- Uniforms can be logos and commercial advertisements

##### Drone ball regulations

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- The ball-shaped drone to be used should be the official aircraft sold by AUTOBACS SEVEN.
- Cover with a round exoskeleton and have a diameter of 40 cm  $\pm$  2 cm
- Equipment weight 1 kg or less (excluding displayed items such as player journals)
- Single area of open surface of exoskeleton is 150 cm<sup>2</sup> or less

- Prohibition of commercial advertising
- The ball-shaped drone of your team and the opponent team must be definitely distinguishable
- The striker's ball-shaped drone must also be able to be reliably distinguished from other ball-shaped drones.
- Display the same number as the player

#### Player regulations

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- One team consists of a maximum of 10 people (7 players or less, 3 coaches or less)
- \* Coaches can participate with players
- Player registration must be done in advance
- 5 players or less per team Drone must be the same as the number of players
- The player composition is "1 striker" and "4 field players"
- \* Field player: A general term for players who assist goal defense and strikers.
- Only athletes can enter the "control area"
- The set will be abstained unless there are 3 or more players in total.
- It is not possible to change players or change transmitters during the set
- Players can be changed during interval time
- Transmitter operation is prohibited except for athletes participating in the competition (the match will be forfeited during operation)

#### Athletes' equipment regulations

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- You can dress freely, but you need to clearly identify the team members (hat, uniform, vest, A4 size or larger sign)
- Attach a light emitting / display device that can be identified as a "striker"
- First person video equipment can be worn and carried
- Spare "ball-shaped drone" ready
- Prohibitions
  - 1) Wearing and carrying a "light emitting device / radio wave transmitter" that hinders the opponent's play
  - 2) Wearing and carrying a "sound-related device" that hinders the progress of the competition
  - 3) Before the start of the competition Mutual confirmation of equipment is required

#### Judgement

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- Judged by the referee and assistant referee, the referee has authority and discretion

- The referee must be located in a location where all athletes in the competition can be observed.
- If the referee and assistant referee judges do not match, the referee will take precedence.
- The referee can check with the video equipment installed in the venue as needed. Judgment at that time is possible as many times as you like
- The qualifications of the referee and assistant referee are certified according to the separate regulations.
- Two assistant referees will be set up, located between the cockpit and spectator seats of both teams, to observe both the goal and the scoreboard.
- The assistant referee can change to the referee if the referee cannot judge.

#### Competition time

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- 1 set for 3 minutes each, 3 sets
- Operation time etc. cannot be performed while the set is in progress
- The interval between sets is 5 minutes, and "maintenance" and "operation time" can be performed  
(the time will be decided and announced by the referee).
- Even if "maintenance" is not in time during the interval, the time will not be extended.
- If one team has less than three players when entering the set, the team loses.  
In that case, the referee can add an interval of 5 minutes to the next set.
- From the declaration 10 seconds before the start of the competition, the competition cannot be interrupted until the end of the set  
(if there is a safety problem, the referee judge can interrupt it)
- If it is interrupted for safety reasons, the competition can be resumed with the remaining time.

#### When it becomes an invalid match

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Cage Collapse When the "ball-shaped drone" goes out of the cage

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If an injured person is injured due to damage to the stadium facilities, etc.

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In the event of a power outage or malfunction of the operating system

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#### How to proceed with play

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- Before the competition
  - 1) Select the left and right control zones with a coin toss 3 sets cannot be changed
  - 2) Captains of both teams can check the status of "circular goals"
- Start and end
  - 1) 3 minutes before the start and the end will be announced by "acoustic"
  - 2) "Start / end" of the competition will be announced in advance by "preliminary signal" 10 seconds before
  - 3) At least each preliminary signal It is announced at least once, and the number of times can be increased.
  - 4) When the "ball type drone" is on the starting line and the players are in the control space, the referee will
- Preliminary signal is announced
  - 5) Start and end will be announced by hand signal and sound at just time after the preliminary signal.

#### point

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- Earning points
  - 1) The "ball-shaped drone" of the "striker" must pass through the "circular goal" of the opponent team
  - 2) In this case, half of the "ball-shaped drone" must pass based on the entire goal. Don't become
- Consecutive point limit
  - 1) In order to suppress continuous points, all "ball drones" of the team that earned points must return to their own team from the half line
  - 2) Uncontrollable "ball drones" return to their own team You don't have to.
  - 3) If control is restored, you must return to your own team.
  - 4) If the opponent's team cannot control it, report it to the assistant referee and move out of the control space.
  - 5) It is possible to intentionally prevent the "ball-type drone" from returning to its

own side and

extend the additional point time of the opponent.

6) If the above rules cannot be observed, points will be invalidated and a penalty will be given.

- Scores other than "Striker" are invalid
    - 1) Scores other than "Striker" are invalid
    - 2) Other than "Striker", "Ball-type drone" must not pass or stay at your own goal
  - Penalty kick application
    - 1) When taking off before the competition start signal
    - 2) When the continuous point limit rule is broken
    - 3) When the "field player" stays within his own "circular goal" for the purpose of defense
- \* " "Striker" is possible

#### Penalty kick

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- Timing: After each set
- Method: One-on-one between "Striker" and "Field Player"  
"Striker" is half line "Field Player" starts at the starting point
- Time: Consecutive points are possible within 5 seconds per penalty (applicable to the above continuous point regulations)

#### Win or lose

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- The dominant team with the number of points earned in one set wins the set
- If both teams have the same points or no points, it will be a draw.
- Of the three sets, the team with the most sets will be the winner

#### draw

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- If the number of acquired sets is the same, one extra time of 3 minutes or a penalty shootout will be held.
- In the case of a draw decision according to the tournament regulations, overtime and PK battles will not be held

#### Penalty shootout

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- Perform with the same rules as a penalty kick
- 3 people each for both teams

#### Foul / tort

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- There are warnings, set losses, and competition losses for fouls and torts, and a set loss is achieved with three cumulative warnings in the same competition.
- If you receive two warnings for the same reason, you will lose the set.
- Warnings
  - 1) When a non-athlete stays in the control space
  - 2) When a minor non-gentleman act is performed against a referee, opponent, or spectator during the competition
  - 3) Intended for a "ball-type drone" during the competition When the body comes into contact without prior approval
  - 4) When the competition is intentionally delayed due to poor maintenance, etc.
  - 5) When the "ball-type drone" is moved before the signal to start the competition
- About set loss
  - 1) When operated by a player other than the player in the competition
  - 2) When a serious non-gentleman's act is performed against the referee, opponent, or spectator during the competition
  - 3) Intentionally intended for the "ball-type drone" during the competition
- Loss of competition
  - 1) When there is a safety failure such as intentionally using a "ball-type drone" to threaten others
  - 2) Serious non-gentlemanly acts against referees, opponents, and spectators during competition

that's all

## **20cm aircraft official rules (5 vs 5)**

Established October 15,  
2019 Revised December 1, 2019

### Cage (stadium)

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- Structure that surrounds all sides and the ceiling with a net etc.
- When using cushioning material, the floor bottom material shall have a structure that does not sink more than 1 cm when the aircraft is placed.
- The size is 4m on the short side, 8m on the long side, and 3m in height.
- Set a center line in the cage and set a center mark
- Display the "starting point" with a line separated from the short side of the stadium by at least 1 m.



- The "control space" should be installed with a space of 1 m or more from the short side of the cage.

#### goal

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- The goal shape is circular, and it is possible to install lighting devices and sensors using highly visible colors with an inner diameter of 30 cm, an outer diameter of 50 cm, and a thickness of 10 cm.
- The position should be at the center of the short side of the field, at least 1 m away, and at a height of 1.5 to 2 m above the ground.
- Install so that the goal surface does not swing from side to side
- Alternatively, a hula hoop with an inner diameter of 40 cm to 60 cm can be easily replaced.

#### Advertising

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- Commercial advertising prohibited at tournaments hosted by the Japan Drone Soccer Federation (excluding those approved by the federation)
- Uniforms can be logos and commercial advertisements

#### Drone ball regulations

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- The ball-shaped drone to be used should be the "official aircraft" sold by AUTOBACS SEVEN.
- 20 cm  $\pm$  1 cm in diameter covered with a round exoskeleton
- Equipment weight 100g or less (excluding display items such as player journals)
- Must be covered with exoskeleton
- Prohibition of commercial advertising
- You must be able to distinguish between your team and the drone ball of the other team.
- The striker's drone ball must also be definitely distinguishable from other drone balls

#### Player regulations

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- One team consists of a maximum of 10 people (7 players or less, 3 coaches or less)
- \* Coaches can participate with players
- 5 players or less per team Drone must be the same as the number of players
- The player composition is "2 strikers" and "3 field players"
- \* Field player: A general term for players who assist goal defense and strikers.
- Only athletes can enter the "control area"

- The set will be abstained unless there are two or more players in total.
- It is not possible to change players or change transmitters during the set
- Players can be changed during interval time
- Transmitter operation is prohibited except for athletes participating in the competition (the match will be forfeited during operation)

#### Athletes' equipment regulations

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- You can dress freely, but you need to clearly identify the team members (hat, uniform, vest, A4 size or larger sign)
- Attach a ribbon to the aircraft so that it can be identified as a "striker"
- First person video device can be worn and carried
- Spare "ball-shaped drone" ready

#### Prohibited matter

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Wearing and carrying a "light emitting device / radio wave transmitter" that hinders the opponent's play

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Wearing and carrying "acoustic devices" that hinder the progress of the competition

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Mutual confirmation of equipment is required before the start of the competition

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#### Judgement

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- Judged by the referee and assistant referee, the referee has authority and discretion
- The referee must be located in a location where all athletes in the competition can be observed.

- If the referee and assistant referee judges do not match, the referee will take precedence.
- Two assistant referees will be set up, located between the cockpit and spectator seats of both teams, to observe both the goal and the scoreboard.
- The assistant referee can change to the referee if the referee cannot judge.
- Depending on the scale of the above event, the judge may be a single referee.

#### Competition time

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- 1 set for 3 minutes each, 3 sets match
- The interval between sets is 5 minutes, and "maintenance" and "operation time" can be performed.
- Even if "maintenance" is not in time during the interval, the time will not be extended.
- If one team has less than two players when entering the set, the team loses. In that case, the referee can add 5 minutes to the next set.
- From the declaration 10 seconds before the start of the competition, the competition cannot be interrupted until the end of the set (if there is a safety problem, the referee judge can interrupt it)
- If it is interrupted for safety reasons, the competition can be resumed with the remaining time.

#### How to proceed with play

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- Before the competition
  - 1) Select the left and right control zones with a coin toss 3 sets cannot be changed
- Start and end
  - 1) 3 minutes before the start and the end will be announced in the announcement
  - 2) The "start / end" of the competition will be announced in advance by a preliminary announcement 10 seconds before
  - 3) The start and end will be after the preliminary announcement , Announcement will be announced at just time

#### point

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- Earning points The "ball-shaped drone" of the "striker" passes through the "circular goal" of the opponent team.
- Consecutive point limit
  - 1) All "ball-type drones" of the team that earned points must return to their own

team from the half line in order to suppress continuous points

2) Uncontrollable "ball-type drones" must return to their own team You don't have to return

3) If control is restored, you must return to your own

team 4) If the opponent's team cannot control it, wait until the set is completed

5) Opponent's "ball type" It is possible to intentionally prevent the "drone" from returning to its own team and extend the additional point time of the opponent.

6) If the above rules cannot be observed, the points will be invalidated.

- Scores other than "Striker" are invalid
  - Penalty kick application
- 1) Takeoff before the competition start signal
  - 2) Breaking the continuous point limit

#### Penalty kick

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- Timing: After each set
- Method: One-on-one "striker" and "field player"  
"striker" is half line "field player" starts at the starting point
- Time:  
Continuous points are possible within 5 seconds per time (the above continuous point regulation is applied)

#### Win or lose

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- The dominant team with the number of points earned in one set wins the set
- If both teams have the same points or no points, it will be a draw.
- Of the three sets, the team with the most sets will be the winner

#### draw

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- If the number of acquired sets is the same, one extra time of 3 minutes will be played.

#### Foul / tort

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- Warn against fouls and torts and lose the set with two cumulative warnings
  - Warning
- 1) When a non-athlete stays in the control space
  - 2) When the "ball-type drone" is moved before the signal to start the competition
- that's all