

2024 UASACT International AI robot and drones carnival competition

Purport:

1. Promote robot, artificial intelligence and uav education, hold international UAV and robot education competitions, and hold international uav, robot and artificial intelligence education experience activities, so that education units can have a clearer understanding of the future development direction of science and technology and education and training policies, and promote global exchanges of science and technology education.
2. International competitions will be held for UAV technology, robot technology and artificial intelligence development and application, and top academic forums will be held to promote the development of international cutting-edge technology.
3. International exhibitions on drones, robots and artificial intelligence industries will be held to promote exchanges among international cutting-edge technology industries.

Sponsor:

International Organizing Committee of UASACT International Exhibition Co., Ltd

Guidance:

Johor Bahru Government, Johor, Malaysia

Taiwan Drone-Education and Cultivation Association

The FTS Committee of the IEEE

Co-organizer:

Malaysian Autonomous Intelligence & Robotics Association, MyAIRA

fixture:

December 7-8,2024

Venue:

Educity Sports Complex, Johor Bahru, Malaysia

Competition Items:

2024 UASACT international AI robot and drones carnival competition, players according to the age into The Pre-teens group, Middle School group, High School group, Senior Division four groups, competition project including uav task competition, drones fishing competition, drones soccer competition, AI Robot Creative Track Competition, AI robot sumo competition, AI robot forest adventure competition and unmanned vehicle AI innovation application competition four categories.

divide into groups for competition		Pre-teens group	Middle School group	High School group	Senior Division
unmanned aerial vehicle flight contest	Uav task competition	◎	◎	◎	
	Drone fishing competition	◎	◎	◎	◎
	Drone soccer competition	◎	◎	◎	◎
AI robot contest	AI Robot Creative Track Competition	◎	◎	◎	◎
	The AI robot sumo competition	◎	◎	◎	◎
	The AI Robot forest adventure Competition	◎	◎	◎	◎
Unmanned vehicle AI innovative application competition			◎	◎	◎

Qualifications:

Senior Division

Team members must come from the same region or country and have any kind of identity certificate as passport, identity card, permanent residence card or student ID card of the region.

If one of the participating teams was born on September 1, 2005 (including), or does not have a high school status (including high school status), they will sign up for the advanced group competition. There shall be no more than 4 team members (excluding the team leader). If any of the members are under the age of 18 years old, they must start with the consent of their legal representative.

The Advanced group can give each team 1 coach.

Each team must have an adult as the team leader (the team leader can also serve as the coach). The team leader shall be responsible for contacting the executive unit, confirming the competition documents and receiving the prize money.

High School group

Team members must come from the same region or country and have any kind of identity certificate as passport, identity card, permanent residence card or student ID card of the region.

All the team must be born later than September 1, 2005.

There are no more than 4 team members (excluding the instructor), who are under 18 years old and must participate with the consent of their legal representative.

Each team must have 1 or 2 instructors (coaches).

Each team must have an adult as the team leader (the leader can serve as the instructor). The leader shall be responsible for contacting the executive unit, confirming the competition documents and receiving the bonus, etc.

Middle School group

Team members must come from the same region or country and have any kind of identity certificate as passport, identity card, permanent residence card or student ID card of the region.

The entire team must be born later than September 1, 2008.

There shall be no more than 4 team members (excluding the instructor), and the members shall participate with the consent of their legal representative.

Each team must have 1 or 2 instructors (coaches).

Each team must have an adult as the team leader (the leader can serve as the instructor). The leader shall be responsible for contacting the executive unit, confirming the competition documents and receiving the bonus, etc.

Senior Division

Team members must come from the same region or country and have any kind of identity certificate as passport, identity card, permanent residence card or student ID card of the region.

The whole team must be born later than September 1, 2011.

There shall be no more than 4 team members (excluding the instructor), and the members shall participate with the consent of their legal representative.

Each team must have 1 or 2 instructors (coaches).

Each team must have an adult as the team leader (the leader can serve as the instructor). The leader shall be responsible for contacting the executive unit, confirming the competition documents and receiving the bonus, etc.

Competition rewards:

Each player and coach will be awarded with certificates of IEEE FTS, Johor Bahru Government and UASACT Committee.

The top three players and coaches of each group can win the medal and medal of IEEE FTS, Johor Bahru Government and UASACT Committee.

Registration method:

Register and pay on the UASACT website from August 1, 2024 to November 7, 2024.

www.uasact.com

For more details, please refer to the official website of the conference.

Registration fee

The top three teams in the Taiwan final can register for the international final of one of the events for free.

Teams that are not qualified for recommendation or additional entries must first participate in the preliminary round of Johor Bahru, Malaysia on December 7, 2024, and strive to qualify for the top five finalists. The registration fee for each team is \$120 USD, including accommodation and transportation expenses.

Official website of the conference

www.uasact.com "2024 UASACT Malaysia International Registration Zone"

Registration method and payment materials

Please register on the official website, please go to the official website at www.uasact.com. Enter the "2024 UASACT Malaysia International Registration Zone" to fill in the registration materials of the google form, upload the copy of the registration fee, and complete the registration procedures after being confirmed by the organizing committee by email.

UASACT Promotion consultation

Email: service@uasact.com

UASACT 2024 Uav task competition method

UAV specifications and limitations such as:

Design specifications and limitations of UAV participating in flight application demonstration:

1. It should be able to fly in a space of 20 meters long, 20 meters wide and 10 meters high.
2. The flight display altitude is limited to 10 meters.
3. Protection against the body and rotor (or any propulsion).
4. The drone must have a wheelbase below 250mm.
5. Each team must choose the appropriate UAV type according to each challenge level type, and choose a maximum of 2 UAV types for the competition inspection, and start the competition through the competition inspection record.

Competition score

With no more than 4 team members (excluding the instructor), two competitors will be selected to challenge the "barrier crossing" respectively. Two players will place the plane at different H take-off points of the field and be on standby in the area. Start by the same group of the referee, two players relay execution area through the challenge, 2 players reed race time limit 2 minutes to complete the relay level, with higher total score team win, with points with flight total hours is shorter, if the time in milliseconds unit still with points, tied, after the sequence ranking can be replaced in turn.

task specification:

The total operation time of the two contestants is limited to 2 minutes. The drone takes off from different green H points, and each contestant passes through 10 scene obstacles along the path direction, and lands at different red H points at the end. The first runner's drone lands at the red H landing point, and the propeller stops before the second runner of the drone takes off. Each pass through the correct order of a door: give 5 points, a total of 10 doors, two players have a total of 100 points.

The upper height of the door is randomly 200/80 cm above the ground.

The door's circular crossing ring is approximately 60 cm in diameter.

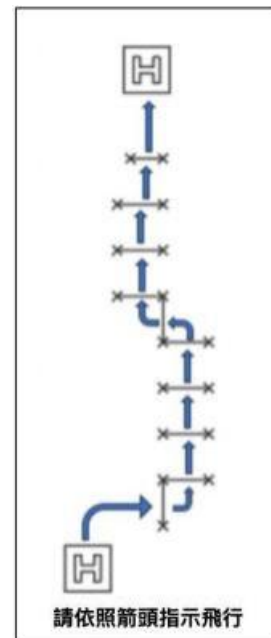
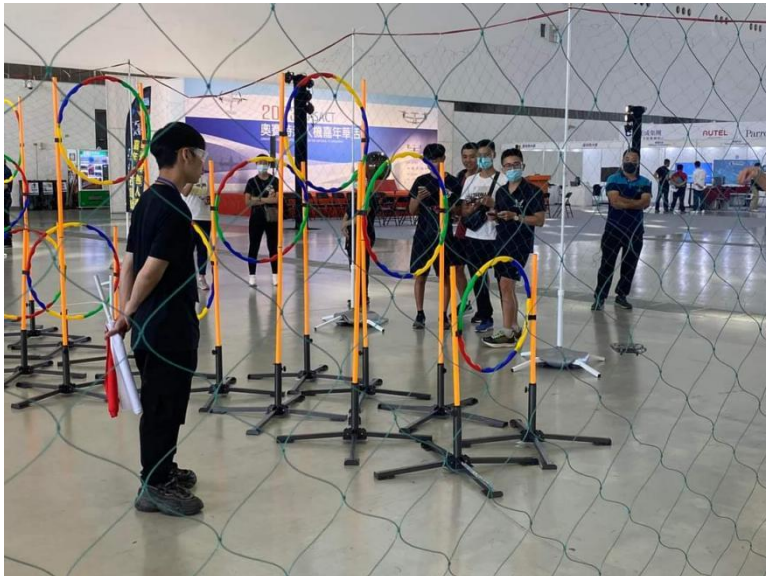
The distance between takeoff point H and landing point H is 8 meters plus or minus 50 centimeters, and each circular obstacle is

Plus or minus 10 centimeters from 70 centimeters, the circular obstacle path is as shown on the right.

rule:

Taking off from point H, you need to completely cross 10 obstacles in the order of the mission ring.

Rings, points are scored based on the number of rings completed. (The referee raises the white flag to proceed to the next contestant.)



UASACT 2024 Drone fishing competition method

UAV specifications and limitations such as:

Design specifications and limitations of UAV participating in flight application demonstration:

1. It should be displayed in the space range of 20 meters long, 20 meters wide and 20 meters high.
2. The flight display altitude is limited to 20 meters.
3. Protection against the body and rotor (or any propulsion).
4. The drone must have a wheelbase below 250mm.
5. The total weight of the aircraft after adding the fishing tackle must not exceed 250.
6. Each team must choose the appropriate UAV type according to each challenge level type, and can only use one UAV type to handle the competition inspection record, and the competition can be started through the competition inspection record.

Competition score

With no more than 4 team members (excluding the instructor), one contestant will be selected to challenge the drone for fishing. During the competition, the contestant will place the plane at the green H take-off point of the site and be on standby in the area. Starting by the referee's whistle, the contestant must complete the task within 2 minutes, and the team with the higher total score will win.

task specification

The operation time of the contestant is limited to 2 minutes, and the referee timing the drone according to the code table. The drone takes off from the green H point and uses any form of homemade UAV "fishing rod" accessories to achieve green or red fishing targets, and different difficulty targets represent different scores. Fishing tackle can be ready-to-use components or homemade, and the fishing target is 16 flags.

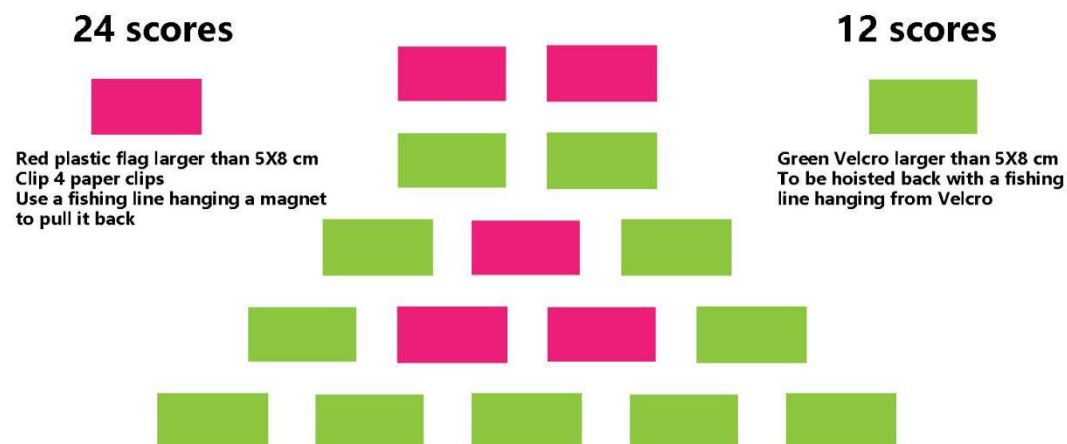
The flag contains:

1. Flag about the size of a standard business card
2. A wooden pole
3. Three different flag designs of fishing difficulty
 - 12 points: business card size both sides are covered with the devil felt green flag
 - 24 points: Brand size red plastic with 4 flags

The flag will be inserted in the hole, and the drone will not be blown away when fishing. Raise the flag removed out of the hole and successfully carry back to the landing point, which will score.

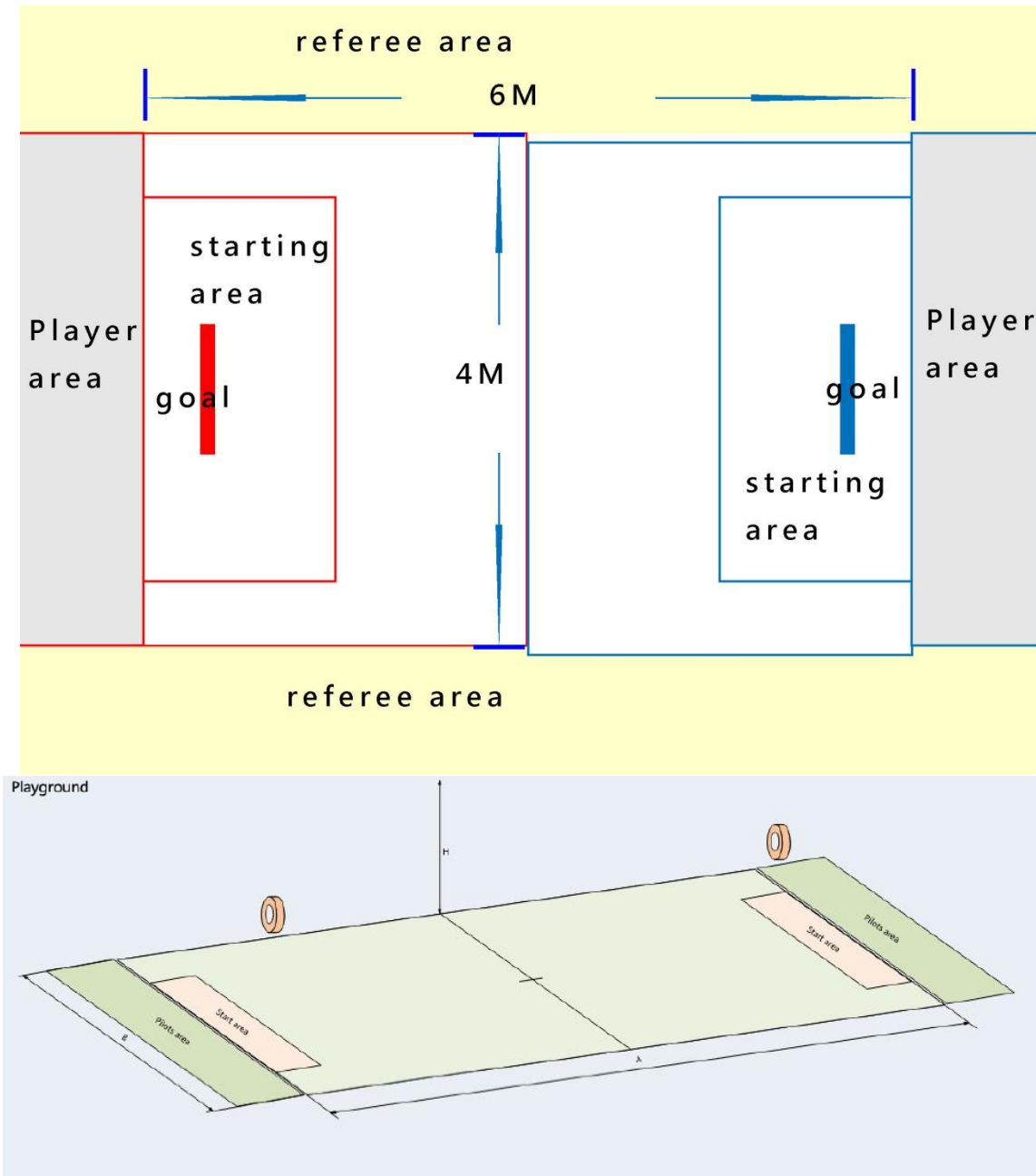
Drone fishing track setup instructions

The track is divided into five levels, each with a 40-centimeter cube carton extending (or other platforms of similar height) backward and upward. Arrange the bait flags in a number of 5-4-3-2-2 from front to back, as illustrated in the picture below.





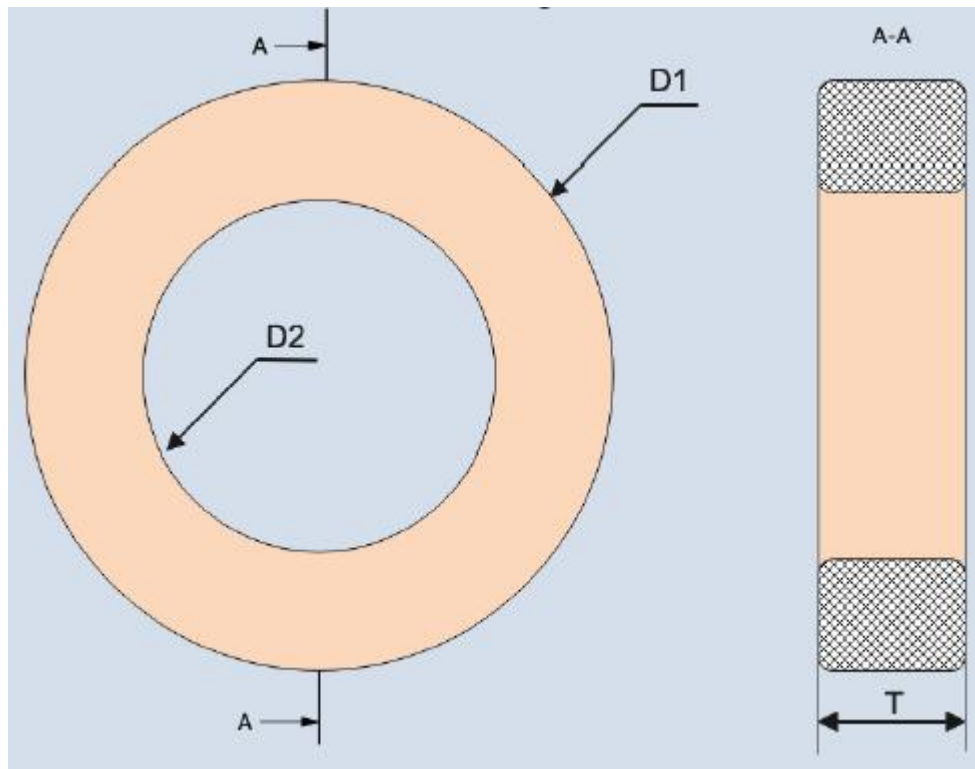
UASACT 2024 Drone soccer Rules (3 to 3)



- There is a safety net structure on all sides and at the top
- The size is short side 4 meters, long side 6 meters, height 3 meters
- Set up the center line in the arena (field)
- Set the "Start zone" from at least 1 meter away from the short edge of the arena
- The player controls the space on the short edge outside of the arena

goal

- The goal is round in shape, 70 cm (D1) outer diameter, 40 cm (D2) inner diameter, 10 cm (T) thick, and uses easy to identify colors.
- The goal position is located at the center of the short side of the field and a height of 1 meter above the ground, and a distance of 1 meter from the short boundary.



Ball UAV regulations

- The drone must use a circular outer frame, measuring from 16 centimeters to 22 centimeters in diameter
- The equipment weight shall not exceed 300 public grams (except for the display part such as player configuration)
- The ball drone of the team must be distinguished from the rival team to be clearly distinguished
- The striker's ball drone must also be clearly distinguished from other ball drones

Contestant rules

- One team consists of a maximum of 4 players (and less than 2 team leaders or coaches).
- The player can serve as the team leader.
- One team has 3 players at a time, and the number of drones is the same as the number of players.
- The players consists of "1 forward" and "2 attacking players".
- Only players can enter the player area.
- If the first team has less than two players, the game will be regarded as a waiver defeat.
- No change of players or remote controls are allowed.
- During the break between games, players can be changed.
- No remote controls with the exception of the players (if operated, the result will be dropped).

Rules for contestant equipment

- Wear any clothing, but it must be clearly identified as members of the team
- (Such as wearing hats, uniforms, vest, signs greater than A4 size, etc.)
- Strikers need to wear a luminous or display device to be identified as "forward"
- Wearable VR (first-person perspective device), and you can also carry a mobile phone
- A spare "spherical drone" can be prepared

- Do not wear or carry a "strong lighting device, radio wave jamming device" to hinder the opponent's attack.
- Do not wear or carry "sound devices" that hinder competitions.

court decision

- The referee and deputy referee judgment, the referee has discretion.
- The referee must be in a position where all players can be observed.
- If the judgment of the referee and the deputy referee is inconsistent, the referee shall be the main.
- The chief referee can use the video equipment installed in the field to confirm according to the need, and the judgment can be carried out many times.
- The qualifications of the chief referee and the deputy referee will be certified under separate regulations.
- Set up two deputy referees, located between the operating areas of the two teams, to observe the goal and the scoreboard.
- If the referee cannot make a judgment, the deputy referee can replace the referee.

fixture

- Each round for 3 minutes, each game for 3 games and 2 wins to determine the winner.
- Round rounds, tactical discussions is not allowed.
- The interval between rounds is five minutes for "repair" and "tactical discussion".
- (The time shall be decided upon and notified by the chief referee.)
- Even if there is no time to "repair" during the interval, it will not extend the time.
- If a team has less than two players when entering the turn, the team loses the match, in which case the referee can add five minutes to the interval before the next turn.
- From the announcement of 10 seconds before the start of the race to the end of the round, the game cannot be interrupted.

- (The referee can interrupt the game if there is a safety issue)
- If the race is interrupted for safety reasons, it can be resumed for the rest of the time.

Game control field

- Before the game, the left and right operating area is selected by tossing coins, which can not be changed during the game.
- Start and end
- 1) There will be a "sound" reminder 3 minutes before the start and at the end of the game
- 2) The game "start and end" will be informed by the "preparatory signal" 10 seconds ago
- 5) The start and end will be accurately informed in gestures and sound effects after the preparatory signal

score

- Get the score
- The "forward" "spherical drone" passes through the opposing team's "circular goal" to score.
- Continuous score limit
- 1) To limit consecutive scoring, all the "spherical drones" must return to their own half.
- 2) The uncontrollable "spherical drone" can not return to its own position.
- 3) If control is restored, you must return to your own position.
- 4) When the opposing position is out of control, report to the deputy referee and withdraw from the operation area.
- 5) Intentionally preventing the "spherical drone" from returning to its position and delaying the extra scoring time is allowed.
- 6) If the above provisions cannot be observed, the score will be invalid.
- Scores other than the "forward" are invalid.

penalty shot

- The Penalty Rules shall apply:
- 1) Take off before the start of the game signal.
- 2) Violation of the continuous scoring restrictions.
- 3) "Players on the field" stay in their own "circular goal" for defensive purposes.
- "Forward" are allowed to stay in their own "round goal".
- Time of serve: after each round.
- Method: "forward" and "field player" 1 to 1.
- "Forward" starts from the center line, and "players on the field" starts from the starting point.
- Time: each penalty time of 5 seconds, can continuously score (applicable to the continuous scoring provisions above).

victory or defeat

- The team with higher scores in each turn wins the round.
- If there is one score or no score, it will be a draw.
- In the three rounds, the team that wins the more rounds is the winner.

draw

- If the rounds were the same, a 3-minute extra time was played.

Violations and illegal acts

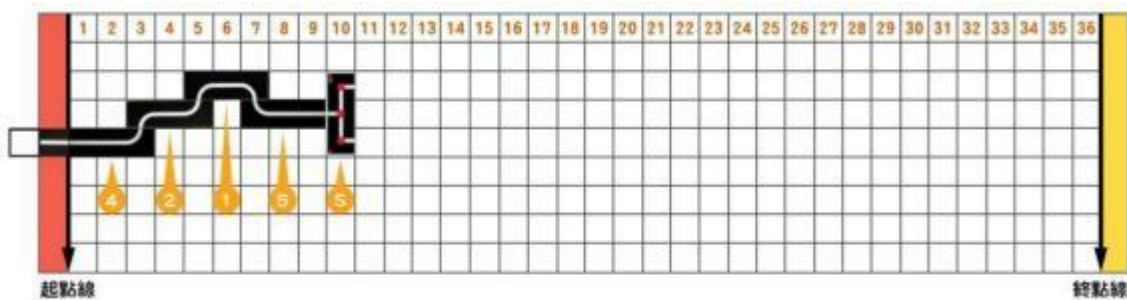
- Violations and wrongdoing include warnings, one-round failure, match failure, and three warnings in the same match will lose the round.
- warn
- 1) When the non-competition players stay in the operating area.
- 2) Move the "ball drone" before the signal of the game.

1. Robotic regulations

1. The robot must be wheel type, the length and height shall not exceed 20 cm, and the weight shall not exceed 1 kg.
2. The robot must use the battery as the power supply, and shall not be supplied externally.
3. The robot must move along the orbital white line, and its speed can be controlled by infrared or blue bud.
4. 3DP column prints can be used for modification.

2. Match diagram (Matchchart)

In the race, the track can be long (36) x (9) and 324, plus the end area and the extension of the back end.



3. Competition equipment and use rules

1. The wooden track block used in the competition is an elevated structure about 14.5 cm wide, the height of the track surface is about 6 cm from the floor, and the width of the white line on the track is about 2 cm.
2. The track block is divided into two lengths: length (about 43.5 cm) (No.1-5, S board) and short (about 29 cm) (No.6-9), as shown in the figure below.



3. The track surface is made of black and white line stickers from a large picture and pasted flat on the surface of the upper end of the track.

4. The starting point board is placed in the starting point area, only for the robot before the race timing, and not for the competition process.
5. S board is a long plate, with 1 or 2 entrances and exits on the long side, and red dots on the nodes, as shown in the figure.
6. Set up the supply station area on lines 9,18 and 27. The conference draws lots to select the supply stations in each supply area, and additional points will be obtained through the supply stations.

A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
B																													
C																													
D																													
E																													
F																													
G																													
H																													
I																													

補給区

補給区

補給区

補給站

補給站

補給站

▲ (Take the selection of 9F, 18D, 27E as examples, the actual position is mainly drawn on the day)

4. game

1. From the published track patterns, the conference randomly selects the topic boards and bonus points of each group for the competition time. Each group of players need to complete the track path planning, program modification, robot field test practice and inspection, practice and inspection of the time announcement on the day of the competition.
2. Track construction principle: When the player plans the track path, the four track boards of the title should form a "track turn" (according to the S board). The path of the robot from the starting point to the end point is composed of several "track turns"
 Combined, the track round must fully use the four track boards of the title, but do not limit the order of the tracks within each track round.
3. Each team can have up to three players off the match, and up to two players can operate the track construction together. The plan designed according to the topic of the day can be used by themselves.
4. The player should place the starting point board in the starting point area, and place the robot on the track of the starting point board. Arrange the first "track turn" designed by the track according to the route planning chart, and connect it to the end of the track of the

starting point board. The "track turn" cannot be planned in the starting point area.

5. When the player starts the robot, the rear of the machine passes through the starting line (between the starting point and the first line) and starts the time.
6. During the timing of the race, the same player can only pick up one track board of the robot at the same time, the first track board should be followed to the end of the built track; if the same player holds two tracks at the same time, it will be judged to violate the track construction principle-double lifting board.
7. Once the track is placed (the operator has left the board), the position, order and direction of the arrangement shall not be changed unless the robot passes through the track again.
8. Each group shall use the S board for several times according to the regulations.

Country group: you can decide whether to choose S board. If you choose to use S board, the rules will be compared to the middle group.

A													19	20	21	22
B	軌道回合 (4片題目軌道)															
C																
D																
E																
F													●	●	●	●
G																
H																
I																

▲ National group track round signal

Middle group: S board should be used once per round in each round, such as 12S34, 2S431... °

A													19	20	21	22
B	軌道回合 (4片題目軌道+S板)															
C																
D																
E																
F													●	●	●	●
G																
H																
I																

▲ Middle group track round signal

High school group: S board is used at the end of each turn, such as 1234S, 2134S... °

A													19	20	21	22
B	軌道回合 (4片題目軌道)															
C																
D																
E																
F																
G																
H																
I																

▲ High school vocational group track turn signal

9. "error" if the competition includes the following:

(1) bound: the track swing is beyond the range of the site map (the end area is not in this limit).

(2) Cheating: do not follow the white line of the track surface walking (the white line is not between the two power wheels).

(3) Falling track: midway off the track.

(4) Stagnation: in the track to produce back, turn in place or other discontinuous forward action.

(5) Interference: the players obviously touch the robot and affect the autonomous movement of the robot.

(6) Reuse: in violation of the track cloth construction principle, the S board is not correctly used according to the provisions, double lifting board.

(7) Timeout: the total time exceeds 2 minutes, and the finish line is not reached within the limited time.

10. Supply station bonus points: When the robot travels on the track board, the positive projection is completely through any supply station, and the bonus points can be accumulated. Each supply station can only be counted once; if the error starts from scratch, the round will be recalculated.

Number of stations through supply	Through 1 supply station	Through 2 supply stations	Through the 3 supply stations
Add points content	Plus 8 points	Add 18 points	Add 33 points

11. S Board specification: if the S board covers more than 1 / 2 of the plus point grid area, when the robot completely passes through the board (no cheating state), it is considered to pass through the plus point.

12. Competition details

(1) Limited time: the competition time is limited to 2 minutes. For those who still fail to reach the array, the judge will determine the current rear position of the robot as the result.

(2) The rear of the car starts timing through the starting line, and the rear of the car ends timing through the finish line. If the rear does not pass the finish line, if there is a "error", the timing will be suspended.

- (3) Score: the score of the race is the distance reached within 2 minutes (the number of the corresponding field is the score, the robot passes the finish line of the field, enters the finish area, and gets 37 points), plus the road

After the total score of the "supply station", the full score of a single game is 70.

- (4) The organizer reserves the right to modify and interpret the rules if there are anything not mentioned. If there is any dispute over the rules of the competition, the referee is still based on the judgment. If the rematch is adopted, it mainly depends on the results after the rematch.

13. Precautions

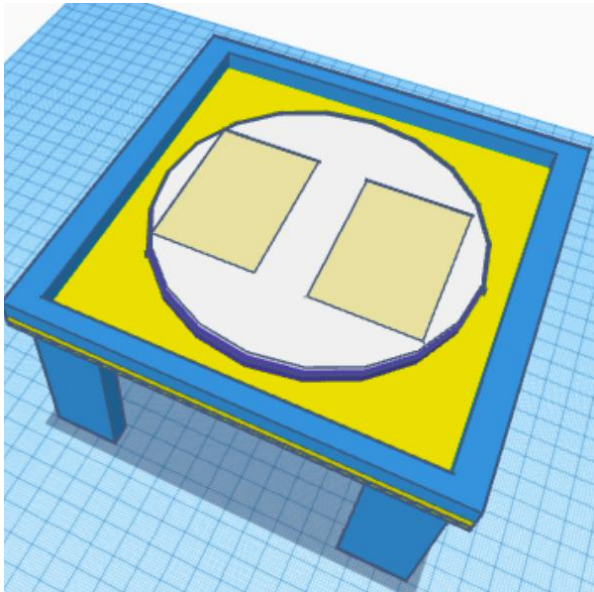
- (1) Please avoid any form of communication between the instructor and the contestants during the competition.
- (2) It is forbidden to carry and use any communication equipment, and the competition will be disqualified after seizure.
- (3) During the epidemic prevention period, the coaches should bring their own epidemic prevention equipment, masks, pencils, drinking water, etc.
- (4) The official does not provide the standard drawing paper, each team has their own use.
- (5) Operating equipment and computers need to prepare sufficient power supply by themselves.
- (6) Each team can bring its own map for practice. Each team is limited to one group, and must apply at the time of registration. The conference will allocate the time and practice area by drawing lots according to the situation of the venue.
- (7) Those who affect the order of the meeting place will be given a warning, and those who fail to listen to the meeting will be disqualified.
- (8) Non not on the spot are not allowed to enter the forbidden area of the competition site, and any unofficial photography will not be the basis of the referee.
- (9) The referee will record the result of the match, and the team shall sign it. If there is any objection, please raise it now.
- (10) If there is any doubt, it should be submitted to the referee on the spot before the match, and the judge will handle and judge it. Once the match begins, it will not be accepted. If there is any disagreement, the chief judge will be taken as the final competition result.

2024 UASACT International competition, robot sumo competition method

1. Robotic regulations

1. The robot must be wheel type (belt type), and the total weight of the machine must not exceed 2 Kg (including battery).
2. The robot must take the battery as the power supply, which shall not be supplied externally, the battery supply rated voltage shall be limited below DC9V, the referee shall have the right to check the battery during the inspection time, and does not meet the standards.
3. Before the inspection and competition, the overall length and width of the robot is 15cm (L, W) 30cm, and the height is 6cm (H) 30cm. The car body should not have deformation or extension structure. Except that the tire can contact the ground, other structures must keep more than 2mm from the ground. (2 mm plastic plate in and out)
4. The wireless remote control used by the robot shall be recorded together with the robot.
5. The robot should be designed to meet the specifications of the competition field. Please refer to the side size of the competition field.

2. arena



1. The competition site is with a diameter of about 120cm, canvas printed output, and placed on a rectangular race platform long and a width of 15cm, the boundary line is about 5cm wide, the boundary is obviously marked in red, the site may be uneven, the machine needs to overcome by itself.

2. The site is drawn with a blue prompt line.

3. The format description

1. The player shall draw the battle number during the registration. If the registration, registration or competition title fails for 1 minute, it will be regarded as abstention.
2. Each group will win double defeats, and two best of three matches will be selected in each competition. The first and second rounds of optional competition systems are divided into remote control competition and programming competition.

3. In the first round, the party with the lighter model will choose the competition system, and the second round will choose another one. If the third round enters, the party with the heavier model will choose the competition system.
4. In the remote control round, players can choose not to use the remote control.

4. game

1. In the competition process, the non-player team needs to leave the competition venue. If they are repeatedly persuaded, the relevant team will be judged to lose the competition qualification.
2. During the recording time, the team shall place the sumo car and remote control equipment in the recording area for inspection. After the recording, the team shall not add, modify, remove or change the sumo car state.
3. Each team should bring its own one sumo wrestling car. It is strictly prohibited to exchange equipment or parts between teams. If the relevant teams will be disqualified.
4. At to one player is play in each competition, and the preparation time is 1 minute. The equipment and the battery can be adjusted during this time, but the program or changing the machine is not downloaded.
5. Complete the selection of competition system before the start of the competition, the robots of both sides shall be placed on the preparatory line, and the forward projection of the machine shall not exceed, without limited face.
6. The referee announces the start. After the players start the sumo, the players from both sides must quickly retreat to the position designated by the referee to avoid human interference in the competition.
7. After the sumo car of both sides starts, they must retreat and touch their own black border line successively. If there is any violation, this round will be judged as failure and the opponent will win.
8. If the robot produces a situation, it is considered as a failure (the other side wins):
 - A. The robot is pushed off the site (any part of the car body is projected to meet the boundary of the red outer edge of the site).
 - B. The robot leaves the field on its own.
 - C. The robot does not comply with the competition regulations after maintenance.
 - D The unilateral robot stops still for five seconds.
 - E. The robot overturned, fell, and knocked down (the judgment method is that the power wheel has been unable to return to the original moving state).

F. The machine parts fall off and fall off the field (the judge determines that the object is more than 3 cm long or enough to affect the competition).

9. The time limit of each round is 1 minute, and the referee will end the moment with the time limit.
10. During the competition, if the parties is in confrontation (not moving), the referee has the right to decide the stalemate. The judge will read the seconds. After 5 seconds, the time will be suspended.
11. After the start of each round, no reassembly or replacement of all the components of sumo. At the end of each round, if one of them proposes the maintenance requirements, both parties can conduct maintenance at the same time, the referee announces the maintenance for 1 minute, only the competition players can repair, and the team members can not enter the field to assist the maintenance.
12. After the maintenance, both parties can organize the sumo or reorganize the fallen parts in place, but can not add or reduce any parts, or download the program or replace the battery.
13. The referee will record the result of the match, and the team should sign it. If there is any objection, please raise it immediately.
14. If there is any doubt, it should be submitted to the referee on the spot before the game, and the judge will handle and judge it. Once the game begins, it will not be accepted. If there is any disagreement, the ruling of the chief judge shall be the final resolution and shall not be disputed.
15. The conference shall provide the competition venue for the pre-competition test. The test time shall be mainly according to the time announced by the conference. Line up at the competition venue for sumo test.

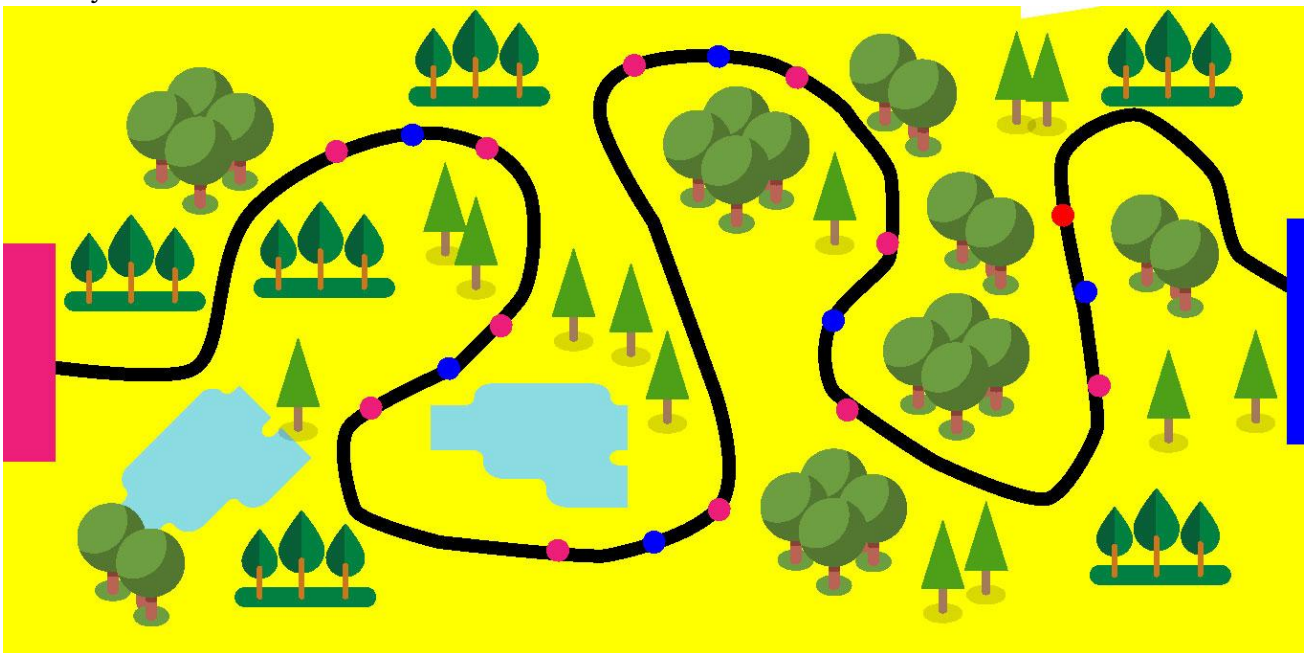
If the competition field is damaged or defaced during the competition, the competition shall be stopped immediately and the competition shall be won by the opponent.

2024 UASACT AI Robot forest adventure Competition regulations

1. The robot must be wheel type, the length and height shall not exceed 25 cm, and the weight shall not exceed 1 kg.
2. The robot must use the battery as the power supply, and shall not be supplied externally.
3. The robot must be able to move along the line section.
4. 3DP column prints can be used for modification.

2. site layout

1. The site is made of canvas surface, with 2 cm wide black as the track line of the forest lane, and the field map has different difficulty arc and broken lines are connected to each other (please refer to the figure below). Because the characteristics of the material may be uneven to some extent, the participating robot must be able to overcome such obstacles.
2. In the forest lane, there are four lane obstacles on the track line (middle round green; the capacity of the bottle is about 0.6 liters, cylindrical, no bottle cap, bottle mouth on the ground, the appearance may have a product label).
3. There are two warnings on the forest lane track line of about 30 cm in front and back. The red dots are made of red electrical tape.
4. In the lane behind the fourth obstacle in the forest lane, an animal robot appears that interferes with lane safety. After bypassing the fourth obstacle and then moving to the finish line, the robot should avoid the animal robot that interferes with lane safety.



▲ Site schematic diagram, the actual size is mainly provided on site

3. game

1. Inspection time, the teams must place the required machines in the designated inspection area.
2. During the game, the operator places the robot at the starting point. When the referee makes a whistle, the operator can start the robot to follow the black to the other point. Each team is limited to walking once.
3. Barrier avoidance stage: When the robot walks to the front of the Bote bottle, it must bypass the Bote bottle and the machine touches the bottle without touch, and complete in the red dot range, otherwise it is regarded as out of the black track line, and the distance between the red dot is about from the Bote bottle
30cm °
4. The competition time is 2 minutes.
5. Score table:

assignment	score
The robot walks from the starting point to the first bottle	10
The robot bypassed the first bottle to complete the obstacle avoidance phase	10
The robot walks from the starting point to the second bottle	10
The robot bypassed the second bottle to complete the obstacle avoidance phase	10
The robot walks from the starting point to the third bottle	10
The robot bypassed the third bottle to complete the obstacle avoidance phase	10
The robot walks from the starting point to the fourth bottle	10
The robot bypassed the fourth bottle to complete the obstacle avoidance phase	10
The robot bypassed the fourth bottle and successfully went to the end	20

6. The robot in the game, in addition to avoid treasure bottle and interference animals, cannot walk from black track line (i. e., the car body is projection is not all covered on the track line, in addition to the obstacle avoidance phase), also cannot reverse walking toward (starting direction), repeated walk has passed the track line, stop and spinning more than 5 seconds. When the car leaves the black track line, walks in reverse, walks repeatedly, stops still, turns in place or knocks down the

Bote bottle, the race is stopped and the task result is calculated at the current position.

7. When walking around the Treasure bottle, do not cross the past or adjacent track line.
8. At the end point, when the machine is projected into the black circle or causes a violation, that is, stop the timing and retrieve the machine at the signal of the referee.
10. After the race starts, the players shall not adjust or replace all the components of the walking car (including program, battery and circuit board, etc.), or require suspension.
11. The ranking will be ranked according to the sum of the competition scores. If the same score exists, the one with less team time will be ranked higher.
12. Matters not mentioned in these rules shall be decided by the referee on the spot according to the actual situation.

2024 UASACT Unmanned Vehicle AI Innovative Application Competition rules

Objectives:

The competition aims to promote the application of innovative unmanned vehicle AI technologies, encourage participants to develop highly intelligent and practical unmanned vehicle solutions, and promote the development of related fields.

Scope of competition works:

Intelligent unmanned vehicles, including but not limited to aerial vehicles, ground vehicles, water and underwater mobile vehicles that can be remotely controlled or independently guided by personnel, and have one of the functions of intelligent sensing, AI identification or dynamic vision, and can be applied to the research results or products of unmanned vehicles in any field.

code of points:

AI level (40 points):

- 1、 Artificial intelligence technology level: innovation in AI perception, learning, reasoning and decision-making in the competition scheme. The first order is intelligent sensing; the middle order is AI static identification; and the higher order is AI dynamic vision.
2. Technical realization: whether the technical realization of the competition scheme is advanced, feasible and complete.
3. Overcome technical challenges: To evaluate the degree of innovation of the participants in overcoming technical challenges.

Creativity and Design (30 points):

1. Application innovation: whether the solution is unique and creative, and whether it opens up new application fields.
2. System integration: whether the components of the solution work together, and whether the overall design is reasonable and complete.
3. User experience: the user interface, operation mode and overall user experience of the competition scheme.

Applications and practicability (30 points):

1. Practical application value: the applicability and practicability of the solution in practical application scenarios.
2. Cost-effectiveness: the realization cost and benefit ratio of the solution, including hardware, software and maintenance.
3. Scalability: Whether the solution is easy to scale to cope with application scenarios of different sizes and complexity.
4. Social contribution: the positive contribution of solutions to society, such as assisting in disaster response, improving public safety, etc.

matters need attention:

- ◆ The competition scheme shall ensure compliance with relevant regulations and safety standards.
- ◆ Any form of plagiarism or misconduct will be disqualified.
- ◆ Such scoring criteria cover technology, innovation, application, social impact and other aspects, which can help to comprehensively evaluate the advantages and disadvantages of the competition scheme.

Introduction of UASACT unmanned vehicle AI innovative application competition team works

Entry Number (completed by the sponsor)	
Team name	
The name of the work	
Participating projects (Optional)	<input type="checkbox"/> Unmanned aerial vehicle <input type="checkbox"/> unmanned water surface vehicle <input type="checkbox"/> unmanned vehicle
tutor	
team members	
introduction of the work	
<p>Please use no more than 500 words to summarize the design concept of your team, creative design motivation, design features, planning (appearance design, control system, intelligent learning system, power system, communication system, etc.), future development vision and business development feasibility.</p>	
Fill in the plan content on the next page	

UASACT Unmanned Vehicle AI Innovative Application Competition Enterprise Painting Book (including design drawings)				
The name of the work				
Work classification	<input type="checkbox"/> Unmanned aerial vehicle <input type="checkbox"/> unmanned water surface vehicle <input type="checkbox"/> unmanned vehicle			
Hardbody specifications	Length cm / width cm / height cm			
weight specification	Net body weight is kg		Compensation (excluding organism) _____ kg	
dynamical system	Max. speed (km m) _____ km/hr			
	<input type="checkbox"/> engine	<input type="checkbox"/> motor	<input type="checkbox"/> cell	
	discharge rate _____ C.C	Number _____ stars	Storage electricity _____ of Wh	
		Single weight _____ kg		
	Voltage _____ of kW			
Control and communication system	Remote control frequency _____			
	<input type="checkbox"/> Wi-Fi	<input type="checkbox"/> 3G <input type="checkbox"/> 4G <input type="checkbox"/> 5G	<input type="checkbox"/> analogy <input type="checkbox"/> infrared ray <input type="checkbox"/> not have <input type="checkbox"/> Other	
guidance system	<input type="checkbox"/> satellite navigati	<input type="checkbox"/> vision system	<input type="checkbox"/> inertial navigatio	<input type="checkbox"/> not have <input type="checkbox"/> Other
other technical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
other technical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
other technical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Import background	(Please specify the problem that the unit wanted to solve with importing the original unmanned vehicle application.)
Import situation	(Please specify the situation, service object, use mode, import effect, integration of unmanned vehicle application import.... It is recommended to present them in charts and actual photos.)
procedure declaration	(Explain the difficulties encountered in importing the unmanned vehicle application, and the solution.)
Specific suggestions	(Please specify the specific practice suggestions if other units want to introduce similar applications in the future.)
future expectations	(Please explain execution cost analysis, future import requirements, and subsequent refinement... etc.)
Estimate the display time	(Including the site layout time, limited to 30 minutes, to facilitate the arrangement of the race schedule.)

Design drawing (please post the design drawing file here: 3-5 pieces)

The last page of the comprehensive design selection plan: the plan is limited to 20 pages in A4 format, and please deposit it as PDF file to service @ uasact by email "attachment file". For com, the entire document shall not exceed 20MB

The film link	(Please list, the name and link of the unmanned vehicle application movie. The content will be posted on the
future expectations	(Please explain execution cost analysis, future import requirements, and subsequent refinement... etc.)
Estimate the display	(Including the site layout time, limited to 30 minutes, to facilitate the arrangement of the race schedule.)
other	(Other display related needs and problems, for the conference to arrange the schedule, if not need to fill

☐ **You have indeed read the relevant entry restrictions of this**

UASACT unmanned Vehicle AI innovative application competition rating table				
<input type="checkbox"/> Unmanned vehicle <input type="checkbox"/> unmanned vehicle <input type="checkbox"/> unmanned vehicle <input type="checkbox"/> unmanned vehicle		number:// NO.		
Name of work:		judgment:		
project	Scoring indicators	grade	full marks	remarks
AI technology standard	1. Artificial intelligence technology level: innovation in AI perception, learning, reasoning and decision-making in the competition scheme.		20	
	2. Technical realization: whether the technical realization of the competition scheme is advanced and feasible.		10	
	3. Overcome technical challenges: To evaluate the degree of innovation of the participants in overcoming technical challenges.		10	
	Project scoring		40	
Creative and design	1. Application innovation: whether the solution is unique and creative, and whether it opens up new application fields.		10	
	2. System integration: whether all components of the solution work in coordination and whether the overall design is reasonable.		10	
	3. User experience: the user interface, operation mode and overall user experience of the competition scheme.		10	
	Project scoring		30	
practicability take part in practicability	1. Practical application value: the applicability and practicability of the solution in practical application scenarios.		10	
	2. Cost-effectiveness: the realization cost and benefit ratio of the solution, including hardware, software and maintenance.		10	
	3. Scalability: Whether the solution is easy to scale to cope with application		5	

	scenarios of different sizes and complexity.			
	4. Social contribution: the positive contribution of solutions to society, such as assisting in disaster response, improving public safety, etc.		5	
	Project scoring		30	
total points			100	
The referee notes:		The referee signature:		