

# DRONES Competition 2024

## Participating Categories

**Primary 4th – 6th, Gymnasium, Lyceum, University, Special**

**(Based on the Categories of the other Robotex Cyprus Challenges)**

### A. GOAL

The goal of Athletes is to perform a demonstration Drone operation lasting 3 minutes, as well as perform a precision mission to be announced on the day of the competition.

The competitions requires precision in movements and correct calculations.

The regulations are based on the corresponding regulations of the Minoan Robotics Competition and have been adapted at various points for the competition in Robotex Cyprus.

### B. TEAMS

1. Teams and not individuals participate in the Games.
2. Each group can consist of two (2) – five (5) persons. The regulation applies as in the other Robotex Cyprus challenges for the participation of up to one person of age category X in a team of the next age category X+1.
3. Each team should nominate up to 1 Drone Operator. Only the Operator is allowed in the waiting area or play area. The rest of the team will remain in the team area or watch the game from the audience. If a team does not adhere to the above rule and its members roam the field then the team will be disqualified.
4. The team is allowed to change Operators in every attempt it makes on the track in order for all the members of the team to engage in the sport, but this is not mandatory.
5. For smooth participation in the competition, the coach must necessarily have 1 assistant for each of his 3 teams that will participate in the competition.
6. Each team is allowed to have only one Drone. It is forbidden to change the Drone during the competition.
7. Teams are not allowed to share the same Drone.

### C. DRONES CATEGORY

**ANY EDUCATIONAL, PROGRAMMED DRONE can be used (e.g. DJI Tello, LittleBee, Makeblock Airblock, 3D Printed mini Drone, DIY Drones etc)**

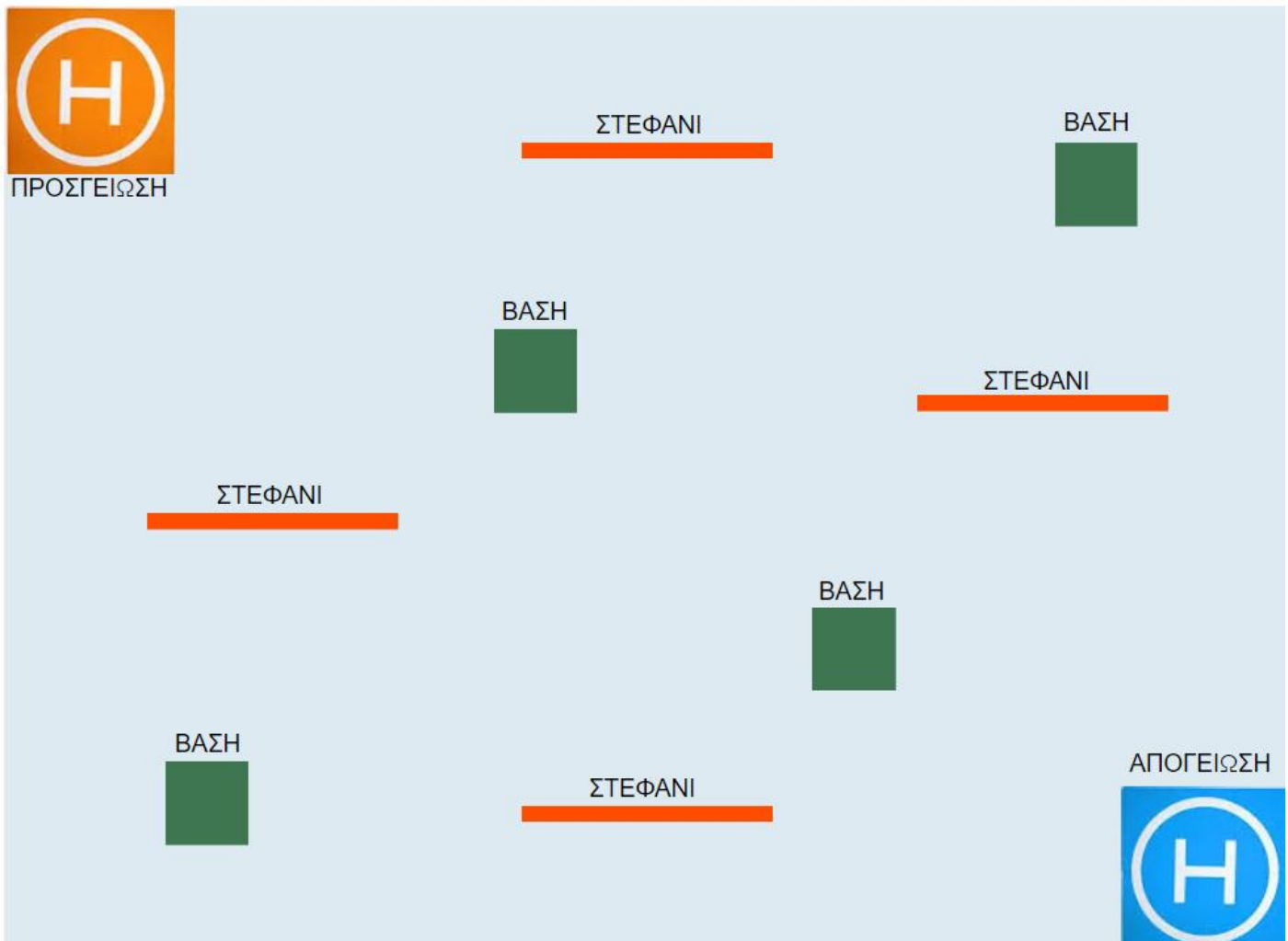
1. The Drone must be remote controlled.
2. Its maximum dimensions must be 20 cm Width x 20 cm Length
3. To confirm the specifications mentioned in the point above, the jury will check the dimensions before the Competition.
4. The Drone must not wear or damage the track or pose a threat to spectators in any way.
5. The Drone Operator **MUST WEAR** safety glasses both during the tests and during the race.
6. There is no restriction on the type/brand of the Drone, as long as it meets the above specifications.

7. The Drone should not have sharp edges with the exception of its propellers which should be plastic and not metal.
8. No form of gas for take off is allowed.
9. The Operator should be able to take control of the robot at any time in case of an emergency.
10. The Drone should not for any reason rise above the height of 2 meters. Violation of the rule is grounds for disqualification of the team from the match.
11. Teams must always follow the referee's instructions.
12. The referee can cancel any flight he considers dangerous and disqualify the team.

## **D. TECHNICAL CONTROL**

1. The initial technical inspection will take place on the day of the Games at a place and time to be determined by the organizers.
2. Technical control is carried out before the start of each phase of the Games.
3. Any failure of a team to arrive on time for a technical inspection of their Drone leads to the automatic exclusion of the team from the event.
4. Only your Operator is responsible for presenting the team's Drone for technical inspection.
5. The technical inspection includes the inspection of the Drone according to the conditions described above in the Drone Categories section.
6. In the event that teams have Drones that do not meet the above characteristics (e.g. they are smaller or larger in size or weight) and are interested in taking part in the demonstrations, they are requested to contact the Organizing Committee, giving the technical characteristics of the Drone . The Organizing Committee will decide whether the specific Drone will be allowed to participate.
7. All participating robots are allowed to compete only after passing the certification. This check will be carried out before the first flight and covers all the points listed below.
8. The robot must demonstrate its ability to remain at a flight height of 1 - 2 m without human intervention regarding height.
9. The ability to safely control the robot must be demonstrated by the team member who will operate the robot during the competition (robot Operator).
10. Robots must comply with all safety and security requirements.
11. It will be checked if the control number is present on the outer casing of the robot.

## E. DISPLAY SPACE - TRACK



### DEMONSTRATIONS

1. Demonstrations will take place in the closed area of the event.
2. The demonstration area will have various objects where the Drone can pass through, over, or take off or land on.
3. Objects can be on a stand, on the floor or even suspended
4. The layout of the objects will be revealed on the day of the Games.

### FLOOR DESIGN

1. The space is 5m x 5m
2. There are objects on the track where the Drone must pass through, over, or take off or land on.
3. Objects will not be suspended but at various heights from the floor.
4. On the track there can be up to 4 bases with dimensions 0.30 length x 0.30 width and different heights: 0.30cm - 0.60cm - 0.90cm – 1.2m.

5. On the track there can be up to 4 hoops with a diameter of 0.50cm to 0.75cm and in different heights: 0.20cm - 0.40cm - 0.70cm - 0.90cm.
6. On the track there are always 2 points of 0.40cm x 0.40cm each in two opposite corners designated as take-off (starting) and landing (finishing) points.
7. The positions and number of objects on the track will be revealed on the day of the Games.

## F. COMPETITION

### TEAM ATTEMPTS

Each team will have two (2) attempts of three (3) minutes duration each in order to complete the task in the specially designed area.

The two attempts will not be consecutive.

### COMPETITION PROCEDURE

At the start of the competition, the teams will have available the **special form with the description of the track assignment**; namely the route that the Drone will have to specifically follow.

Teams will have 1 hour to test their Drones. The time may increase depending on the number of groups.

Members of the organization will take care of the safety of the children and their tests on the track.

### After 1 hour has passed:

1. The Drone is placed in the take-off position that exists on the track.
2. The Referee blows the start whistle. The Operator should start the Drone 5 seconds after the whistle. If 5 seconds elapses, the flight is considered invalid. A restart is given to the Operator only on the first attempt.
3. The Drone should accurately perform the movements defined in the instructions.
4. The Drone should land accurately on the landing spot.
5. The maximum duration to complete the mission is 3 minutes. If a team exceeds this time the referee blows the whistle, the attempt is terminated and the team receives the points gathered up to that point.
6. In case of a failed or aborted attempt, and given that there is still available time to complete the attempt, the Operator may restart from the take-off point until the available time expires.
7. The order in which the teams will compete will be determined by the organizers and communicated to the teams prior to the beginning of the competition.
8. Each attempt will be completed for all teams before the next attempt begins.
9. The competition finishes when all teams complete their two attempts.

## **Not allowed:**

1. Drones use parts that can harm spectators.
2. Breaking the Drone into pieces or expanding it in any way during the match.
3. The way of performing the missions on the track should not be mixed up but in the order given in the written instructions.

## **IMPORTANT:**

Drones will be reviewed by the judges between the 2 attempts.

## **GRADING**

1. Correct vertical take-off from the starting point: 20 points
2. Correct vertical landing at the finishing point: 30 points
3. Landing on the 2 lowest bases 15 points for each base
4. Landing on the 2 highest bases 25 points for each base
5. Pass through the 2 lowest hoops 20 points for each hoop
6. Passing through the 2 highest hoops 30 points for each hoop

## **BAN A TEAM:**

In the following cases the team is excluded from the Sport and will have to withdraw.

Team results are not taken into account and are not included in the list of competition results.

1. If the team's Drone does not comply with the requirements specified in the rules of the Sport and the team refuses to adapt it.
2. If the Team Operator behaves in an inappropriate or indecent manner, curses or provokes or verbally or otherwise attacks teammates, coaches, the referees, members of the Organizing Committee, Volunteers or any person participating or watching the event.

## **G. WINNING TEAM**

For each age group separately:

1. A ranking is made based on the score of the teams in the category.
2. The team with the highest score in any of the two attempts takes first place, the next highest team in score takes 2nd place, etc.
3. In case of a tie, the points of the 2 attempts of each team are added. The winner is the team with the highest overall score. If a tie still occurs, the teams compete in an additional game in which they will complete immediately to decide the winning team in the category

Following the practice followed at Robotex Cyprus, a final attempt (best-of-the-best) will be held between the teams with the highest score in each category. For this final round, the teams make only one attempt of three minutes and a ranking is made to highlight the winning team with the highest score.