

# RULES OF ROBOTIC TOURNAMENT

## “XII Robotic Arena ”

### Dron ∞

“KoNaR” Student Interest Group  
Faculty of Electronics  
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## Section I

### General

#### § 1

1. This document regulates rules of the tournament in category “Drone ∞”.

## Section II

### Robot specification

#### § 2

1. Robots can't be pre-built, commercial construction.
2. Robots must be fully autonomous.
3. Robots can't weigh more than 2000 g extended by precision of a measuring equipment.
4. Robots may be type of a fixed wing ( plane, glider), rotorcraft ( helicopter, multicopter ), ornithopter (moving wings) or a blimp.
5. Ready to fly robots must fit in given dimensions:
  - (a) 1 x 1 x 2 m cuboid for blimps.
  - (b) 1 x 1 x 1 m cube for the rest.
6. Communication with robots during runs is forbidden.
7. Disabling robots remotely is an exception from the point above.
8. At any point during the competition robots speed can't be higher than 10m/s.
9. Robots cannot have any sharp edges or other potentially hazardous elements with exception to propeller blades.

10. Any flaming devices are not allowed.
11. Any devices that could emit gas, fluids or powder are not allowed.
12. Any devices that require flammable gases are not allowed.
13. Passive and active tracking devices in corners of the arena are allowed.
14. Supporting devices should have their own power sources
15. For safety reasons constructor has to have an option of taking direct remote control over the robot at any point in time.
16. Robots functionality cannot be dependent on varying environment during tournament, such as lighting (from dusk to bright reflectors), smoke, loud music or laser effects. The show may be lit by regular lightbulbs, halogens, energy saving lightbulbs, fluorescent lamps, LEDs and other lightsources common in households. Organizers have no control over street lighting near windows of the building. During the show it will be forbidden to use camera flashes and other intense light.

### **Section III**

#### **Route Specification**

##### **§ 3**

1. Route is in a shape of a lemniscate, 10m long and 5 m wide.
2. There will be two poles, 11 cm in diameter, 3 m high in the middle of each loop, within 5 m of each other.
3. The track, to facilitate navigation, will be marked with a black dotted line on a white background.
4. There will be no obstacles up to 3 m height.
5. There will be safety net extended around the route.

### **Section IV**

#### **Competition and Winner Selection Rules**

##### **§ 4**

1. The robot that earns most points within their designated 10 minutes will be the victor.
2. Points are earned for each full loop according to the flight direction at attitude of 1 to 2 m.
3. Robot has to be placed in the starting zone and started on referees mark.
4. Each ground or safety net touch stops the point count.
5. Constructor may decide to relaunch the robot as many times as he wishes, but points from each flight do not add to each other.
6. If multiple flights were completed within time limit, the highest score is written on the leaderboard.