RULES OF ROBOTIC TOURNAMENT

“ XIV Robotic Arena ”

LineFollower Drag

“KoNaR” Student Interest Group
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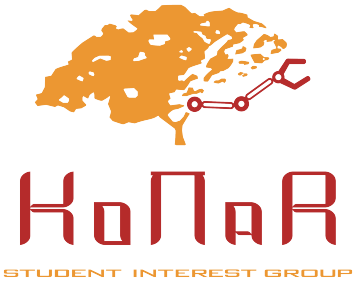

Section I

General

§ 1

1. This document regulates rules of the tournament in category “LineFollower Drag”.
2. In case of 3 or less robots, the category is played as a demonstration and no prizes will be awarded for it.

Section II

Robot Specification

§ 2

1. Robots **can not** be pre-built, commercial construction.
2. Robots must fit on a standard A4-size paper with allowed tolerance 5 %.
3. Height of robots is not limited.
4. Weight of robots is not limited.
5. Communication with robots during matches is forbidden exept:
   — remotely enabling robot
   — remotely disabling robot

§ 3

1. Robots must be fully autonomous.
2. Robots must be designed in such way that it would be possible to activate it on judge's signal.
3. Robots can be equipped with "EDF" (Electric Ducted Fan) or other active devices for improved adhesion.
4. Robots functionality can not be susceptible to varying environment conditions during tournament, such as listed below:
   - lighting conditions
   - smoke
   - loud music
   - laser effects
5. During the show it will be forbidden to use camera flashes and other intense light sources.

   ∘ **Notice:** The route may be lit by regular lightbulbs, halogen lights, CFL, CCFL, LEDs and other lightsources that could be encountered in regular households. Organizers have no control over street lighting near windows of the building.

Section III

Route Specification

§ 4

1. The route is defined by black line that has width of up to 2cm that must be placed on white background.
2. The route is approximately a straight line with length from 15 to 45 m.
3. The route includes breaking zone with length from 5 to 10 m.
4. The route can not be a closed loop.
5. The route can not include any kind of sharp turns such as 90° turns.
6. The route can not include any crossroads.
7. The route can not include any inclines or declines.
8. The route can not have breaks in line, bifurcations or any obstacles.
9. The route area is defined by rectangular shape, which fully includes the route in it. The route area will be defined as soon as exact shape of route will be agreed on.
10. The light gates (time measuring devices) must be placed perpendicularly to line and have no less than 170mm distance from each side of the line.

    ∘ **Notice:** Surface of the route might be built from many components that are connected toghether in such fashion that gaps and any possible set-offs would be eliminated as mutch as possible.

Section IV

Competition

§ 5

1. Competition will be conducted in two stages:
   (a) Elimination stage
   (b) Finals
2. Order of matches in elimination stage will be decided by judge.
3. In order to pass to finals construction must be amongst eight of the best construcions that participated in elimination stage.
4. Matches in finals will be held based on the schedule given by the judge.
5. Judge could decide whether only one final stage would be taking place, if it is the case than:
   (a) Every robot that succesfully compleated registration process could participate in final stage.
   (b) Matches in finals will be held based on the schedule given by the judge.
6. Each stage results will be announced only after the stage is finished.

Section V

Winner Selection Rules

§ 6

1. Before the start of the pass, the participants must place the robots on the start line as instructed by the judge.
2. Robots are started on the signal of the judge.
3. The false start takes place when robot crosses the start line before the judge's signal.
   (a) The first false start restarts the pass.
   (b) After the second false start the pass is concidered unfinished.

§ 7

1. Leaving the route by the robot takes place when the robot contour compleatly leaves the route.
2. Robot that left the route in order to continue the pass should autonomously get back on the route at the point where it left the route or earlier.
3. If the robot leaves the route and gets back on it farther ahead from the point where it left, it is concidered shortcutting.

§ 8

1. Time of each pass is counted from the moment when robot crossed the start line to the moment when robot crossed the finish line.
2. Robot is concidered to cross start or finish line if any part of it crossed the start/finish line.
3. Time of each pass is counted by light barriers setted up on each side of the track or in case of light barrier malfunction it is judge's duty record precise time at which robot had passed route from start to finish.
4. The light barrier has at least 1 sensor, placed 1cm above the route's surface.
5. It is recognized that robot had passed the finish line when:
   (a) Light barrier records robot passing finish line.
   (b) In case of light barrier malfunction it is judge's duty record that robot had passed finish line.
6. Robot can not cross finish line before it crossed start line.

§ 9

1. There is 3 minute limit on each pass.
   (a) 3 minute countdown starts right after judge's signal.
   (b) If robot fails to cross start and finish line before 3 minute limit ends pass is concidered unfinished.

§ 10

1. **The pass is concidered unfinished when:**
   (a) The robot leaves the route area.
   (b) Robot shortcutted route.
   (c) Second false start takes place.
   (d) Robot exceeded 3 minute limit on the pass.

§ 11

1. If the phase is taking place on 1 track, the shortest time of pass is considered in final classification of the phase.
2. If the phase is taking place on 2 tracks, the biggest amount of the points (obtained in duels of randomly selected pairs of robots) is taken into consideration in final classification of the phase.
3. Final classification of the phase is determined on the rules defined in this paragraph.