



SUMO CHALLENGE: LINE FOLLOWER REGULATIONS

LINE FOLLOWER 31/10/2015

[includes regulations of: Line Follower, Line Follower Turbo, Line Follower Enhanced]

12/10/2014 Competitors with Line Follower Enhanced robots please refer to the paragraph 3.3 (possible obstacles).

Section 4.8 is added (identical robots are not allowed).

1. Short description of competition

The aim of this competition is to complete the route and get to the finish line as fast as it is possible. There will be held three different competitions:

- Line follower (Line Follower classic)
- Line follower Turbo (Line follower with turbines)
- Line follower Enhanced (Line follower with obstacles)

2. System of the games:

Competition will be divided into two stages.

- a) qualifying round - each robot has unlimited number of attempts to complete the route during the time of qualifications determined in a schedule. The best time decides which robots qualifies to the next round
- b) final round: each robot has 2 attempts to complete the route. The final order is determined by the shortest lap time.

3. Course definition

The course is designated by a black line (approx. 19 mm wide) placed on a white background.

3.1) The course will have a closed shape (the same line for START and END) with possibility of more than 1 lap to go

3.2) The track will consist of one or two HDF plates (with height 3mm) properly connected to each other. On plate connections there could be minimal interruptions and steps - though the number of such inequalities, and their size will be reduced to a minimum.

3.3) Possible obstacles in Line Follower Enhanced

Interruption in a line:

- the course may have interruptions in a line with the maximum length of 10 cm
- interruption won't be placed in a curve, therefore a straight extension of the line will lead to the continuation of the course.
- there is possibility of a sequence of several short interruptions

Wall:

- approximate dimensions (length - 25 cm, width - 12 cm, height - 6,5 cm)
- the robot has to drive around the obstacle to reach the continuation of the line.
- touching the obstacle by the robot is allowed
- the route will be constructed in a way that robot will be able to pass the obstacle along it's right side
- the robot has to reach continuation of the line in a distance not more than 40 cm behind the obstacle

Intersection:



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- on the course, there could be several different variants of intersections . Robot must go straight through the intersection.

Inverted colors:

- the track may include a part of size 50x50 cm, where the course will be a white line on a black background
- robot has to adapt to the different colors of the ground

Double line:

- on the course there could be a part with double line – course consist of two parallel lines with 20 mm space between (so the same width as the course)

Tunnel:

- on the track may be a tunnel with at least 35 cm width and height
- robot has to follow the line despite the changing of the light conditions

The Organizers decide about the kind of obstacles used in the competition. They make it on the day of the competition. If it turns out that one of the obstacles is too complicated for the most of the robots, Organizers reserve the right (but not duty) to remove it from the track.

4. Robot characteristics

- the robots main outline has to fit on a A4 paper sheet.
- the robots weight is unlimited.
- the robot has to be autonomous. Communication with the robot during the race is forbidden (only remote starting and shutdown are permitted)

4.1) Robots in category Line Follower (LF classical) cannot contain parts that actively increase their pressure to the ground (in particular tunnel drives)

4.2) Robots that contains parts that actively increase their pressure to the ground participate in Turbo Line Follower (LF with turbines)

4.3) One robot cannot compete in Line Follower and Line Follower classes during the competition.

4.4) On player's request, the robot without the turbine can participate in Line Follower Turbo

4.5) In the category of Enhanced Line Follower (LF with obstacles) does not apply division for robots with or without turbine.

4.6) In order to register the same robot for two competitions (LF Standard and LF Enhanced or LF Turbo and LF Enhanced) you should fill in the registration form twice.

4.7) In case of a small number of players, the organizers reserve the right to unite Line Follower and Line Follower Turbo categories in one.

4.8) Two identical robots cannot compete in one competition.

5 . Game rules

The robots are placed on the start line. They start at the referee's signal. If the robot lost the line it must find it without any external interference. Taking shortcuts by the robot is forbidden. The lap time cannot exceed 3 minutes.

5.1) The time is measured by an electronic photocell or by referee with a stopwatch, based on the availability of the equipment.



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6. Remarks:

It is permitted to use in competition off-the-shelf constructions being in the official sale, however their results will not be considered in final order (they cannot win prizes). If the robot is a modified version of the commercial construction, please contact the organizers to agree on the rules of participation. Robots that are built from bricks not exactly meant for this competition (i.e. Lego) can participate on a regular rules.

The competition can take place in variable lighting conditions. Sensors should be protected from the adverse effects of the light. It is forbidden to walk on and around the track in order to provide additional shade on the route.

Referee's decision is final and there is no appeal on it.

The referee decides in every situations which is not included in the Regulations.

Robot is considered as an integrated whole – no part (excluding batteries) can be used in other robot.

Organizers have rights to make minor changes in the regulations until the start of the competition.