

# Line Adventure

**Short Description:** The objective of this contest is to complete the course in the shortest period of time while accurately tracking the course line from start to finish.

## 1. General Requirements

- 1.1. **Size and Weight Limits** The maximum size of a robot is 30 x 30 cm, the maximum weight is 3 kg. Dimensional and weight limits for robots shall be strictly enforced. Robots must have passed inspection prior to competing.
- 1.2. **Course Time** Time is measured from crossing the start line until the robot crosses the finish line. A robot is deemed to have crossed the line when the forward most part of the robot contacts or crosses over the line.
- 1.3. **Time Limit** A maximum of 3 minutes is allowed for a robot to complete the course. A robot that cannot complete the course in the allotted time shall be disqualified.
- 1.4. **Timekeeping** Time shall be measured by an electronic gate system or by a judge with a stopwatch, based on the availability of equipment. In either case the recorded time shall be final.
- 1.5. **Autonomous Control** Once a robot has crossed the starting line it must remain fully autonomous, or it will be disqualified.
- 1.6. **Arena Edges** A robot that wanders off of the arena surface will be disqualified. A robot shall be deemed to have left the arena when any wheel, leg, or track has moved completely off the arena surface
- 1.7. **Losing the Line** Any robot that loses the line course must reacquire the line at the point where it was lost, or at any earlier (e.g. already traversed) point.
- 1.8. **Course Specifications** The line following course shall traverse a white rectangle. The line shall be black, 15-20 mm wide. There shall be a starting area at the beginning of the course and an exit area at the end. The line course starts inside the starting area and ends inside the exit area. The start and end points of the line course shall be clearly marked via a transverse line. There shall be a 10 cm gap in the starting and finishing lines where the line course passes through them.

### **Characteristics of the line course:**

- A. There may be junctions and intersections
- B. Switchbacks and hairpins are possible, but the adjacent sections of the line shall be no closer together than 11cm when measured from the center of each line.
- C. The closest approach of the line course to the edges of the arena shall be no less than 11 cm, measured from the center of the line.
- D. The minimal curve radius is 5.5 cm. E. Sharp angles may occur, but will not be smaller than 90°.

## 2. Obstacle

- 2.1. **Interruption** On one place on the course the line is interrupted for 10 cm. The interruption won't be placed in a curve. Therefore a straight extension of the line will lead to the continuation of the course.
- 2.2. **Obstacle** A brick (approx. 25 x 12 x 6.5 cm L x W x H) will be placed on the course. The robot has to drive around this brick to reach the continuation of the line.
- 2.3. **Seesaw** A seesaw (see Figure 1) is placed somewhere on the course. The length of the seesaw is at least 50 cm. The axis of the seesaw is mounted at most 12 cm above the ground. The black line continues on the seesaw.

