



2nd Baguio City Robotics Cup Open

Game Description, Rules and Mechanics

Line Following [High School to College]

April 26, 2020

St. Vincent Gym, Naguillian Rd., Baguio City

Version 1.1 January 2020

1. Game Description

The objective of the challenge teams will compete by designing, building, and to program a line following robot to complete the course in the shortest period of time while accurately tracking the course line from start to finish.

2. Robot Specifications

- a. The robot must be autonomous. Line Followers must be self contained, and not externally operated by wire or by remote radio control during the race.
- b. Throughout the race (including the start) no external connection is allowed.
- c. The robotics platform to be used is at the discretion of the team members (i.e. Lego EV3, NXT, Makeblock, UBTech, Vex, Arduino, Micro-bit, Inex, etc.). They may also combine robotics models such as Lego and Arduino.
- d. The maximum dimensions of the robot are 25 x 25 x 25 cm.
- e. The robot must not damage the field or endanger the spectators in any way.
- f. It is forbidden to use higher voltage than 24 V in the robot.
- g. The robot must have a start and/or stop button.
- h. Dimensional limits for robots shall be strictly enforced. Robots must have passed inspection prior to competing.

3. The Track

- a. Playing field ground is white. The track is marked by a black line, approx. 1.8 cm wide.
- b. The racetrack shall comprise of straight lines and arcs within the confines of the base-board(s).
- c. The track will contain crossroads.
- d. The racetrack may have arcs with different curvatures linked continuously.
- e. A starting marker and finishing marker are to be affixed at the starting line and the finishing line of the track pointing in the direction of the race.
- f. Sharp angles may occur, but will not be smaller than 90°.
- g. Complaints about the grip on the track surface will not be entertained.

4. Game Rules

4.1 Registration

- a. Teams must register at the registration table to gather their name badge at least 30 – 45 minutes before the scheduled competition time.
- b. Each robots needs to fulfill the registration requirements in order to be able to compete.
- c. All robots will be checked and a technical inspection in the day of the competition.
- d. Each team will be given a number which they must put on the robot during the competition. This will be the robot's registering number and should be visible at all times.
- e. The organizers discourage teams participating with a robot not built by themselves. Due to that, during Robot Registration, they may ask the team to prove its contribution in the build of the robot.
- f. If a team's members are unable to prove their robot was made by them, the organizers reserve the right to deny the robot's registration, leading to its inability to take part in the competition.
- g. Competitors together with their robots will be escorted to their table by a marshal.
- h. A picture of the team and their robot will be taken.

4.2 During the Event

- a. From the moment a robot is registered until the competition officially begins, each participating team may test its robot.
- b. The competition queue will be either drawn by lots or determined according to the order of registration.
- c. The Line Follower shall have a specified maximum number of attempts to run the track within a stipulated time limit (typically 3 to 5 minutes and 3 attempts to be decided by the organizer on the day of the race).
- d. If the attempt time limit is reached and the Line Follower is in the midst of a run, the Line Follower will be allowed to complete the run and the lap time will be valid if the run is successful.
- e. When the competition starts, each team will be called out by the referee and has 2 minutes to come to the track for the attempts.
- f. If the 2 minutes expire and the team does not show up, the next team will be called out. The team running late may show up later during the current round. If the team does not show up until the end of the current round, their attempt will be recorded as the stipulated time limit.

- g. Each team has the right to number of attempts. There will not be consecutive attempts. The best time will be taken into consideration.
- h. Each team has the right to reprogram the robot between attempts and/or the team is allowed to replace batteries.
- i. The robot will be brought to the start line by only one team member. When the referee gives the start signal, the team member must exit the track. From the moment the signal is given, the robot has a certain period of time (as stipulated) to complete the track.
- j. 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. If the robot cannot recover, it is allowed to have one more single attempt within the stipulated attempt time window.
- k. If a robot malfunctions during an attempt, its team has 3 minutes to fix it. If it either cannot be fixed or is not fixed during that time period, the attempt is considered finished and the recorded time will be the stipulated attempt time limit.

4.3 Scoring

- a. The ranking is determined by the time the robot travelled from the start to the finish line. The time is measured from referee's signal to the moment the foremost part of the robot crosses the finish line. The robot must be fully behind the start lane before the race starts.
- b. If a robot is released from the starting mark before the referee signal that team will have a three second penalty.
- c. Judges decisions are final.

4.4 Power of Officials

- a. If a robot or a participant violates the rules, the referee may disqualify them from the competition.
- b. The organizers reserve the right to make changes to any of the above in the interest of fair play and sportsmanship, and to ensure that all competitors have an enjoyable competition.
- c. In the event of ambiguity, the organizers' interpretation of any clauses of the rules shall prevail.
- d. The organizers may change the rules without prior notice, e.g. based on number of participants, local conditions etc.

4.5 Awarding

- a. All contestants are requested to be there to receive their awards.
- b. The awards are as follows:
 - 1. Champion
 - 2. 1st Runner-Up
 - 3. 2nd Runner-Up

4.6 Declaring Objections

- a. The coach of a team can present objections to the Marshall, before the attempts is over, if there are any doubts in the exercising of these rules.

5. Liability

- a. Participating teams are always responsible for the safety of their robots and are liable for any accident caused by their team members or their robot.
- b. MGE Advance Computing Solutions and the organizing team members will never be held responsible or liable for any incidents and/or accidents caused by participating teams or their equipment.
- c. MGE Advance Computing Solutions and its partners and sponsors shall not be responsible for any lost and stolen models during the competition.