

BCU TechFest Drag Race Rules

The aim of this event is for the robot to travel as fast as possible over a straight course rather like that used for full-size drag racing, then to come to a standstill before reaching the end wall. Two robots will race against each other in a knockout competition where the first robot across the line (allowing for time penalties) in the final will be classed as the winner. The timed run begins when the starting light changes to GREEN and finishes when the robot crosses the finishing line. The handler must start the run at this point (push-button or other means). Both robots will be timed independently.

3.1 General Rules

- 3.1.1 Robots must actively follow the white line down the centre of the track.
- 3.1.2 Robots will incur a time penalty of 5 seconds for:
 - hitting the end wall.
 - requiring manual intervention to continue (touch penalty)
- 3.1.3 Robots will be disqualified for:
 - 'jumping' the start i.e. they are over the start line when the start light is illuminated.
 - falling off the edge of the course.
 - touching the safety barriers (if fitted) at the edge of the course.
 - interfering with the robot in the other lane in any way.

3.2 The Drag Race Track

- 3.2.1 Each lane on the track is 7.2 metres long by 0.4 metres wide. The lane surface will be painted matt black. A 19 mm (nominal) wide white tape is laid up in the middle of the lane - this is typically white pvc insulation tape.
- 3.2.2 The start box occupies the first 375 mm of the track with the start line being defined by 19 mm white tape.
- 3.2.3 The track will be laid as flat as possible, but robots should be able to cope with a step of up to 1 mm across the track where the boards are joined.
- 3.2.4 The finish line is defined by 19 mm white tape.
- 3.2.5 The braking area comprises the final 1.2 m of the track. A crash-block (e.g. a block of polystyrene foam) will be placed at the end of the braking area. If the foam is displaced by a braking robot, the 5 second penalty will apply. A catch net may be provided behind the polystyrene to arrest out-of-control robots. The organisers take no responsibility for damage to the robot caused by over-running or leaving the track.
- 3.2.6 The start and finish lines extend 100 mm in from the sides of the course. There is a 75 mm gap between the centre line and the start and finish lines.

- 3.2.7 At the organiser's discretion, a safety barrier up to 20 mm above the track surface may be fitted to the sides of each track.
- 3.2.8 The surface is 12 mm MDF painted with blackboard paint. The general tolerance is $\pm 5\%$ or 3 mm whichever is greater.

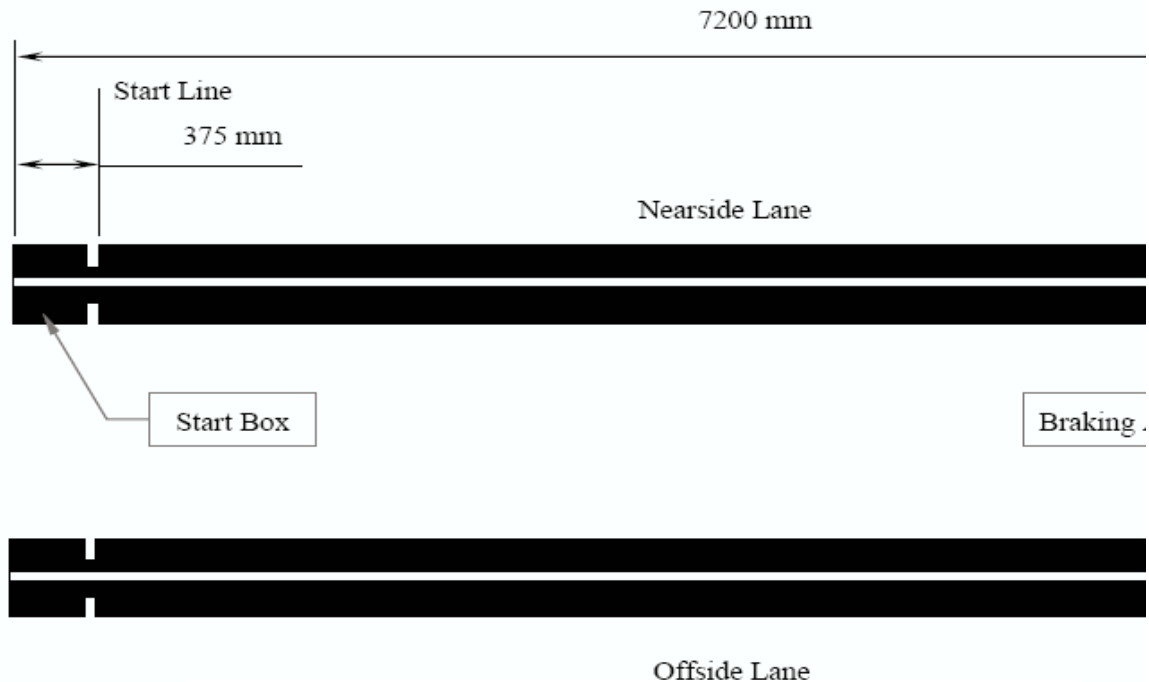


Figure 3.1. The Drag Race Track

3.3 Timing of Runs

- 3.3.1 A 300 mm high gantry will straddle the track at the start and finish line.
- 3.3.2 A start beam will detect jump-starts.
- 3.3.3 The start beam will be aligned with the far edge of the start line.
- 3.3.4 The finish beam will stop the timer.
- 3.3.5 The finish beam will be aligned with the near edge of the finish line.
- 3.3.6 The timing system will use infra-red sources across the start and finish lines, at 25 mm (nominal) above the base board. It is the responsibility of the designers to ensure that their robot is not adversely affected. This may be accomplished by appropriate screening of line and marker sensors, software filtering techniques, or by other means.