**Faculty of Engineering and the Built Environment**

**Department of Electrical Engineering**

**EEE3061W Robot Race Demo 2015**

1. **SCOPE**

This specification applies to the robot race to be demonstrated in EEE3061W in 2015. The race is part of the biathlon event.

1. **APPLICABLE DOCUMENTS**

Course notes

1. **SPECIFICATIONS**
   * The robot must fit in a volume 100 x 150 x 75 mm.
   * The robot must be self-powered (battery)
   * The robot must be autonomous and use the STM32F0
   * The robot must only use the two motors provided.
   * The robot must run in a straight line till it reaches the end – and stay within a 50 cm lane.
2. **ACCEPTANCE TEST REQUIREMENTS**
   1. Robots are to be demonstrated in designated slots on 15 May. This session may run from 13h00 to 15h00.
3. **DOCUMENTATION REQUIREMENTS**

* A document containing: A photograph of the robot (clearly showing leg design and body layout) and a rendered Solid Works image of the leg design.
* **This is a DP requirement**

1. **Mark breakdown:**
   * 50% for timed race
   * 50% for other stuff (starting correctly, robot, etc.)
2. **Testing procedure:**



Part 1: (Race)

1. Robot will be placed at start line
2. Start will be signalled (green light)
3. Timer will begin (stopwatch)
4. Robot must run to the finish line (not sense the end)
5. The robot deviations out of the lines will be penalised.
6. When robot reaches end, timer is stopped.

Marks will be given for the fastest time and ranked accordingly. Then, using these marks the relevant penalty will be deducted. See figure above.

Part 2: (Robot)

1. Robot will be examined by the TA/tutor

Marks will be allocated according to the rubric

1. **Extra Remarks**

* **A test setup will be available in the White Lab for you to test your robots**
* **For any other issues you are unsure of please speak to the course convenor or TA.**

1. **Marking rubric**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Group |  |  | Names |  |
|  |  |  |  |  |
| Task: Running Robot |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Description | Total | Mark | Penalty (%) | Comment |
| Robot in a volume 100 x 150 x 75 mm. | 10 |  |  |  |
| The robot must be self-powered (battery) | 5 |  |  |  |
| Robot detected start light. (Y/N) | 5 |  |  |  |
| Robot must be autonomous | 5 |  |  |  |
| Robot must use two motors | 5 |  |  |  |
| All legs must operate in a cyclical fashion. | 5 |  |  |  |
| All legs lift off the ground at some stage | 5 |  |  |  |
| The entire weight of the robot must be completely supported by the robot’s legs. | 5 |  |  |  |
| Neatness of robot (electronics+mechanical) | 5 |  |  |  |
| Timed Event | 50 |  |  |  |
|  |  |  |  |  |
| Comments |  |  |  |  |
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