**THINK AND ANSWER: PHASE 3**

The goal of this sheet is to make you all think the way you should in order to design the Control-O-Bot. Answer the questions in the space given.

Note: The organizers are aware that answers can vary as per the perspective of the teams, so marks shall be awarded for a certain feasible range of the answer.

Team No:

**Q1) Which sensors shall be needed to make a line following and an obstacle avoidance robot? Name them under their specific purpose. [2 Marks]**

Ans1)

Line Following sensors needed: DistanceSensor (As IR)

Obstacle Avoidance sensors needed: DistanceSensor (As Ultrasonic)

Any other sensor needed: NO

**Q2) What shall be the number of sensors needed to suffice a line following robot capable of solving the arena? Please fill in the table as per headings. You can add more rows as per the types of sensors used. [2 Marks]**

Ans2)

|  |  |  |
| --- | --- | --- |
| S. No. | Sensor Name | No. of sensors needed |
| 1 | Distance Sensor as IR | 3 |
| 2 | Distance Sensor as ultrasonic sensor | 2 |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Q3) What is the ideal number of wheels for your robot? Which joint shall be used in the wheels? What kind of motor shall be used for the wheels? [3 Marks]**

Ans3)

|  |  |
| --- | --- |
| Sub Question’s Answer | Reason |
| No. of wheels:4 | To move the bot faster. We thought of adding a castor wheel in place of 2 wheels in the front but we were not able to add it due to lack of resources(tutorials). |
| Kind of joint: HingeJoint | A HingeJoint can be used to simulate a rotating motion. Spring and damping behavior can be specified. |
| Kind of motor: RotationalMotor | The RotationalMotor is used to power either a [HingeJoint](https://www.cyberbotics.com/doc/reference/hingejoint) to produce a rotational motion around the choosen axis. |

**Q4) What should be the ideal dimensions of the robot as to suffice the arena conditions? Please mention the length, width and height of the robot in Centimetres. [3 Marks]**

Ans4) L = 16cm W = 13cm H = 7cm