

# RoboGames 2010

## COMPETITION DESCRIPTION - UNDERGRADUATE CATEGORY (Version 1)

### 1) ROBOT SPECIFICATIONS

The competing robots, should be self-navigating, and should perform the given track. Competitors may build their robots using any architecture. However, they should adhere to the following guidelines.

- All robot devices should conform to maximum dimensions of 250mm (Length) X 180 mm (Width) X 200 mm (Height), including all accessories.
- Robot should be provided with a start switch for the handler to commence the contest. The robots should perform the task fully-autonomously. Once the robot is switched on, any human interaction with the robot is not allowed.
- The use of external power is also not allowed.

### 2) ENVIRONMENT SPECIFICATIONS

The work space is a 3mx3m flat area covered by 10cm height fence. Inside the work space there are arrows in black towards a treasure (the goal) which is a black circle in a smooth white background surface. Irregular obstacles will be there to avoid by the robot in the path to the treasure.

### 3) TASK

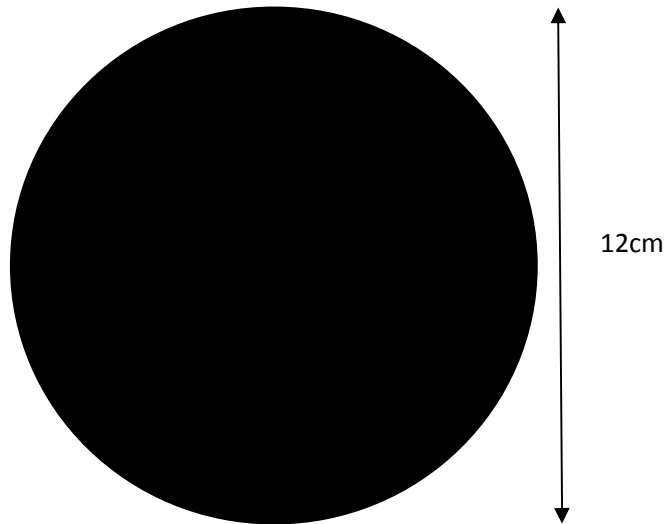
#### *General*

There will be randomly placed black arrows biasing towards a treasure which is a black circle. Set of irregular obstacles will also place in between the different arrow paths to the treasure. The task of the robot is to navigate on the area detecting the arrows and moving towards the treasure avoiding obstacles within the minimum possible time. Robot should detect the area boundary also. Sample top view of the track is given in figure 1.

Robot should avoid the obstacles by detecting them without touching. Placement of the arrows and the obstacles is not predefined. Competitors will get the final arrangement at the competition only.



Goal (Treasure Location)



**Maximum Obstacle height: 40 cm**

**Maximum Obstacle height: 20cm**

***Task completion and finishing***

Robot should navigate through the arena following the arrows biased to the treasure avoiding the irregular obstacles within the minimum possible time. Robot should blink an indicator light to show the task completion when successfully detect the treasure.