

ROBOTICS CLUB EVENTS, TAKNEEK'12

Tasks

1. Before the game starts each team will be given a dry run.
2. The total number of trials given to a team will be 4, out of which best two will be taken for final scores.
3. The bot will be placed in the starting zone (the black rectangular region) from where it will start. Your time will start as soon as your bot touches the first white strip (placed perpendicular to your direction of motion).
4. There are a total of four checkpoints, at each checkpoint, bot will toggle its control mode (control modes refers to line following mode or wall following mode).
5. During line following, the bot is supposed to count the number of white blocks encountered to its left side (the total number of boxes placed will vary from 4 to 6). The distance of each block from the centre of the line to be followed will be 12cm.
6. Depending upon the number of blocks placed in the arena the bot is supposed to go to a specific stopping station. If you count 'n' blocks, you are supposed to stop at stopping station number 'n-3'.
7. Stopping in front of the stopping station wall completes the problem statement.

Bot specifications

1. *One completely autonomous bot is allowed on the arena. No communication (wired or wireless) with the bot is allowed.
 2. *Bot on the arena should not exceed the dimensions of 18cm X 18cm X 20cm (lxbxh).
 3. Bot must be started individually by only one on board switch. However you may have a separate switch for restart. These switches should be shown to the judges/organizers before starting the game.
 4. *Potential difference between any two points on the bot should not exceed 18V.
 5. *No external power will be given to the bot. Teams are advised to mount their batteries on the bot itself.
 6. *No wire is allowed to come out of the bot for control or power supply or to touch the blocks or walls.
- Violation of the specifications marked with a '*' will lead to direct disqualification of the team.
 - Violation of any other specification will lead to deduction of 50 points from the score of each trial.

Arena

1. The overall size of the arena is 120cm X 180cm.
2. The starting station is a 30cm X 30cm black square.
3. The width of the white strip for line following may vary between 2cm to 2.5cm.

4. Distance of the centre of line following strip from the blocks to be counted is 12cm.
5. The blocks which are to be counted are 10cm X 10cm X 15cm (lxbxh) in size.
6. The walls are 15cm in height.
7. The stopping stations are 10cm high and 12 cm wide.
8. All the checkpoints are placed perpendicular to the direction of motion, and are 4cm X 24cm large white strips.

Game rules

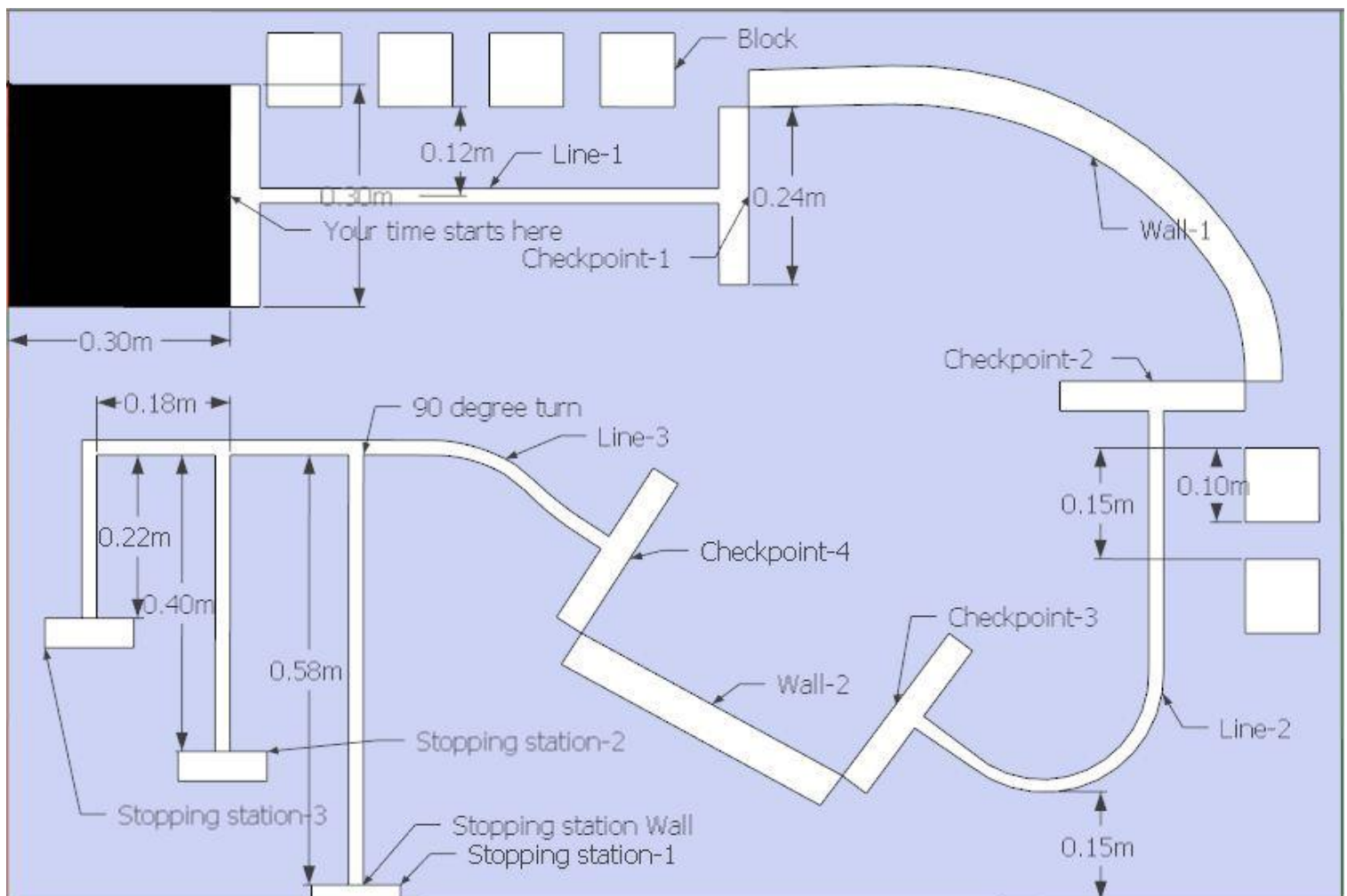
1. Each team will be given a dry run before the game.
2. There will be a total of 5 trials given to a team and out of them best 2 will be selected for scoring.
3. A maximum time of 5 minutes is allowed for each trial.
4. After the start of the trial, no team will be allowed to touch the bot.
5. Your bot must go along the specified route, following any shortcut will lead to deduction of up to 100 points.
6. Bot should not touch the boundary of arena after the start, if it does so, trial will get expired. But your score for that trial will be the points which bot gathered before colliding with the boundary.

Judging and Scoring

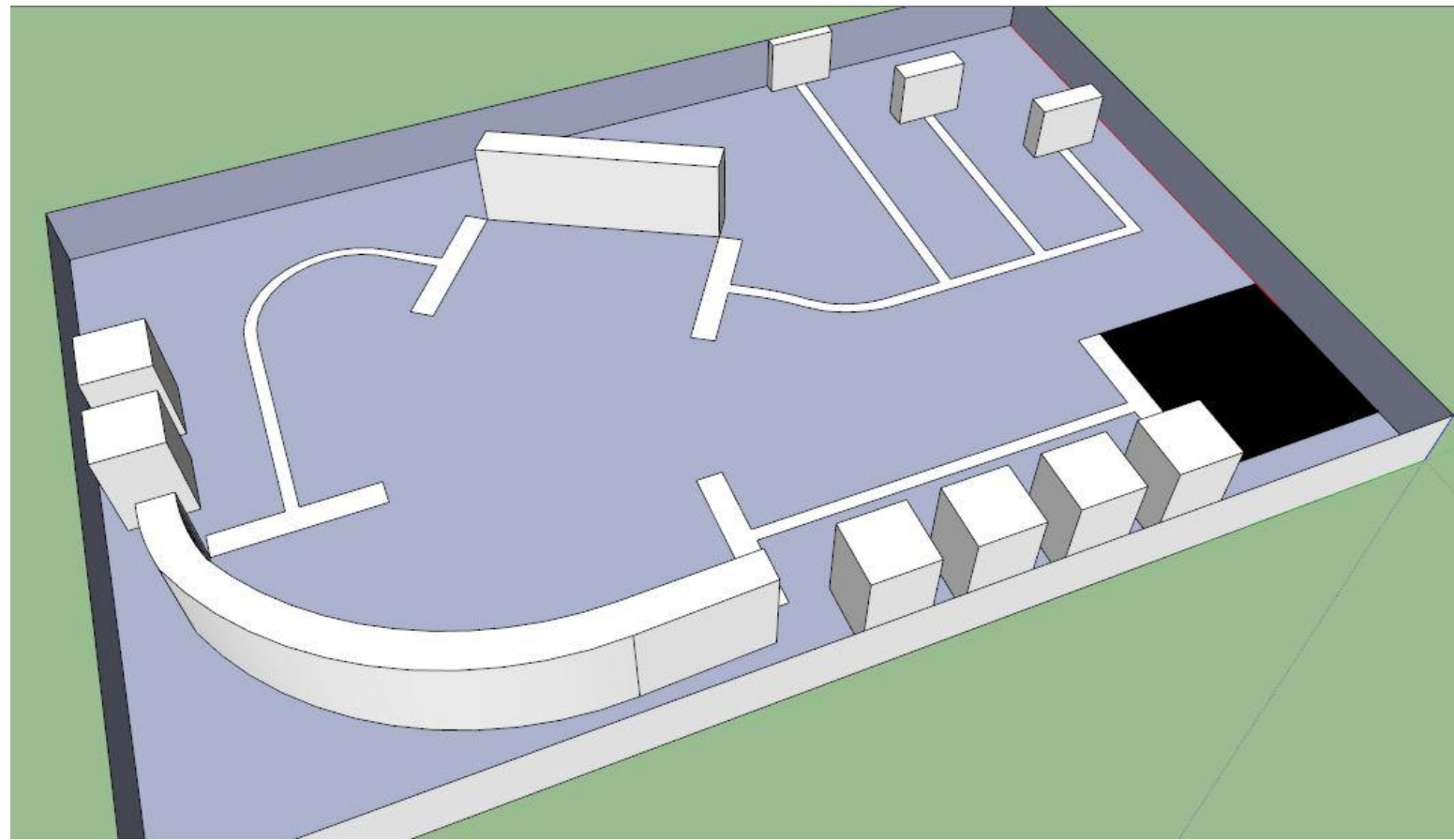
- Clearing a checkpoint fetches you 40 points. (There are four checkpoints.)
- Touching a wall or block will penalise you by subtracting 10 points for each touch.
- Counting the number of blocks correctly gives 60 points.
- Counting the number of blocks with an error of ± 1 will give you 20 points.
- Perfect line following (i.e. line following without touching any block) will be given a 30 point bonus. (There are two line following tracks with blocks on left side.)
- Perfect wall following (i.e. wall following without touching the wall) will be given a 30 point bonus. (There are two walls on the arena for wall following.)
- If your bot covers the second line following track without touching the arena boundary, you will get a 10 point bonus and will prevent expiry of trial. (Touching the arena boundary at any time will stop the trial.)
- Reaching the correct stopping station fetches you 80 points.
- Reaching an incorrect stopping station fetches you 40 points.
- Stopping at any stopping station without touching its stopping station wall fetches 10 points.
- No points will be deducted if your bot accidentally touches some other stopping station's wall while going to its own stopping station.
- If your bot fails to reach any stopping station but manages to reach the turn (there is a 90° turn in front of each stopping station), it will be awarded 10 points, and if that turn corresponds to the correct stopping station, 10 more points will be awarded.
- If your bot reaches any stopping station in less than 200 seconds and it takes 't' seconds to do so, a time bonus of $'150-(t/2)'$ will be awarded. (For time bonus, 't' will be rounded off to nearest multiple of 10.)

Images

ARENA : SPECIFICATIONS



ARENA : 3 DIMENSIONAL VIEW (A)



ARENA : 3 DIMENSIONAL VIEW (B)

