

MUMBAI: ON THE ROAD

OVERVIEW:

In the city of Mumbai where the initiative Swach Bharat Abhyan has taken its ground a small event has been organised to repair the road and keep it clean. This event comprises of 2 Phases namely: Phase -1 & Phase-2.

PHASE 1:

- Phase – 1 involves a task of filling potholes which create issues for drivers during driving a vehicle.
- In this task the bot is expected to sense potholes generated at various locations and fill it so as to avoid more damage to the vehicles/road.
- For success the team would be rewarded with points mentioned in Judging Criteria.

PHASE 2:

- Phase – 2 comprises of picking up the.
- Drinking- can A has to be picked up and placed at its respective mark (Mark A) while avoiding various obstacles.
- Can B has to be picked up and taken along with the bot to the destination since unwanted garbage cannot be left on the road.
- The points awarded for this task is mentioned in the Judging Criteria!

So Help Us Out In Our Efforts To Keeps Roads Safe For Us!

RULES:

- The maximum time allotted for completing the task is 5 minutes.
- The operator of Manual robot cannot be changed during the event.
- The bot must move only over the given track all the times.
- The operator can choose between the two given paths to complete Level 1.
- If suppose the robot drops the garbage at any given instant, it is allowed to pick it up immediately and continue but with the reduction of some points mentioned in the Judging Criteria.

Restarts:

- In the case of a restart, the timer will not be set back to zero or be paused.
- During restarts, the contestants cannot feed any information to the bot. Contestants are only allowed to place the bot back at its position. No changes on/in the bot is allowed during the restarts.
- All restarts for the bot require the approval of the organizers before it can be removed from the arena. If it were handled within the arena without approval, it will be considered as violation.

General Rules:

- Team members will not be allowed to handle the garbage(prop). Only the organizers are allowed to handle the garbage in any situation. If the garbage were handled within the arena without the approval of the presiding organizers, it will be considered as violation.
- Participants are not allowed to keep anything inside the arena other than the bot and the bot is not allowed to leave anything behind while traversing the grid. It should not make any marks on the floor of the arena. Any Robot found damaging the arena will be immediately disqualified.
- The organizers may stop any Robot at any time if they feel that it is performing or is about to perform any action that is dangerous or hazardous to people or equipment.

- No Robot is not allowed to use any flammable, combustible, explosive or potentially dangerous processes.
- The time measured by the organizers will be final and will be used for scoring the teams. Time measured by any contestant by any other means is not acceptable for scoring.
- In case of any disputes/discrepancies, the organizer's decision will be final and binding. The organizers reserve the rights to change any or all of the above rules as they deem fit. Change in rules, if any will be highlighted on the website and notified to the registered teams.
- If there is a tie then the time at every mark would be noted and the team with minimum time would be awarded as winner.

Participation Criteria:

- A team of maximum 5 students are allowed.
- Individual or group of less students can also participate.
- Students from any colleges can participate in this event.
- Also students from different colleges can form their group for this event namely "Mixed Team".
- An individual participant is also allowed to take part in this event.

Safety for the Robots:

- All Robots must be designed and manufactured as to pose no danger of any kind to any person in the venue or Robots of the opposing team or to the game field.
- Combustible-fuel-driven engines, explosives, high-pressure pneumatics (e.g. 6bar maximum pressure), power-generating chemicals, and undamped spring actuators (which make an action less than half second) are all prohibited, for motion propulsion or expansion of Robot's size. Maximum of 24Volts between any 2 points are allowed.
- If a laser emitting device is used, full care must be taken to protect all persons at the venue from harm during all procedures. In particular, the laser beams must be so oriented that the beam will not be aimed sloping upwards, or horizontally to hit the eyes of sitting spectators. Maximum laser level allowed : Refer Robocon Rulebook Laser.

Robot Set Up:

- One minute is given for setting of Robots before the game starts.
- Bot can be either wired/wireless manually controlled or automated robot.

Dimensions and Fabrications:

The machine should fit in a box of dimension 50cm x 50cm x 60cm (lxbxh) at every given point of the event. The bot should not exceed 6 kg of weight including the source of energy. Power supply given to the bot should not exceed 24Volts.

JUDGING CRITERIA:

- Additional 10 points for using Automated Robots.
- Additional 10 points for successfully completing Phase 1 along with Phase 2.

Phase 1:

- 1 point for each ball dropped into the pothole.
- 2 bonus points for completely filling each pothole(10balls per pothole).
- 1 point for successfully climbing up the slope at an instance.
- 15 points for successful completion of phase 1.
- Total = $12(2 \text{ for bonus}) \times 2 + 1 + 15 = 40$ points.

Note: Balls are 6mm BB bullets(used in toy guns).

Phase 2:

- 5 points for successfully picking up the garbage
- 10 points for successfully placing the garbage in the trash can.
- 2 points will be deducted for every time the garbage falls.
- 2 points will be deducted for every collision with a barricade.
- 5 bonus points for picking up garbage 'B' and holding it to the destination (without dropping it even a single time).
- 20 points for successful completion of phase 2.
- Total = $5 + 10 + 5(\text{bonus}) + 20 = 40$ points.

Common criteria:

- 2 points will be deducted every time the bot falls. And the bot will be forced to retry that phase.
- 1 point will be deducted if the participants adjust the line following bot during the play.
- Negative scores may appear in some cases.
- When the Violation occurs in Phase 2, the team has to restart that phase from the starting point of Phase 2 (i.e. the point where slope gets over).
The violations are categorized as follows:
- Any part of the Robot entering their respective restricted areas.
- Other actions that infringe on the rules without mentioning in the Disqualification are considered as violations.

Disqualifications:

A team will be disqualified if it commits any of the following actions during the match:

The team performs any acts that are not in the spirit of fair play.

The team fails to obey instructions or warnings issued by the referees.

Bot is not allowed to damage the arena.

Final Score:

Team completing the task first will be considered as winners.

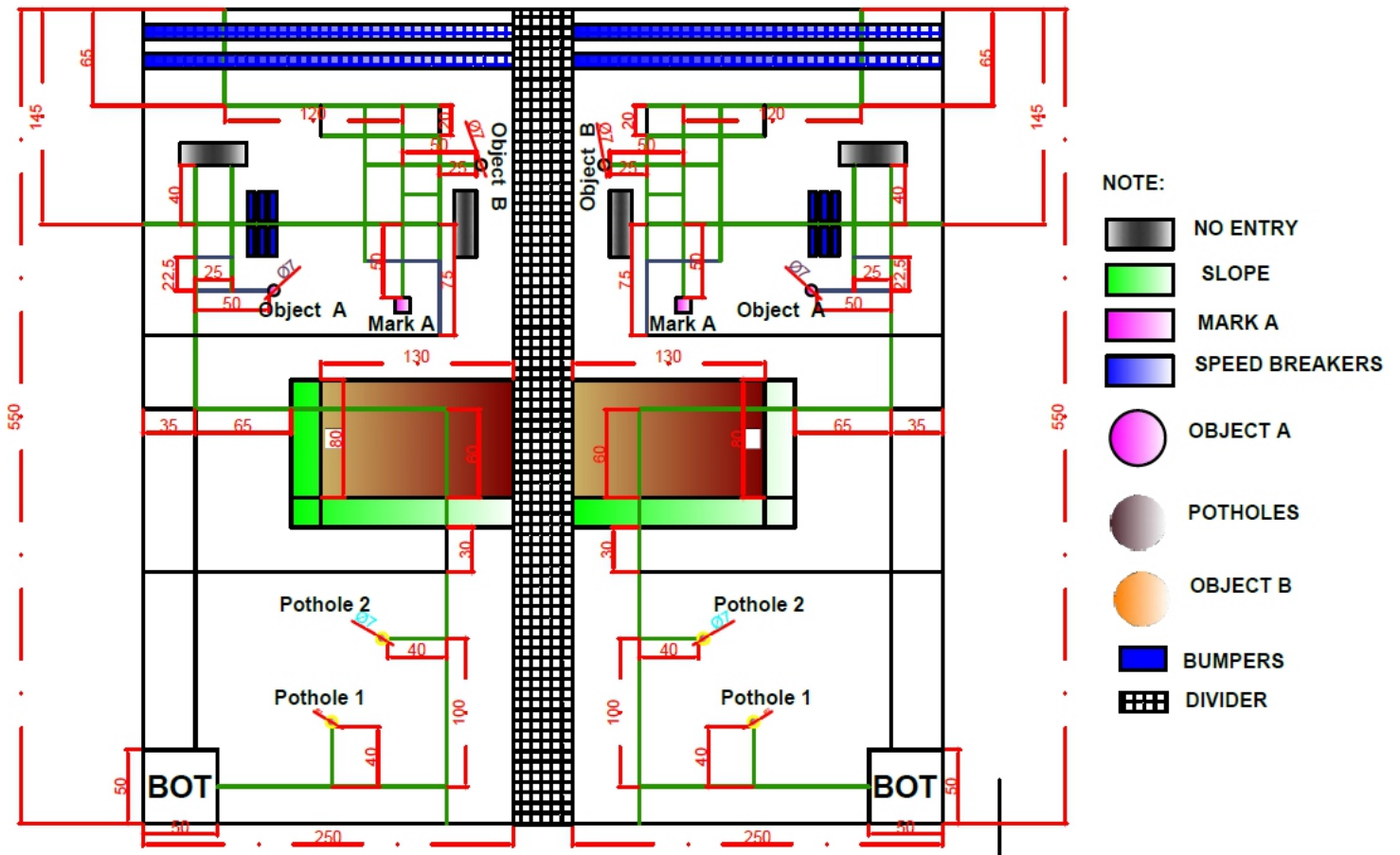
If both the teams could not complete the task then the team with maximum points will be winner.

Note: During the event, 2 teams can play at the same time at respective arena! (if there is arena 2).

Arena 2 is mirror image of arena 1! So the code has to be change accordingly!

ARENA:

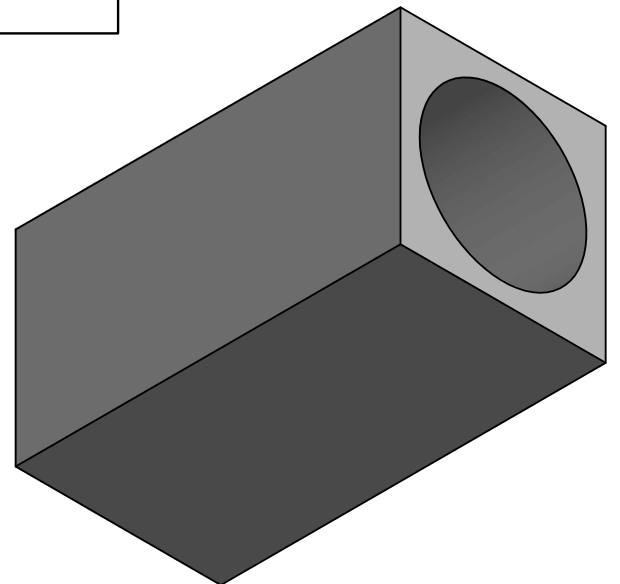
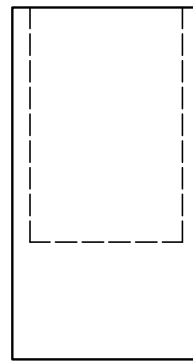
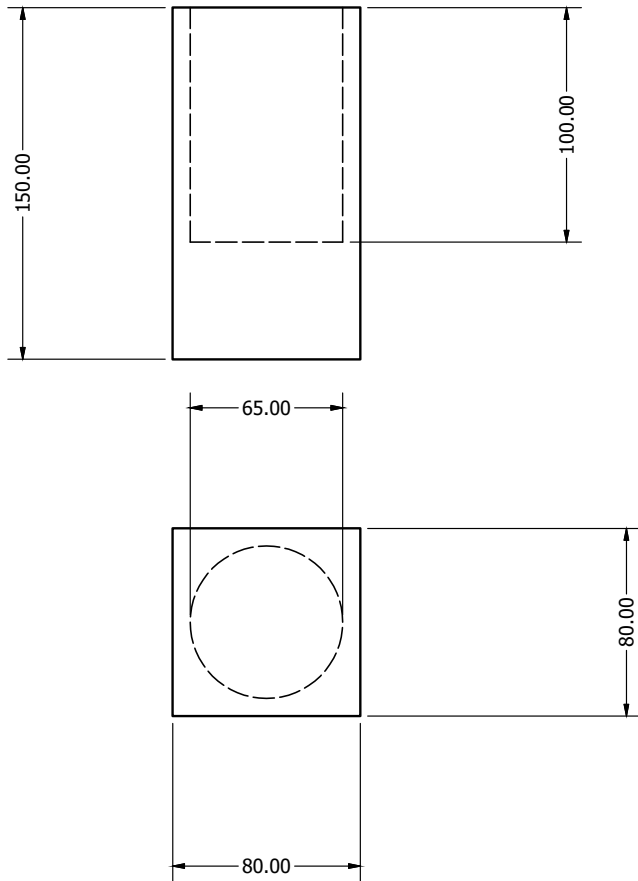
MUMBAI: ON THE ROAD



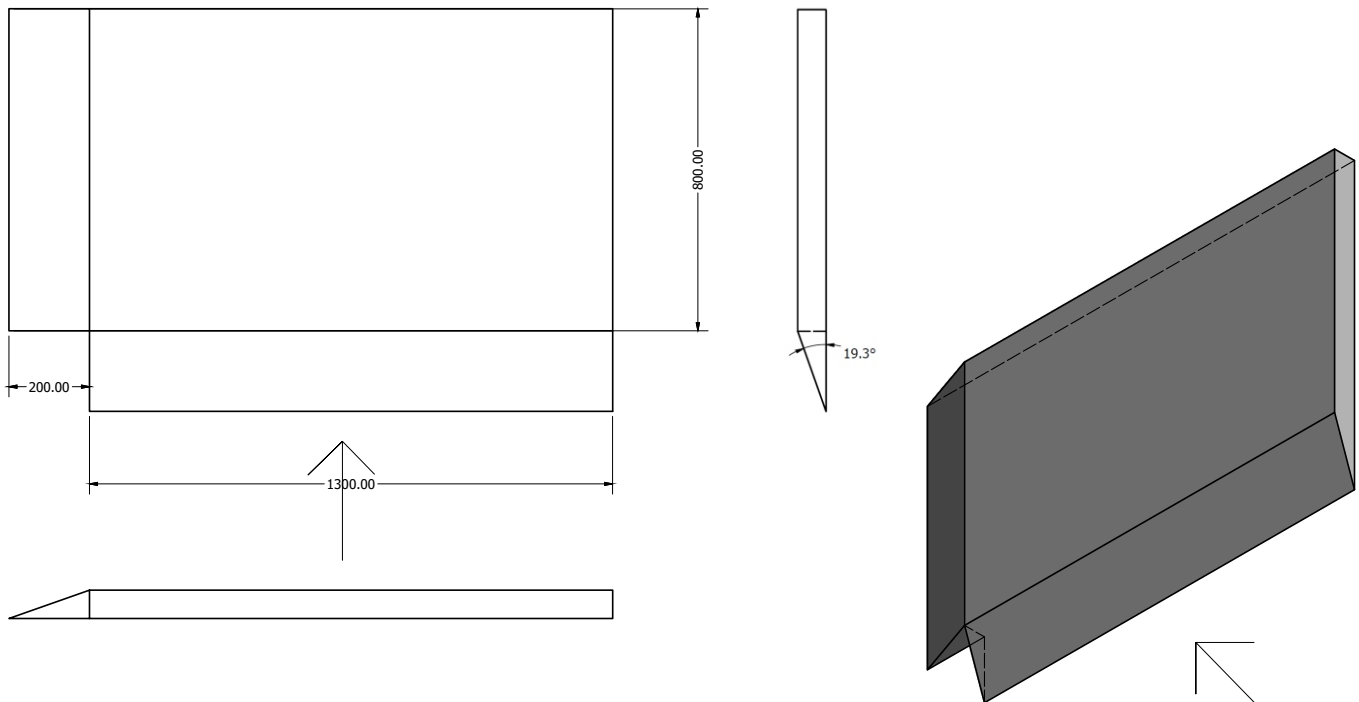
ARENA 1

ARENA 2

Pothole Holder:

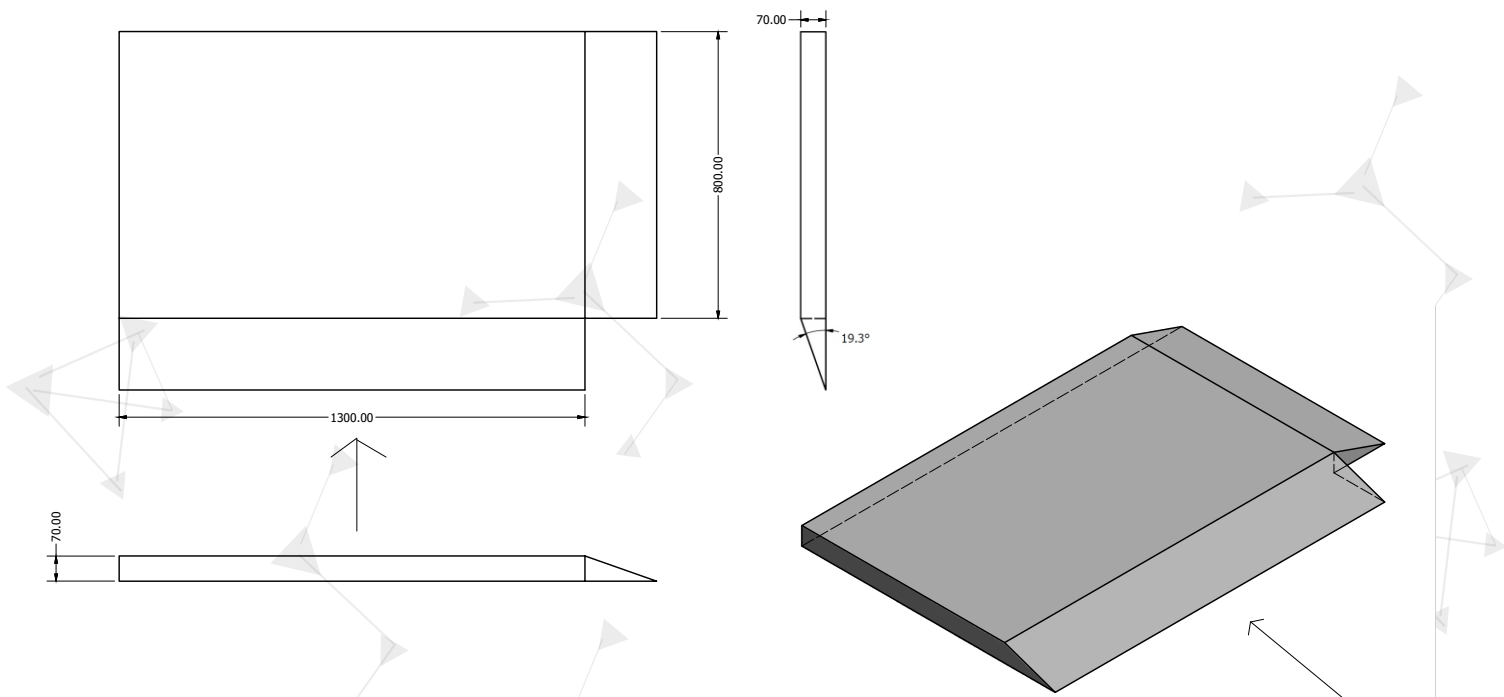


SLOPE OF ARENA:



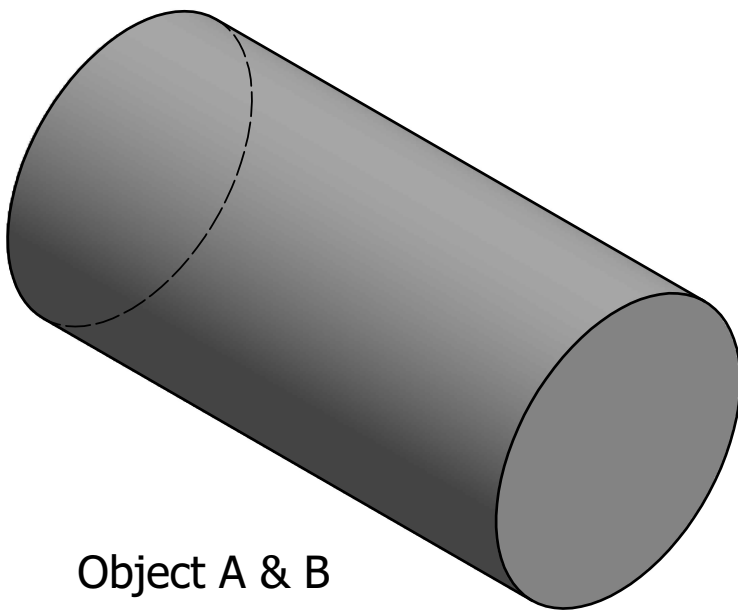
Dimensions in mm

slope of arena 1

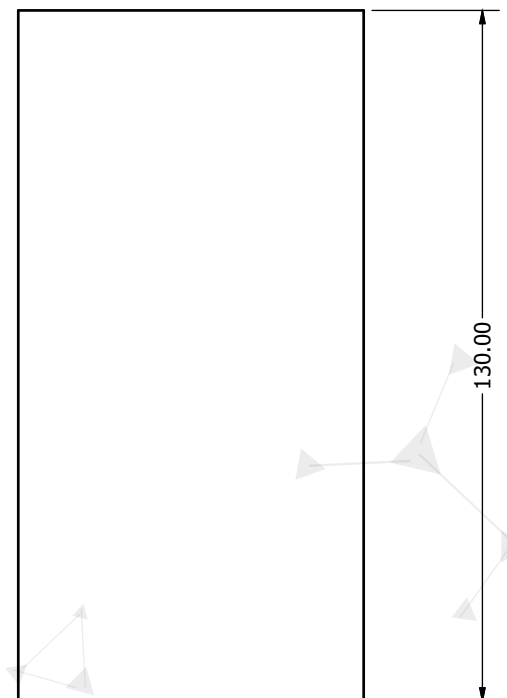
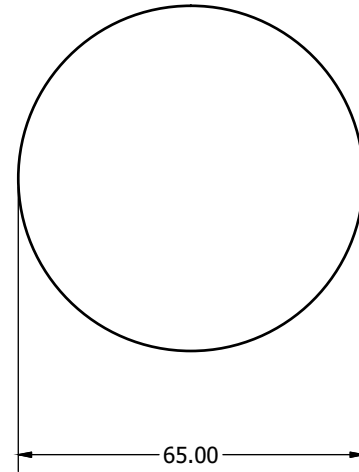


slope of arena 2

OBJECTS:



Object A & B



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