Lumen Trace
Rule book and Instructions

Organized by: R-tist, Robotics Club of NIT Jalandhar in TechNITi
Last date of Registration: 24 Feb 2023
Competition Venue: New Lecture Theater
Team Size: Maximum 4 members per team

Eligibility:
- The competition is open to students of all disciplines.
- All team members must be registered for the competition.

Instructions:
- You have to make an autonomous robot whose task is to pick a colored box from the center and drop it to its respected warehouse.
- Robot must be autonomous and must travel by following a colored line corresponding to the color of the box it is moving.
- On Starting the robot will be provided with a colored box of size **10*10*10 cm**.
- The robot has to grab , drag or pick the box using a gripper or any other mechanism and move the box with it to its destination.
- Boxes can be of four different colors Red, Yellow, Green or Blue.
- The track also contains paths with different colors.
- Destination of a box is **15*15 cm** sized square reached by following colored lines corresponding to the color of the box.
- After dropping a box to its destination the robot has to move back to the starting location and pick the next box.
- Different Colored Tracks have different difficulty and different points associated with them.
- Before the robot returns to center, the next box will be provided in center for the bot.
- Each team will get **5 minutes or 3 chances** whichever comes first for their run.
- If robot gets into wrong path or out of track , robot will be moved to the starting point and one chance will be deducted and the team will be given a choice to move the same colored box or the next colored box.

- Thickness of the track will be **5cm.**
- At the end of track there will be a **25 cm** line perpendicular to the track for stop.
- Initially one box will be provided in A1 area and if the bot returns back correctly after placing the first box, a second box will be provided in A2 area of next color.
- If the bot gets into wrong path or out of track , robot will be placed back at starting point the new box will be provided in A1 area.

Scoring Scheme:
- Successful placement of box will give the following scores:

Red	Yellow	Green	Blue
100	150	100	150

Successful placement means the box should be completely inside the 15*15 cm destination block for partial placement i.e center point of the box is inside destination square points will be :

Red	Yellow	Green	Blue
80	120	80	120

For wrong placement i.e same color but box center outside of the destination square points will be awarded as :

Red	Yellow	Green	Blue
50	75	50	75

- After placement of the box if the bot comes back correctly to the starting point, the team will get **100 points.**
- Finally after the completion of round the bot will be awarded points out of **200 based upon its innovative design, speed and accuracy.**

Bot Specifications:

- Maximum dimensions of bot can be : **25x25 cm** (length x width)
- The weight of the robot should be **no more than 4kg.**
- No restrictions on what Microcontrollers and Motor Drivers you use.
- You have to make a gripping mechanism to grab or pick the box.
- There is no restriction on no. and power rating of motors used.
- You can use color sensors for following the path.
- No restrictions on battery size or type.

Disclaimer:
- The organizers reserve the right to modify the rules and regulations of the competition as they see fit.
- The decision of the judges will be final and binding.
- By participating in the competition, the teams agree to abide by the rules and regulations of the competition.

Contact:

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Track

Ware House 1

Ware House 2

calibration

Ware House 4

Ware House 3

R-Tist
NTU Robotics Club

A1

A2

start