# ROBOT TOUR 2024 Div C

### **EVENT DESCRIPTION**

Teams design, build, program and test one Robotic Vehicle to navigate a track to reach a target at a set amount of time as accurately and efficiently as possible

## **BUILD SUMMARY**

- Build an autonomous Robotic Vehicle to navigate a track
  - Not Remote Controlled
  - Event goals allow low cost robot kits to be competitive
- Powered by up to 6 AA or AAA batteries
- Must completely fit in a 30cm by 30cm space of any height
- 1/4" to 3/8" Dowel attached to front of Robotic Vehicle
- All parts must move as a whole. No tethers or separate pieces allowed.

### **COMPETITION SUMMARY**



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- Impound Event
  - Released after Impound : Track Configuration & Target Time
- Target Time : Between 50 and 75 seconds
- Setup Time : 10 mins
  - Setup Time is used to prepare and program the robot for the tournament's Track Configuration
  - Testing Robot's motions is not allowed during Setup Time
- Track Time : 8 mins
  - Up to 2 Successful Runs or 3 Failed Runs
  - Programming changes can be made during Track Time
  - Failed Runs are Run Time twice the Target Time, Robot exits the Track Area, Competitors ask current run to be marked as a Failed Run

# TRACK SUMMARY

- Track Area : 2m x 2m
- Start Point : Placed on track perimeter in center of grid
- Target Point : Placed in center of any grid
- Eight (8) wooden 2" x 4" Obstacles placed on track lines randomly by Event Supervisor
  - 50 point penalty for touching any 2x4s
    - Touch penalty can only occur once
  - All obstacles can be removed for a smaller point penalty (35 points)
    - Allows teams to choose if their Robot is ready for obstacles
- Gate Zones : 50cm x 50cm

### **SCORING SUMMARY**

# **Competitors Choose Their Best Path**



- Team with the lowest Final Score wins
- Final Score is lowest Run Score of team's runs
- Run Score = Time Score + Distance Score + Gate Bonus + Penalties

• Time Score :

- Run Time < Target Time : Time Score = (Target Time Run Time) x 2
- Run Time >= Target Time : Time Score = (Run Time Target Time)
- A faster time can have a larger penalty than a slower time. Goal is to control the speed of the robot and not go as fast as possible.
- Distance Score = 1 point for each cm Robot is from Target Point
- Gate Bonus = -15 Points for each Gate Zone entered
  - Gate Zones are only counted once
  - Robot's front side with Dowel rod must enter zone first





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