



RCAP CoSpace Autonomous Driving

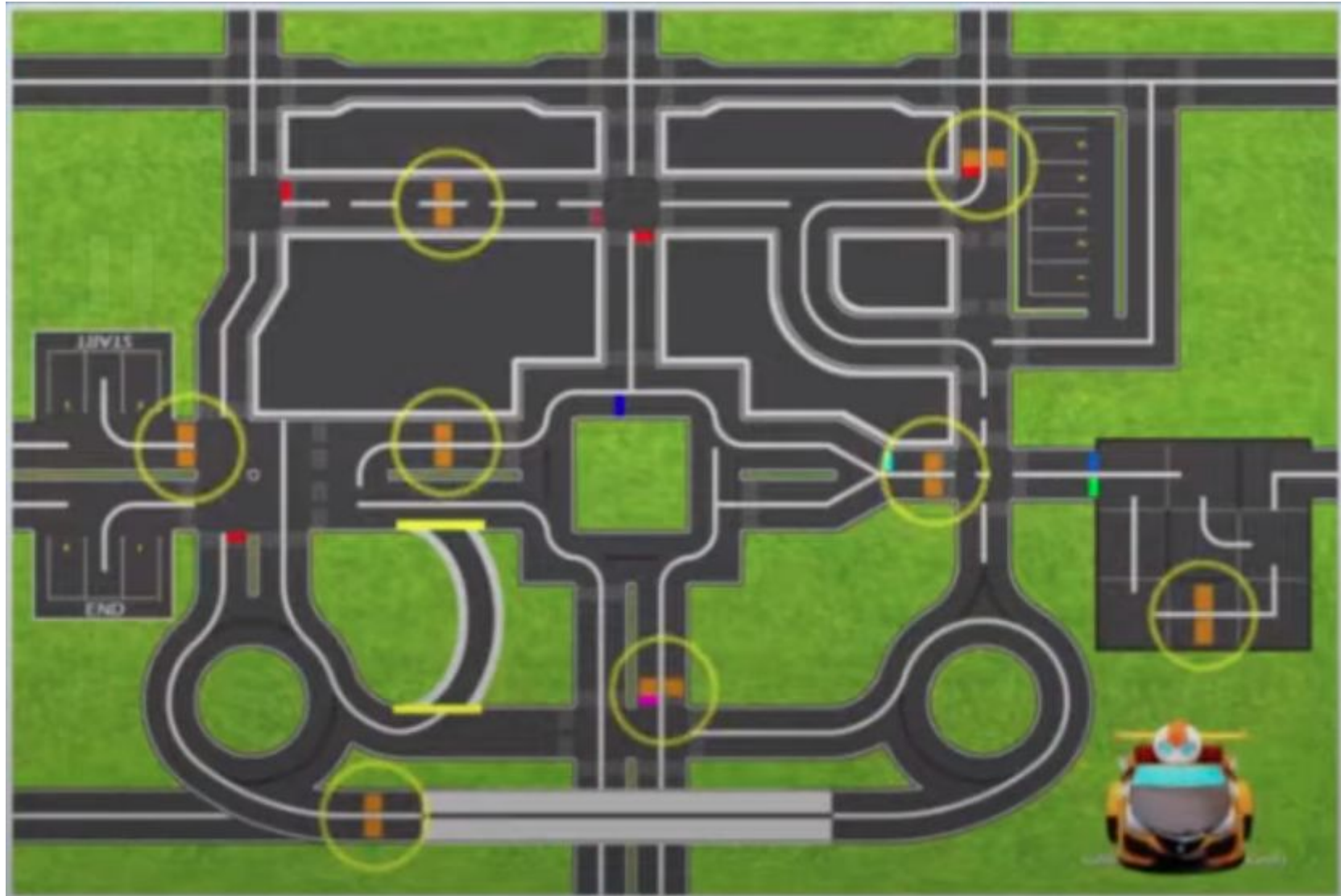
2021

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What is Autonomous Driving?

- Video
 - <https://www.youtube.com/watch?v=pdVMRIEiQwI>

Past Game Map



Rules

- Maximum of 8 mins
- Begin at “Start” Station
- Ends at “End” Station



Rules

- At each waypoint (orange)
 - Stop for 2 seconds
 - Flash LED



Scoring

- Tier 1
 - Passes all waypoints
 - Shortest time wins

- Tier 2
 - Did not pass all waypoints
 - Winner decided by most waypoints, followed by shortest time to last waypoint

Robot



CoSpace Robot



RGB Sensor
Colour Detection

Gyro Sensor

Robot's Orientation Measurement



Ultrasonic Sensors
Obstacle Avoidance



IR Sensor Array
Line Tracking

Robot

- Can be programmed using...
 - Graphical User Interface
 - Python
 - C

Need to submit...

- Robot program
- Team Description Paper
 - Template available
- Powerpoint Presentation
 - Guidelines available
- Technical Demonstration video
 - Some past submissions available on YouTube

Team

- 1 or 2 members
- U19 Category
 - At least one member is age 13 to 19 (as of 1st Jul 2021)
- U12 Category
 - Both members below 13

Timeline

- Early March : Release of software
- 22 May : Submission for qualification
- 31 May : Announcement of Finalists
- 3 Jun : Video submission for Finalists
- 12 Jun Finals

What you should do...

- Plan the route
 - Keep it short and minimize turns
 - Tip: You don't have to follow the line throughout; you can take shortcuts
- Break up the route into segments
 - Robot should do ONE thing per segment
 - Each segment must have a clear start and end condition
- Prepare useful functions
 - eg. Line following, Turn left, Turn right
- Try out the mission

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