

TURTLEBOT3 **AUTORACE**

2020年“京天杯”自动驾驶组

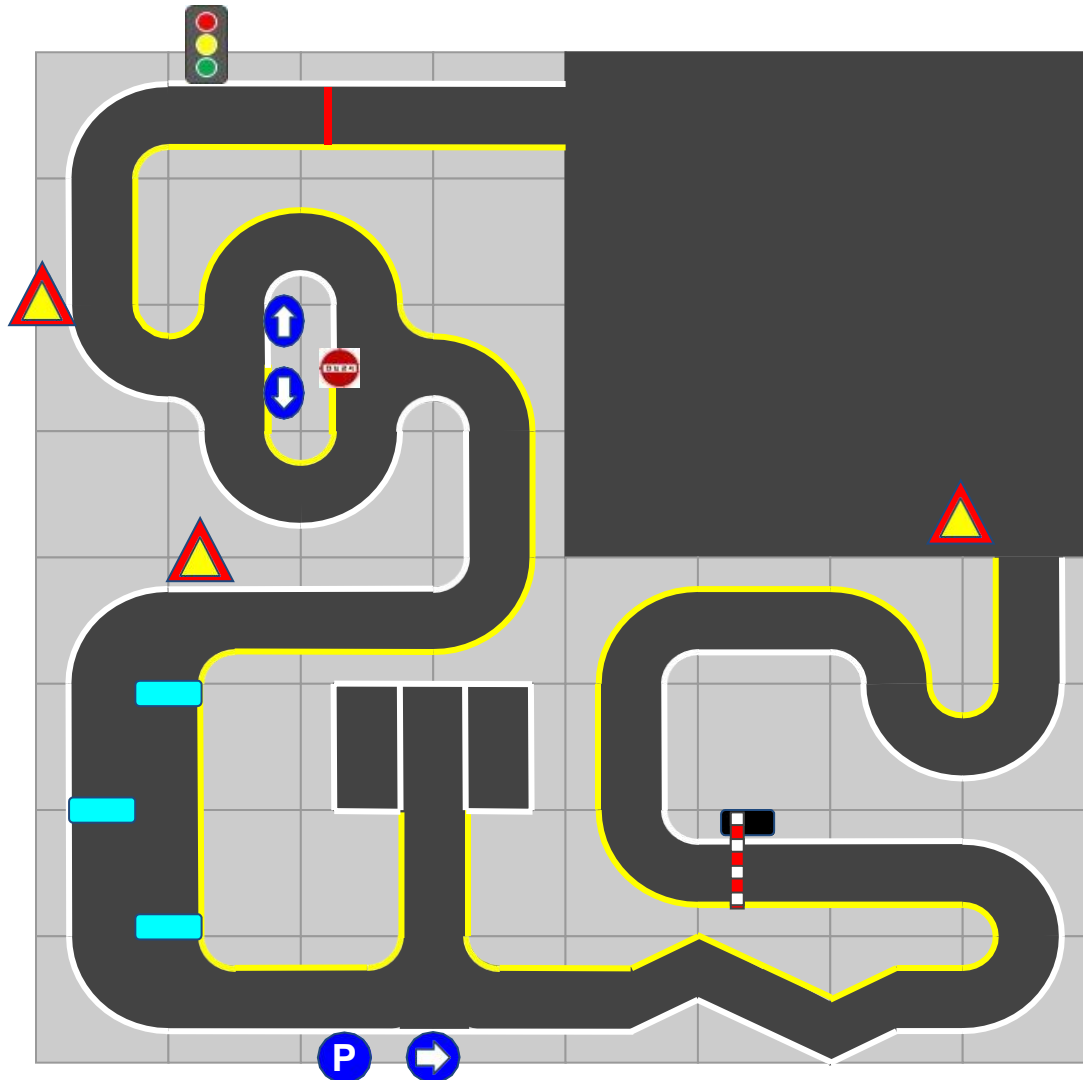


Track



50 cm

50 cm



Size : 4m x 4m

Material : Foamex

ROBOTIS

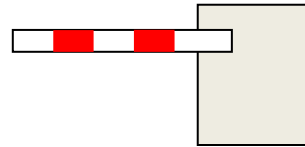


Mission

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Parking



STOP Bar



Traffic Light



Tunnel



T-Intersection



**Construction
Site**

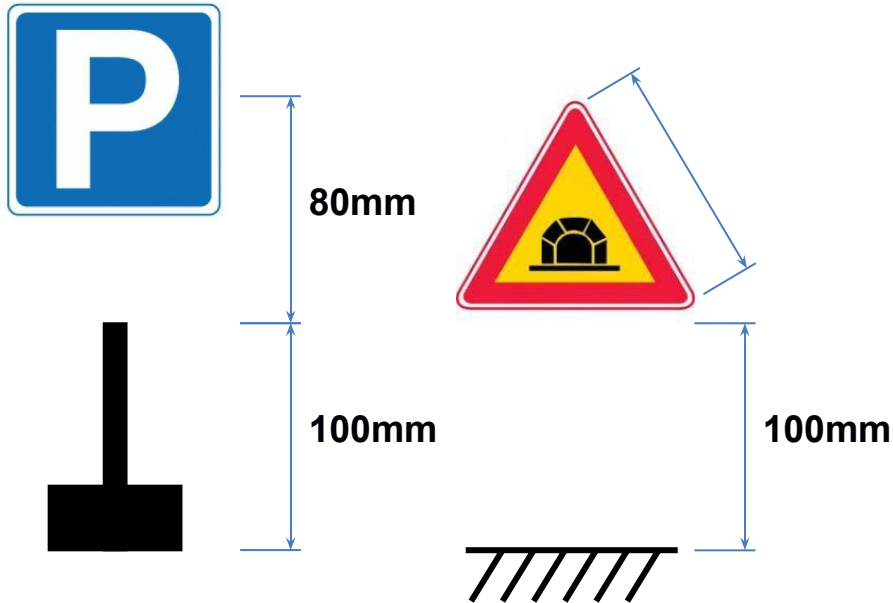


Traffic Sign





Traffic Sign



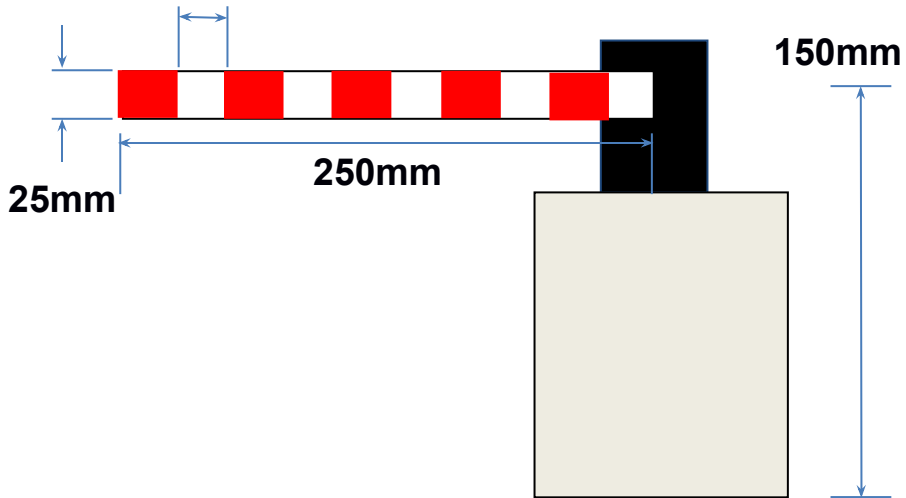
- Recognize the traffic sign and conduct its mission.
- One side of each sign is 80mm.
- Parking sign : Attach to a stick.

Tunnel sign : Attach to tunnel wall.



STOP Bar

25mm



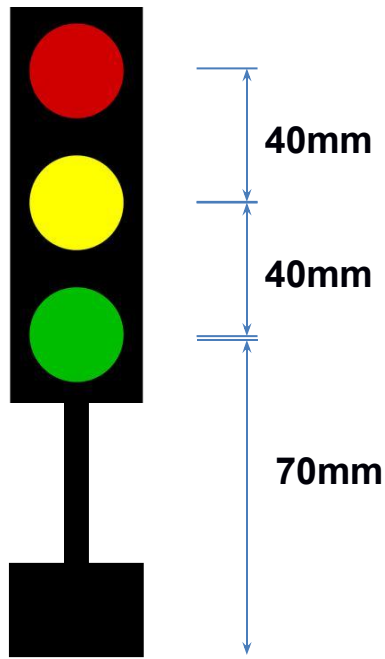
- Length of Bar : **250**mm x 25mm

-



Traffic Light

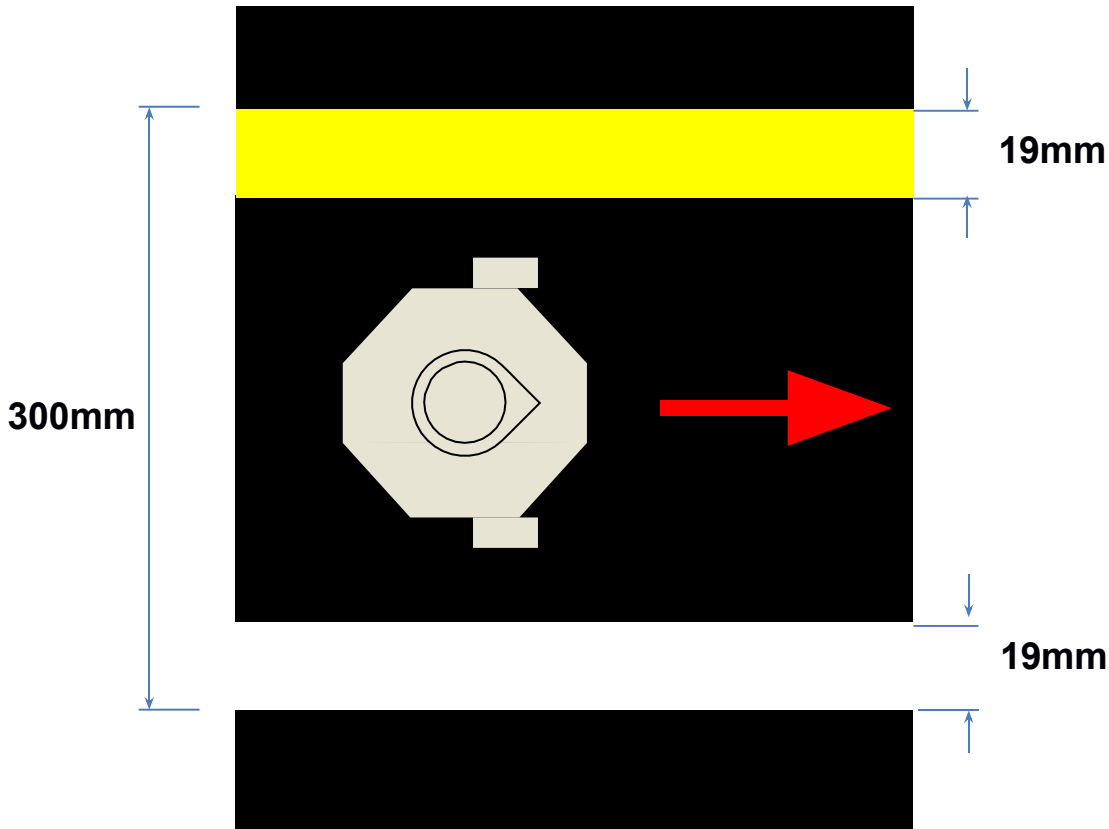
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Track Details

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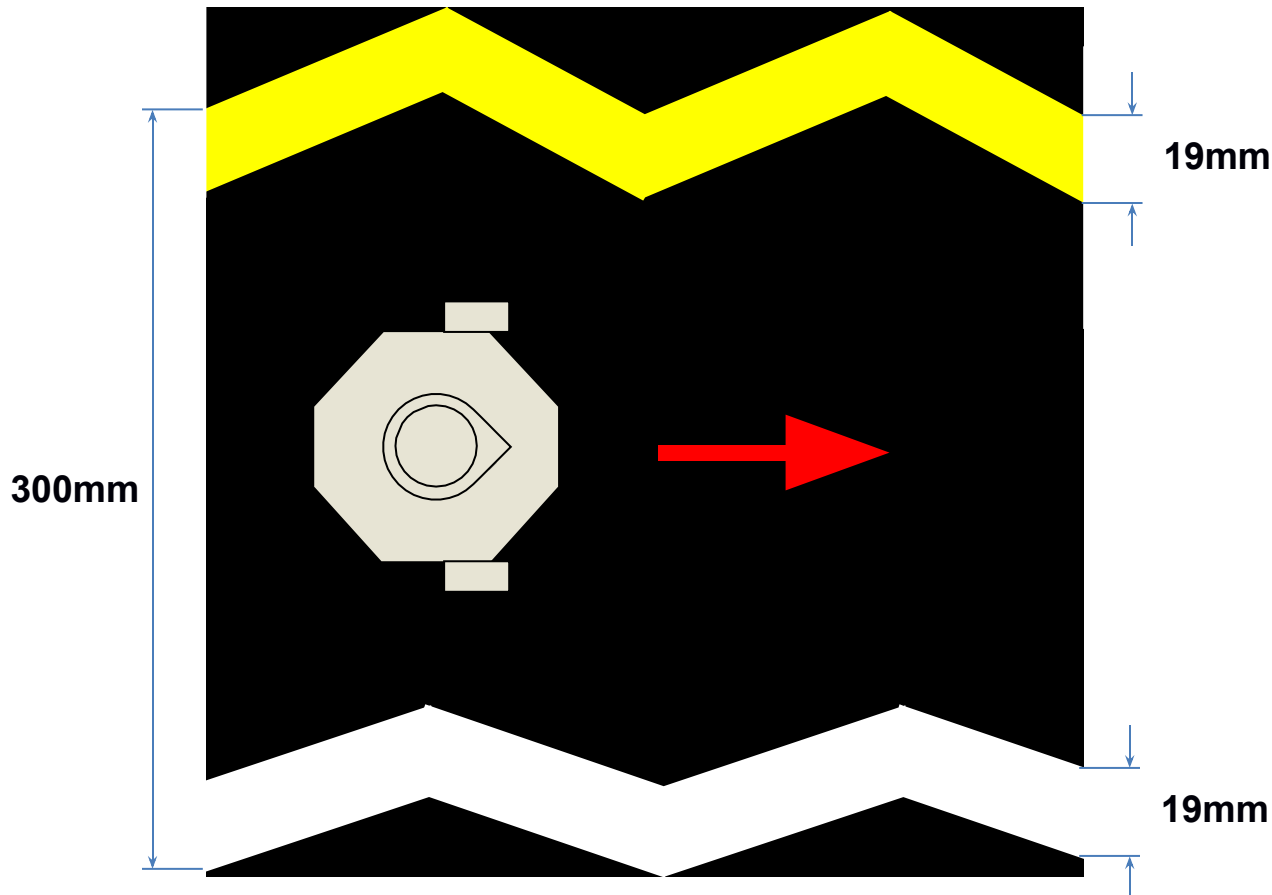
Straight Lane

- **Width : 300mm**
- **Thickness of Line : 19mm**
- **Yellow Line on the left**
- **White Line on the right**



Track Details

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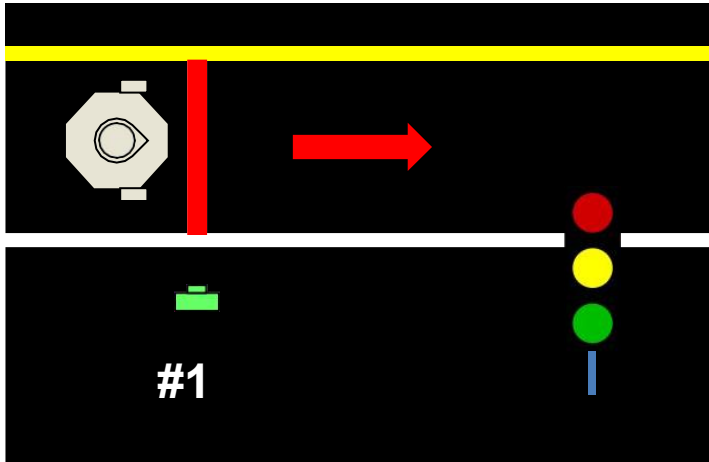
Zigzag

- Width 300mm
- Thickness of line 19mm
- Yellow on the left.
- White on the right



Traffic Light Mission

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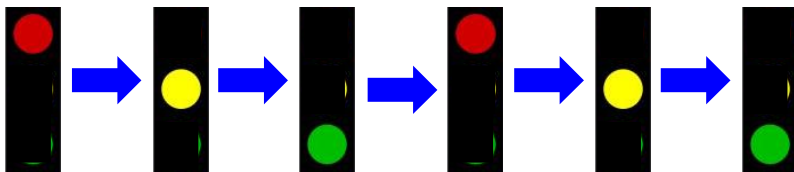


Rule

- The robot recognizes the color of the traffic light which lights up in order and start without external control.
- The order of light is RED -> YELLOW -> GREEN. Green light is turned on for 5 seconds.
- Robot has to pass the starting line while the green light is on. If not, mission failure.
- Regardless of whether the robot starts or not, the mission time (5min) starts automatically from the moment the first green light is turned on.

Order of Light

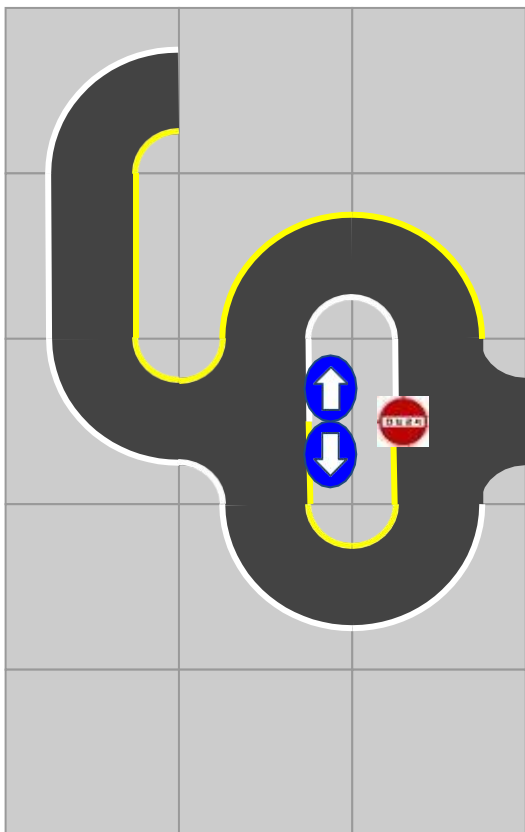
5sec





Intersection Mission

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Rule

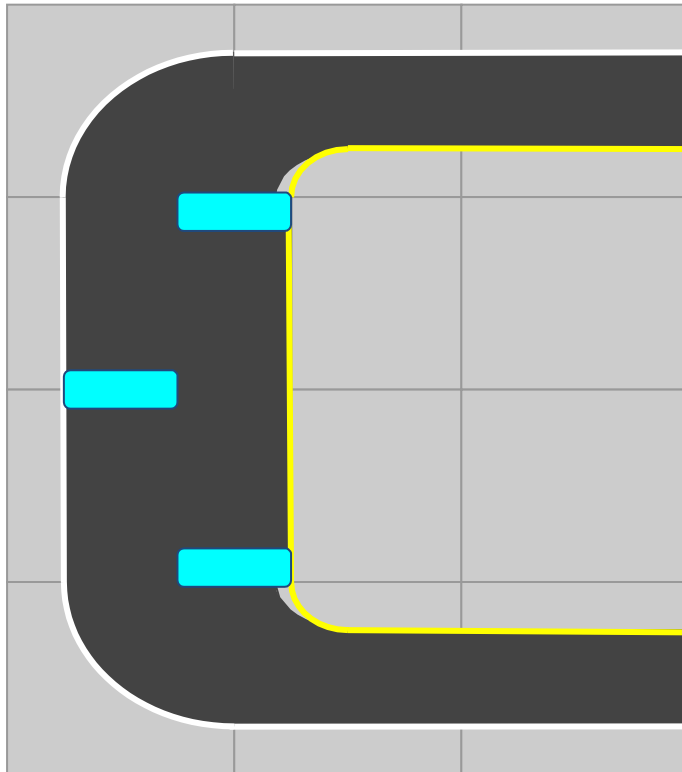
- Pass through according to <- & -> sign
- <- & -> sign is randomly decided before mission.
- If robot goes to the opposite direction of sign, mission failure.



Construction Site Mission

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Rule

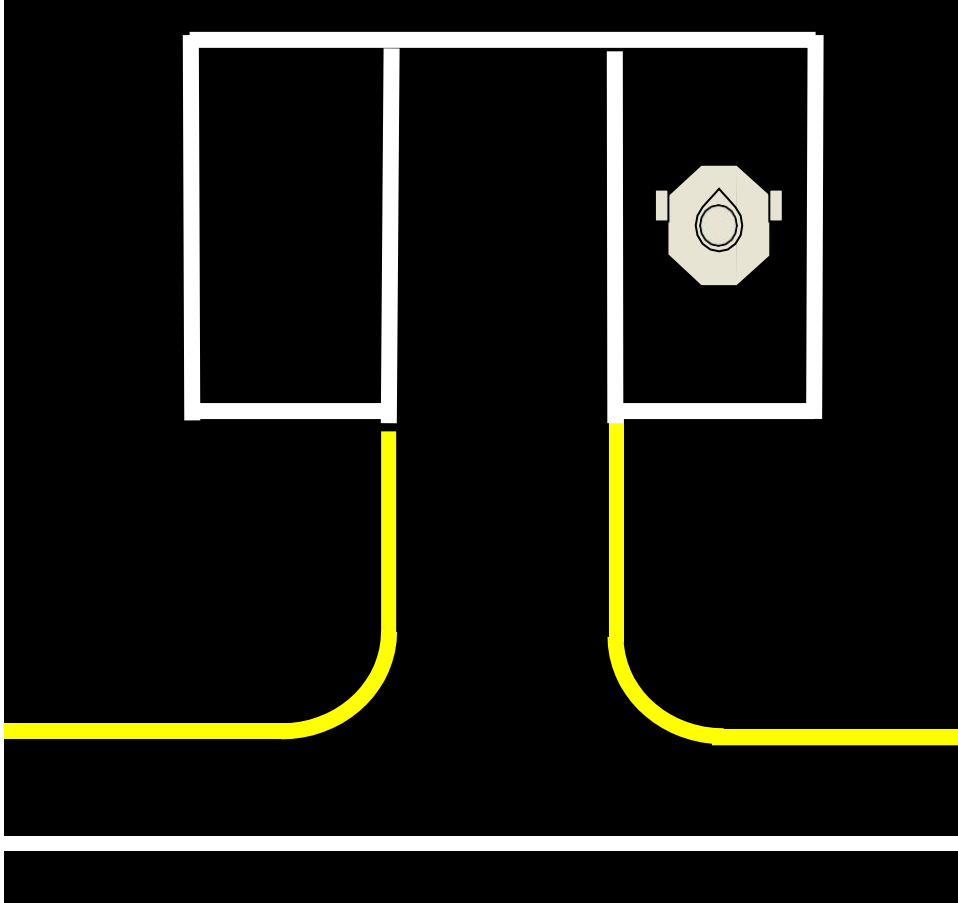


- **Avoid and pass through obstacles.**
- **During the mission, touching the robot or PC is regarded as a mission failure. Score is also deducted according to the number of touches.**
- **Obstacles are fixed on the track and the size is announced separately.**



Parking Mission

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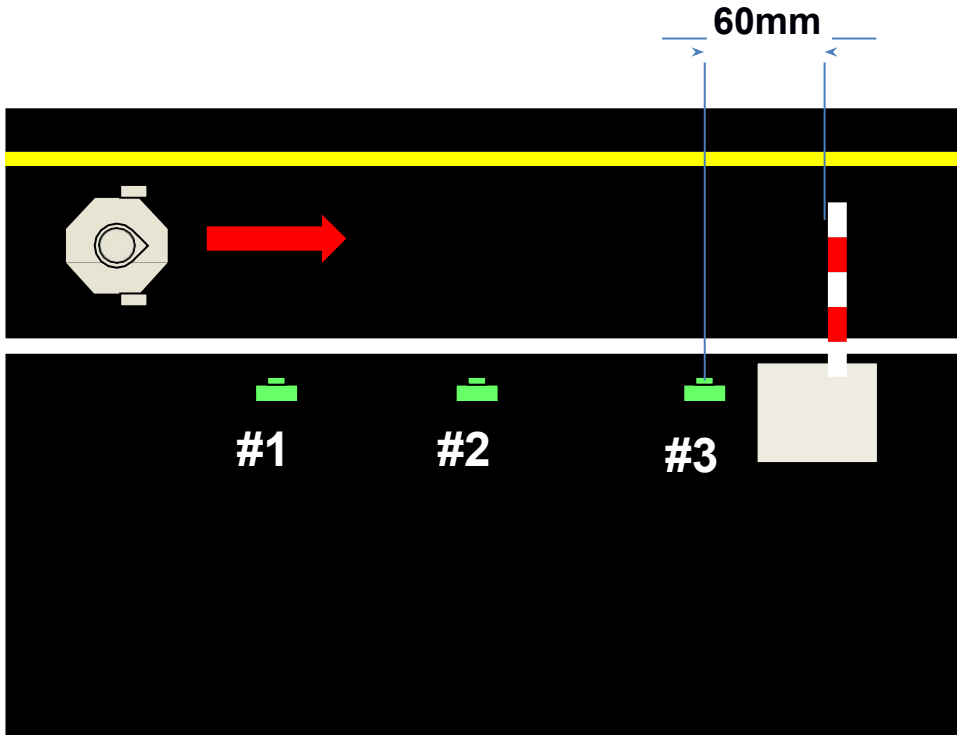
Rule

- Robot has to escape after fully entering an empty parking space.
- If Robot enters the parking lot where the dummy robot is parked, mission failure. Yet, it is okay to enter after completing its mission.



STOP Bar Mission

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Rule

- When sensor#1 is detected, the bar closes.
- When sensor#2 is detected, the bar opens after a few seconds.
- If sensor#3 is detected while the bar is closed, mission failure.
- Sensor#3 is located 60mm apart from the bar.
- The location of sensor #3 is fixed and the others (#1,#2) can be set at any position.

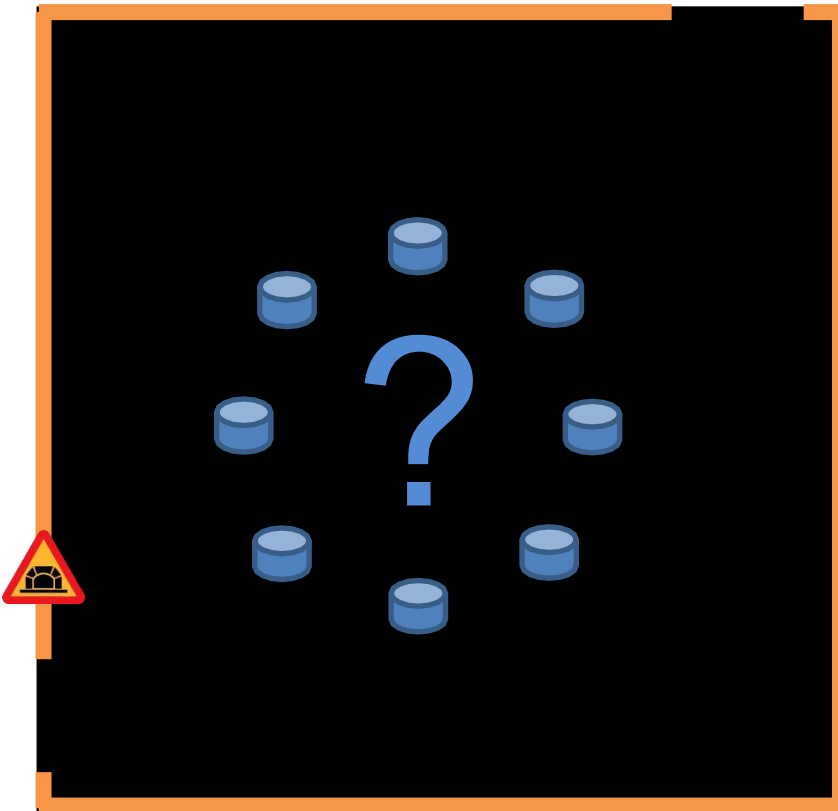


Tunnel Mission

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Rule

- Mission is completed when robot escapes from the tunnel.
If not, mission failure.





Tunnel Mission

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Tunnel

- There is no light inside the tunnel and there are some obstacles (size and location are random)
- The whole size of tunnel is 1.8m x 1.8m
- Entrance/Exit (Width 300mm x Height 240mm)
- Color of internal and outside : Black Foamex

