

Champion's Playbook

Tricks the pros use to get robots through mazes — explained for your sensor car.

Stop and look

A turret lets one sensor look in many directions. Drive until a wall is close ahead, **stop**, then swing the turret **right**, then **left**, and note what you see. Ahead you already know. Wait a moment after each swing so the sensor settles.

Used in mission: 3, 4

Open or blocked?

A gap is not about **how deep** it is. Measure how far a side wall is when you are centred. Anything clearly farther than about **one lane width** is **open**. A tight U-turn is only a lane or so deep — judge it by depth and it looks like a dead end. Judge it by *open or blocked* and it is just a way through.

Used in mission: 3, 5

The right-hand rule

Keep your right hand on the wall. At every junction: right open? Go right. Else straight if it is open. Else left. Else turn around. It finds the exit of any maze without loops. Contests such as **Micromouse** and **RoboCup Junior** rescue mazes start from wall-following like this.

Used in mission: 3, 4, 5, 7

Dead ends: everything blocked

You do not need to guess a dead end from depth. Look in **every** direction. At a U-turn one side is open. At a dead end **right, left and ahead are all blocked**. Then turn around and carry on with the same rule.

Used in mission: 5, 7

Remember your route

Robots keep notes. Add a letter to a **list** at every decision. Afterwards the list *is* the route: RLRL. Run the maze mirrored and it reads LRLR — proof the car is sensing, not counting.

Used in mission: 4

Follow the line

Drive along the **edge** of the tape, not its middle. The sensor reads white high, black low, and the edge is in between. **Proportional steering**: steer in proportion to the difference — the bigger the error, the bigger the steer. Line-follower maze contests use this all the time.

Used in mission: 6, 7

Green means go

Robots use coloured marks as signals: a finish tile, a doorway, a turn marker (RoboCup Junior line mazes use green squares). Your belly color sensor reads them without stopping the car.

Used in missions: all

Explore, then sprint

Top maze robots run twice. The first run **explores** and records the route. They throw out dead ends, then the second run **sprints** the shortest path.

Micromouse machines use a flood-fill map for this. Your route list is a great start.

Used in mission: 7

Remember: the rule is more important than the map. If your car senses properly, the same program works in a maze you have never seen — even a mirror image.

Keep going: All missions → [index.pdf](#) | Build the Maze Car → [garage.pdf](#)

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