PRESENTATION 12 · LEARNING WITH STATEMENTS

Follow the wall

Around a big block to FINISH with the wall follower we already know, and a good choice of which wall.

TheBotCup 2026 · AiBotCup Simulator



RECAP · PRESENTATIONS 4 AND 5

The right-hand wall follower

Ahead
wall in front → spin left

TooClose
right wall near → ease left

Lost
right wall far → curve right

Forward
otherwise drive

Four statements, a hand on the wall, and it solved two mazes. Today: the **same four**.

PART 1

The mission: Session 12

Around the block to FINISH

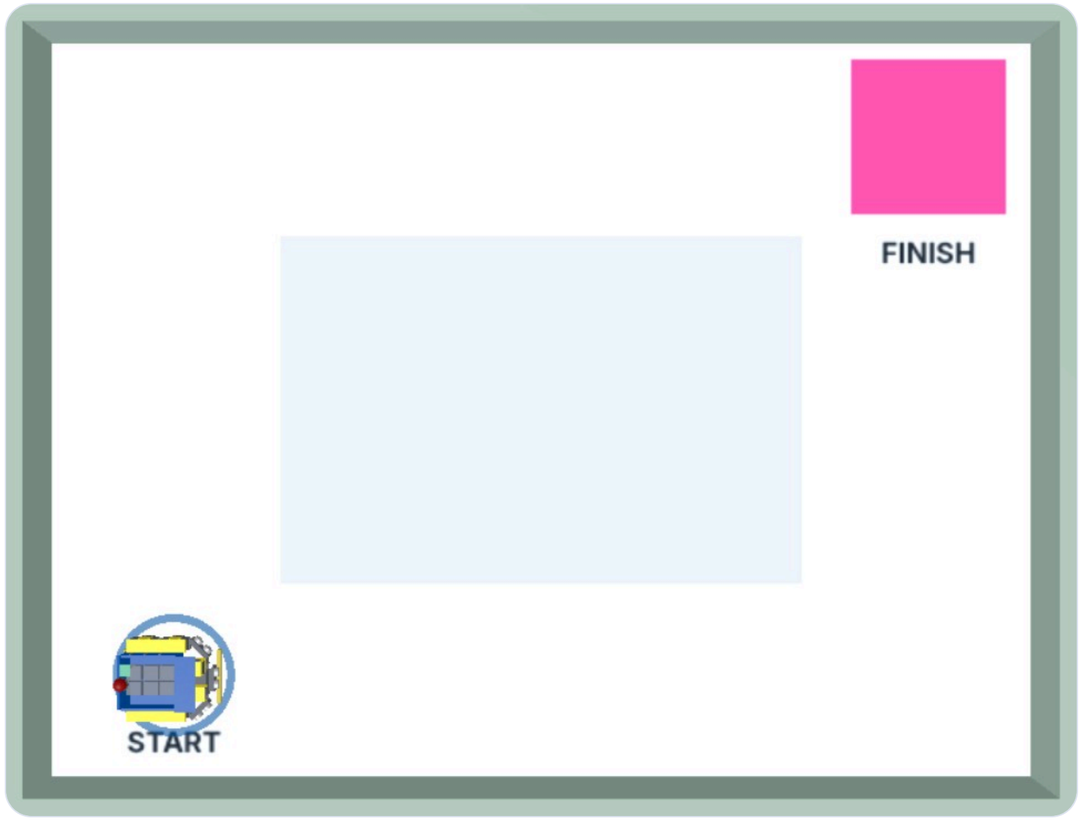
SESSION 12 · FOLLOW THE WALL

Keep a wall on one side, all the way

Reach the pink **FINISH** pad: **+150**.

Time limit **4:00**. Code challenge: at most **6** statements.





THE FIELD

A big block in the way

START bottom left, facing **right**.

A big block fills the middle.

FINISH sits in the **top-right corner**, against the outer walls.

PART 2

Which wall?

The block, or the outer wall

WE TESTED BOTH

Follow the wall that touches FINISH

TESTED · DID NOT FINISH

Block on the left

The robot circled the block and kept missing the corner. **0 points** after 4:00.

TESTED · WORKED

Outer wall on the right

Along the bottom, up the right side, straight into FINISH. **0:12**.

FINISH is in a corner of the **outer** wall, so following that wall must pass over it.

THE PLAN

Right hand on the outer wall

1

Drive right, **bottom wall** on the right.

2

Corner ahead: **Ahead** spins left.

3

Drive up, **right wall** on the right, into FINISH.

The block is on the robot’s left the whole time, so we still go **around the block**.

PART 3

Step by step in statements

Four statements, already known

STEP 1 · THE WHOLE PROGRAM

The right-hand rule, unchanged

Statement	Condition	Wheels	Duration
1 Ahead	US_Front 0–20	−2 / 2	60 ms
2 TooClose	US_Right 0–22	2.5 / 4.5	60 ms
3 Lost	US_Right 45–255	4.5 / 1.5	60 ms
4 Forward	none	4.5 / 4.5	60 ms

Between 23 and 44 cm on the right, nothing above matches: **Forward**.

STEP 2 · STATEMENTS 1 AND 2

Ahead and TooClose

1 Ahead
US_Front 0–20

Front	0	20	(US_Front)
Left	0	255	(US_Left)
Right	0	255	(US_Right)

Duration	60	ms
Key Action	None	
WheelLeft	-2.0	
WheelRight	2.0	

2 TooClose
US_Right 0–22

Front	0	255	(US_Front)
Left	0	255	(US_Left)
Right	0	22	(US_Right)

Duration	60	ms
Key Action	None	
WheelLeft	2.5	
WheelRight	4.5	

STEP 3 · STATEMENTS 3 AND 4

Lost and Forward

3 Lost
US_Right 45–255

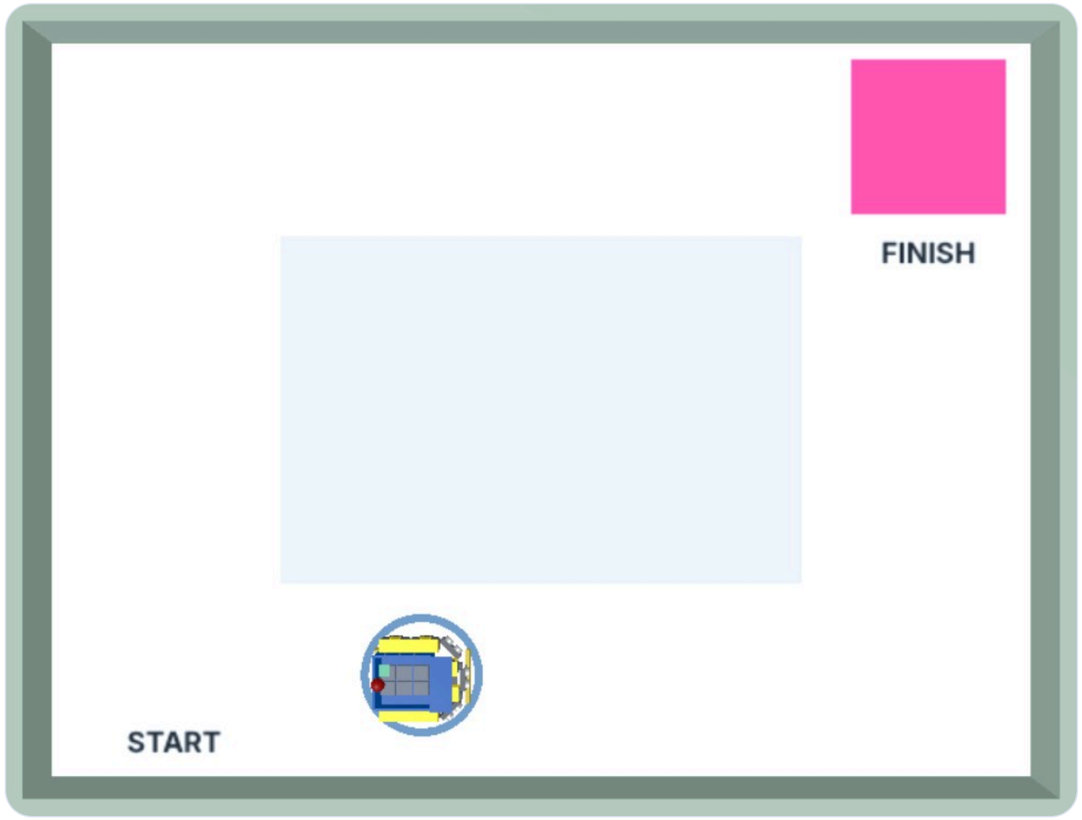
Front	0	255	(US_Front)
Left	0	255	(US_Left)
Right	45	255	(US_Right)

Duration	60	ms
Key Action	None	
WheelLeft	4.5	
WheelRight	1.5	

4 Forward
no conditions

Front	0	255	(US_Front)
Left	0	255	(US_Left)
Right	0	255	(US_Right)

Duration	60	ms
Key Action	None	
WheelLeft	4.5	
WheelRight	4.5	



STEP 4 · RUN · BOTTOM WALL

Between the wall and the block

Ultrasonic Sensors

Front	126	(US_Front)
Left	27	(US_Left)
Right	27	(US_Right)

Right **27**: in the good band. Front **126**: clear. So **Forward**.



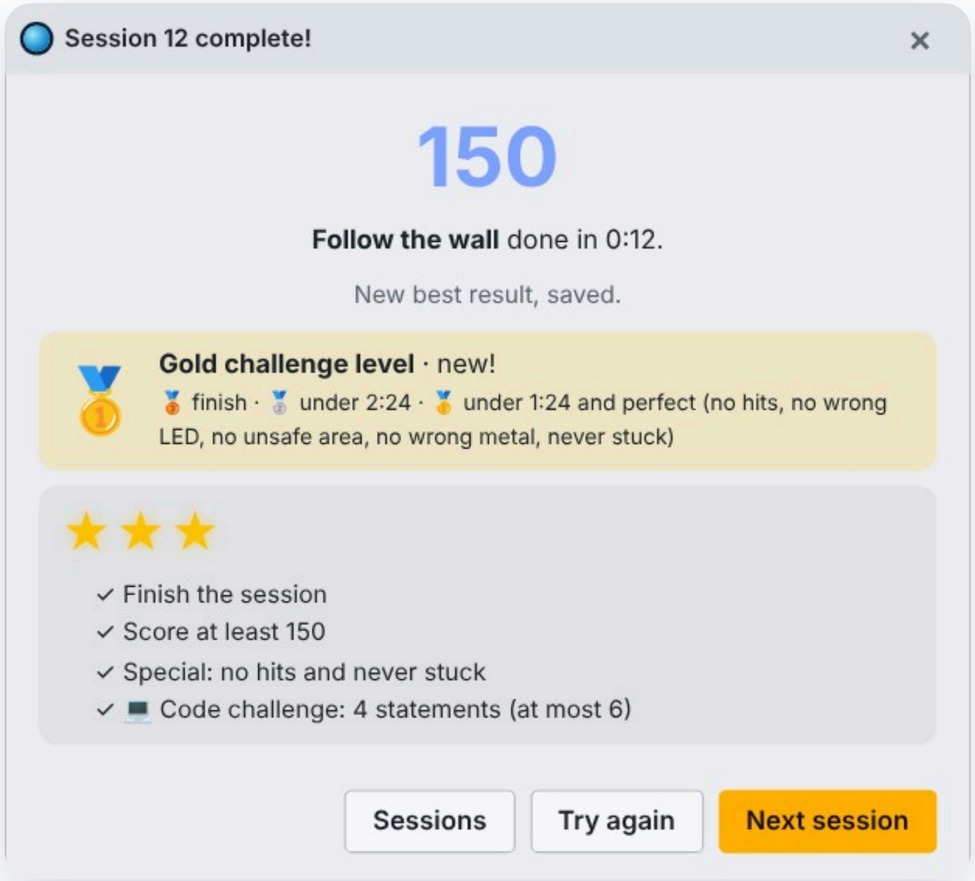
STEP 5 · RUN · RIGHT WALL

Round the corner and up

Ultrasonic Sensors

Front	109	(US_Front)
Left	40	(US_Left)
Right	27	(US_Right)

After the corner, the right wall is the outer wall again: Right **27**, straight up into FINISH.



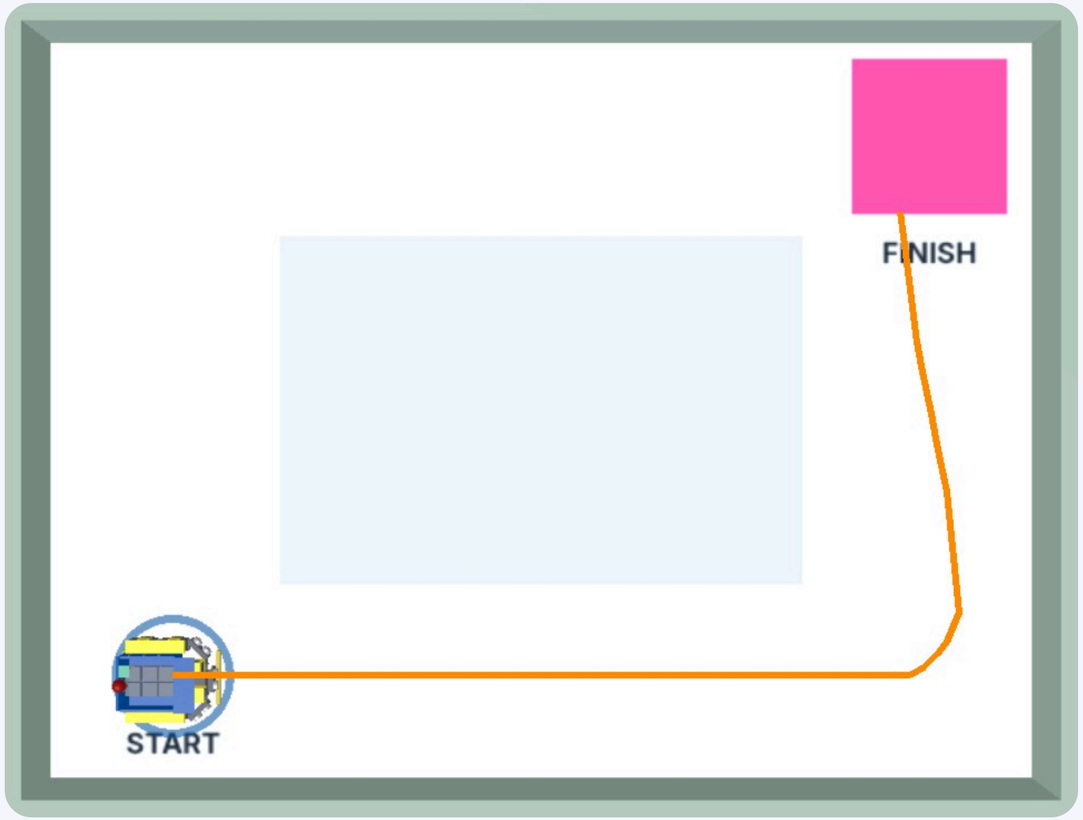
RESULT · TESTED

150 points in 0:12 · Gold

Medals · Silver: under 2:24 · Gold: under 1:24 and perfect.

Stars · finish · 150 · no hits and never stuck.

Code challenge · at most 6 statements. We used 4.



THE PATH · RECORDED

An L-shape round the block

Along the bottom, one corner, then up into FINISH.

Same program as the mazes. The **choice of wall** made it work.

DID NOT WORK?

Check first, then tune carefully

What you see	What to do
Goes round and round the block	You are following the block: use **US_Right**, not US_Left
Turns the wrong way at the corner	Ahead must spin **left**: −2 / 2
Wobbles along the wall	Check TooClose 0–22 and Lost 45–255
Old program still on the robot	**Build** again, then **Load** on BLUE

NEXT TIME

Presentation 13 · Water pond

Mining in water: a new Key Action and a **blue LED**.