PRESENTATION 18 · LEARNING WITH STATEMENTS

Search and return

Leave home, find two objects, come back and deposit: the green-deposit program with a new number.

TheBotCup 2026 · AiBotCup Simulator



RECAP · PRESENTATION 14

Collect, then deposit on green

Deposit, on top

both sensors green · LoadedObjects == full

Six collects

each with LoadedObjects < full

Last time “full” was 3. Today it is **2**, and the green box is where we **start**.

PART 1

The mission: Session 18

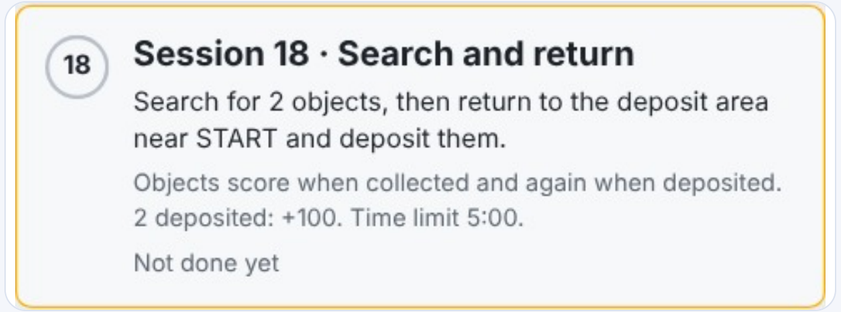
Out, find two, back home

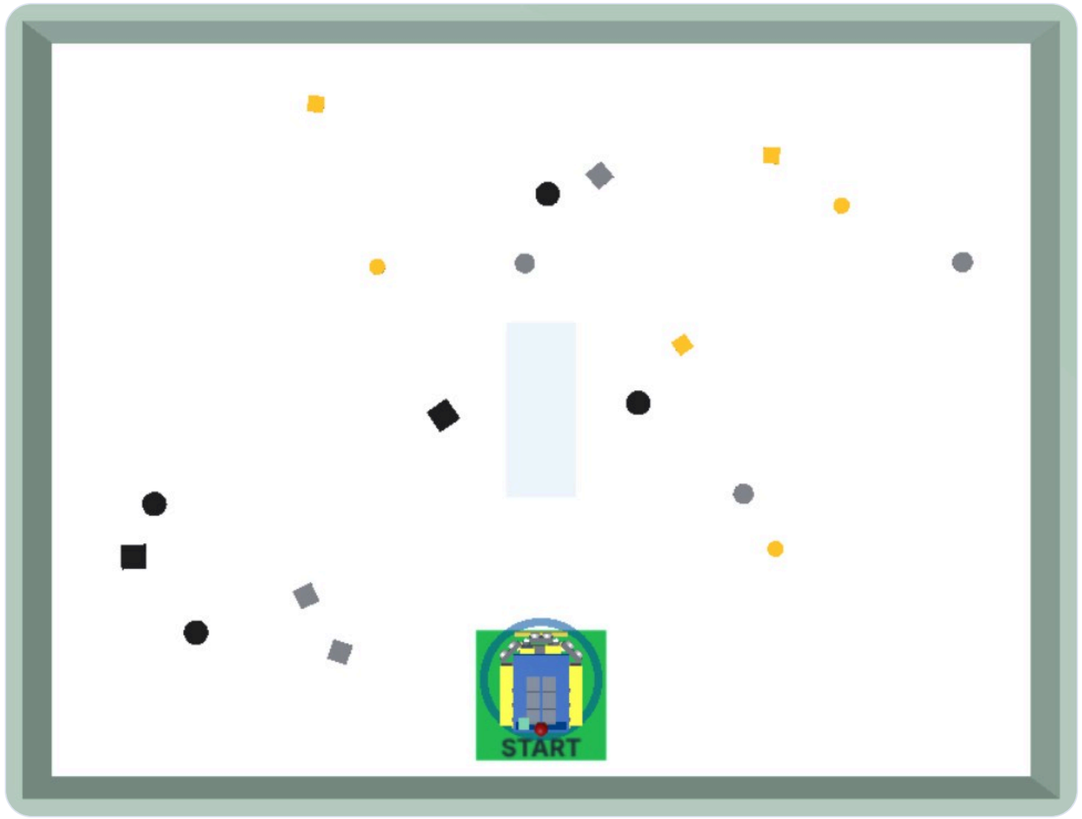
SESSION 18 · SEARCH AND RETURN

Find 2, return to the deposit area near START

Objects score when collected and again when deposited. 2 deposited: **+100**.

Time limit **5:00**. At most **12** statements.





THE FIELD

Home is green

The robot **starts inside** the green deposit box.

Metals all over the field; several close to home.

It must **leave**, then **find its way back**.

PART 2

Starting on green

Why doesn’t it deposit at once?

THE IDEA · CONDITIONS WORK TOGETHER

Green is not enough on its own

Moment	On green?	LoadedObjects	Deposit?
At START	yes	0	no, drives on
Searching	no	0 or 1	no
Back home	yes	2	**yes**

All conditions of a statement must be true. Deposit needs green **and** LoadedObjects == 2.

PART 3

Step by step in statements

Presentation 14's program, 3 → 2

STEP 1 · THE WHOLE PROGRAM

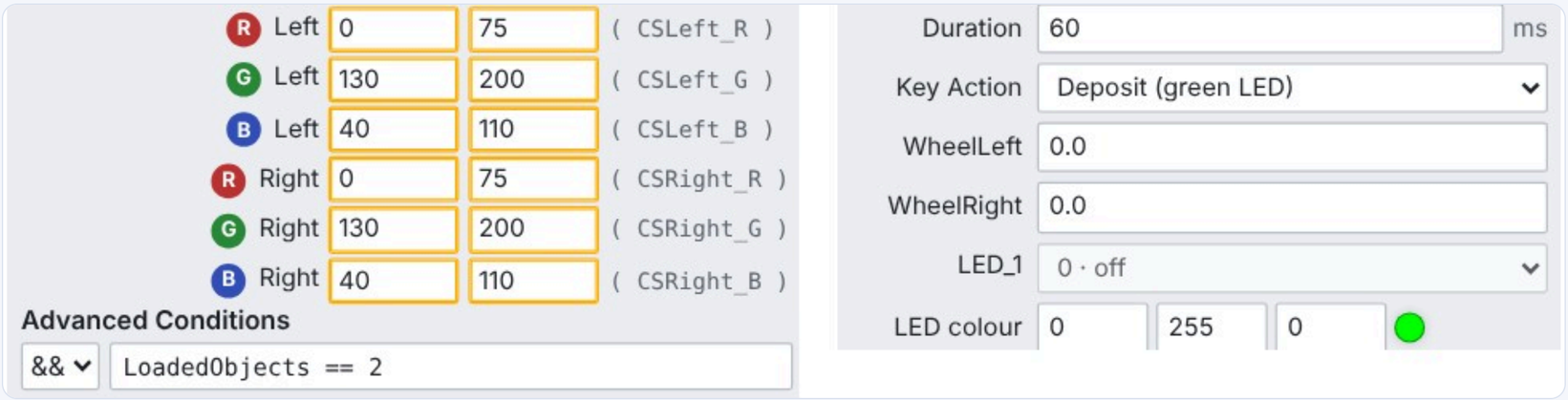
Nine statements, “full” = 2

Statement	Condition	Advanced	Action
1 Deposit	both sensors green	LoadedObjects == 2	Deposit · 0 / 0
2 IronLeft	left iron	LoadedObjects < 2	Collect · 0 / 0
3 IronRight	right iron	LoadedObjects < 2	Collect · 0 / 0
4 SilverLeft	left silver	LoadedObjects < 2	Collect · 0 / 0
5 SilverRight	right silver	LoadedObjects < 2	Collect · 0 / 0
6 GoldLeft	left gold	LoadedObjects < 2	Collect · 0 / 0
7 GoldRight	right gold	LoadedObjects < 2	Collect · 0 / 0
8 Ahead	US_Front 0–20	none	−2 / 2 · 700 ms
9 Forward	none	none	4.5 / 4.5

STEP 2 · STATEMENT 1

Deposit when home with 2

1 Deposit
both green · load 2

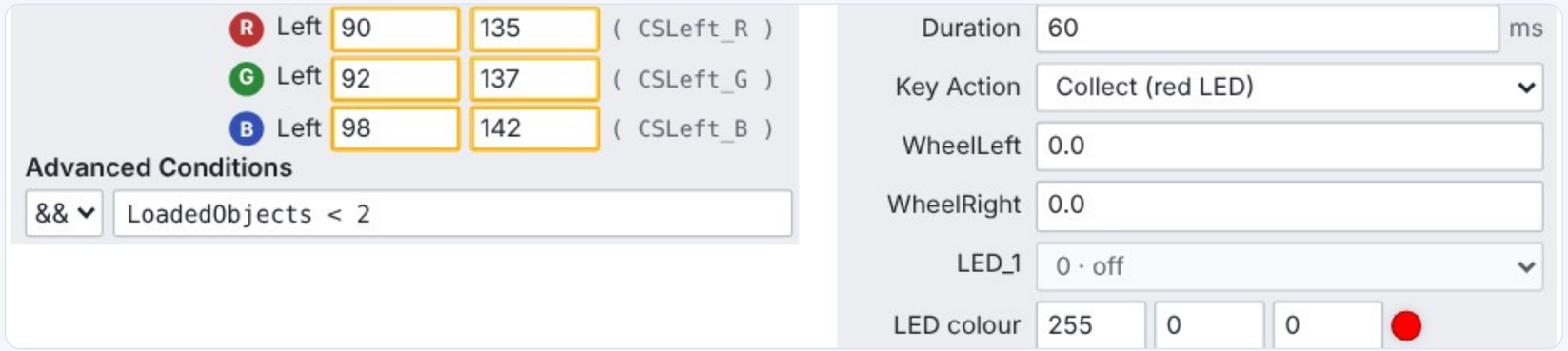


Same green range as Presentation 14. Only the Advanced Condition changes: **LoadedObjects == 2**.

STEP 3 · STATEMENTS 2 TO 9

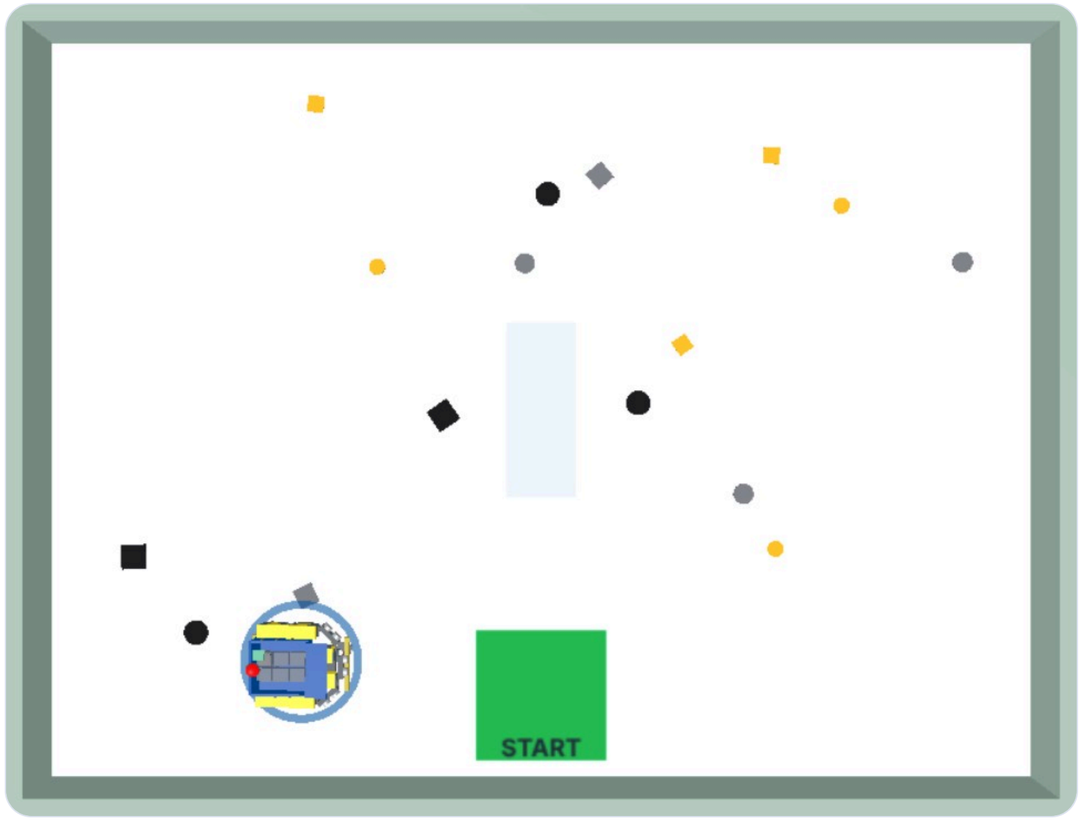
Collect while fewer than 2

4 SilverLeft
LoadedObjects < 2



All **six collects**: LoadedObjects < 2.

Ahead and **Forward**: unchanged.



Colour Sensors

Left R	110	(CSLeft_R)
G	109	(CSLeft_G)
B	118	(CSLeft_B)

left sees this colour

Right R	226	(CSRight_R)
G	231	(CSRight_G)
B	239	(CSRight_B)

right sees this colour

Robot

Wheels L **0.0** · R **0.0** · LED **2**

Load **1**/6 · Fe 1 Ag 0 Au 0

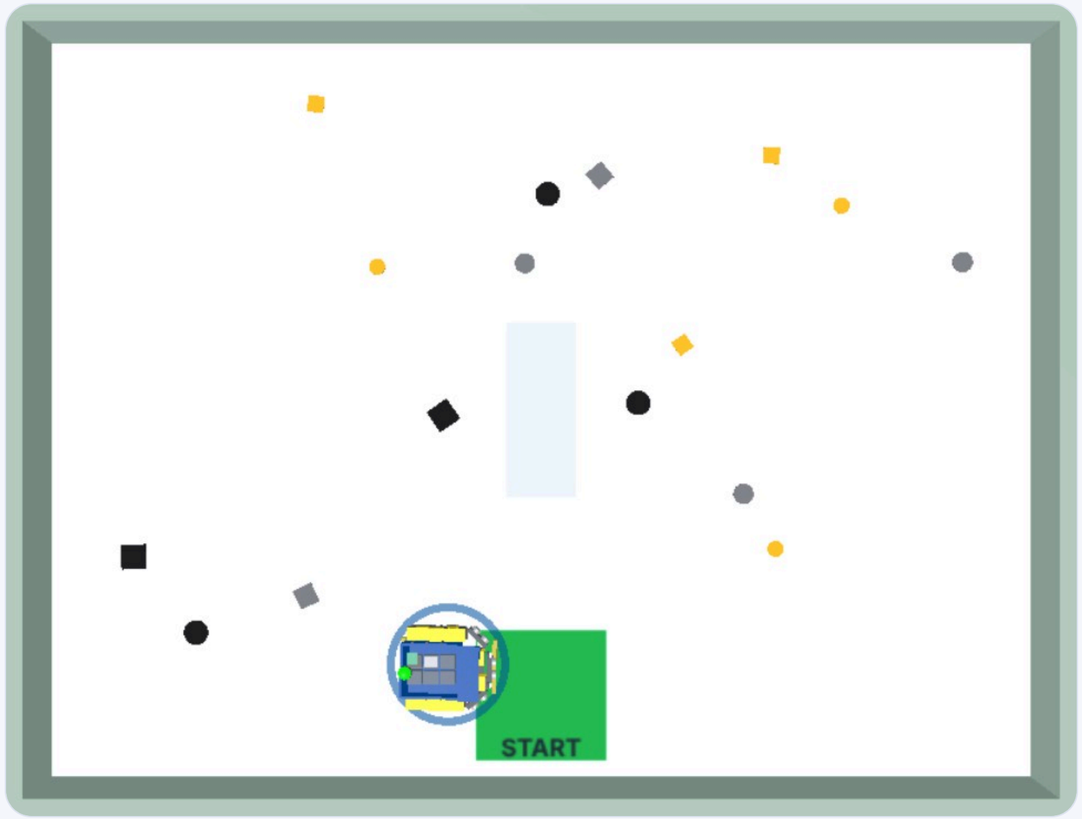
On **collecting 1.7 / 3 s**

STEP 4 · RUN · 0:15

The second object

Load **1** (an iron at 0:08). Left sees silver: **SilverLeft**.

Now LoadedObjects = **2**: no more collects.



Colour Sensors

Left R	31	(CSLeft_R)
G	162	(CSLeft_G)
B	71	(CSLeft_B)

left sees this colour

Right R	29	(CSRight_R)
G	159	(CSRight_G)
B	70	(CSRight_B)

right sees this colour

Robot

Wheels L **0.0** · R **0.0** · LED **1**

Load **2**/6 · Fe 1 Ag 1 Au 0

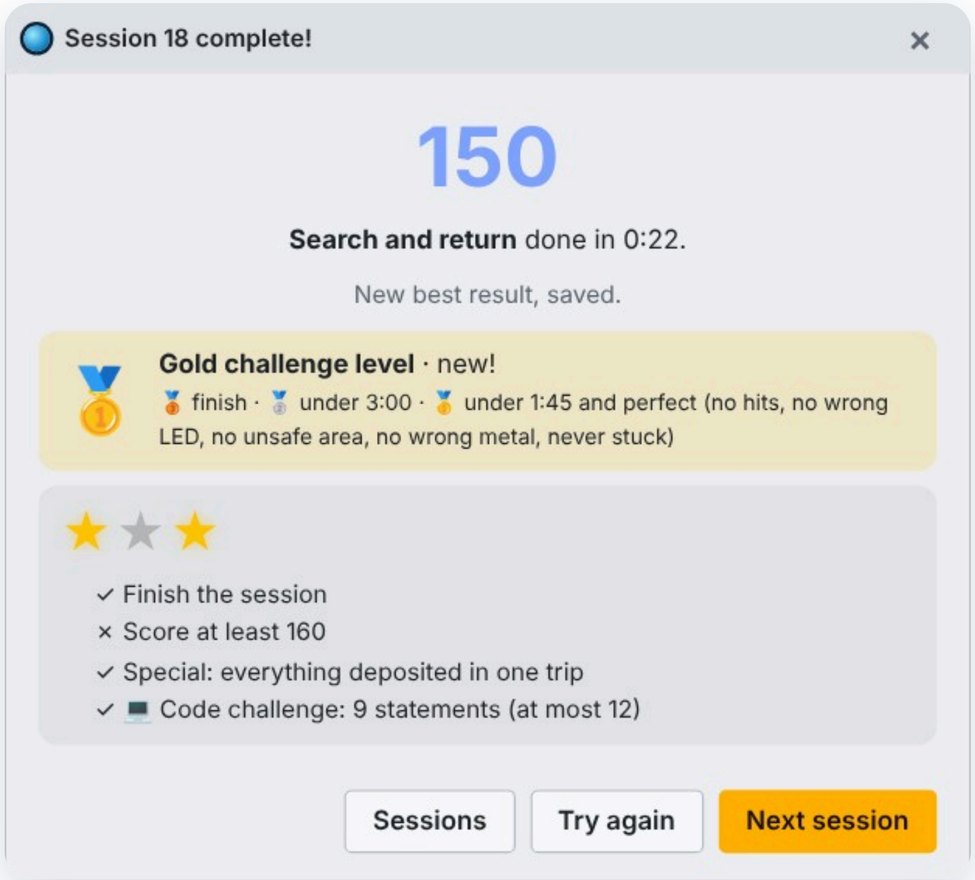
On **deposit area · depositing 1.4 / 3 s**

STEP 5 · RUN · 0:19

Back home

Both sensors green, load **2**: **Deposit**.

Both metals were near home, so the trip was short.



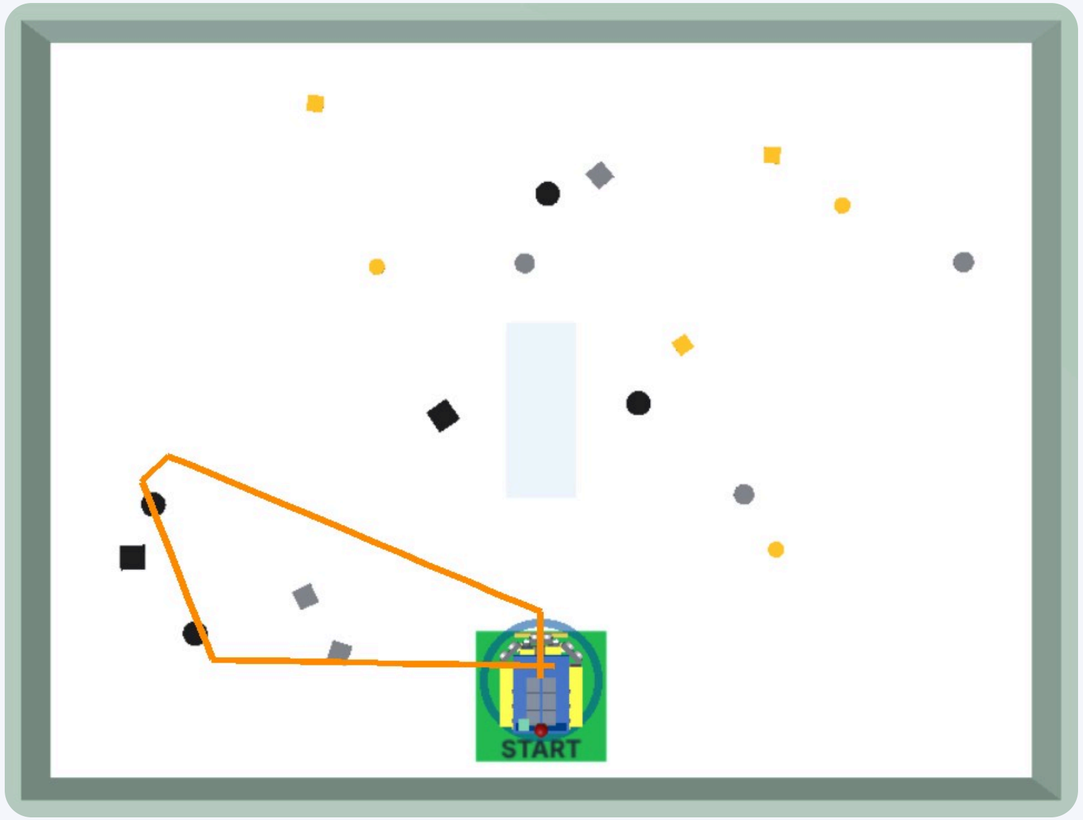
RESULT · TESTED

150 points in 0:22 · Gold

Score · iron 10 + silver 15, twice, + bonus 100.

Special · one trip. The “score 160” star was not reached.

Code challenge · at most 12 statements. We used 9.



THE PATH · RECORDED

A loop out and home

Out to the left, two metals, back into the box.

One program, one changed number: **reuse** what works.

DID NOT WORK?

Check first, then tune carefully

What you see	What to do
Collects a third object	Change every collect to **LoadedObjects < 2**
Comes home but never deposits	Deposit must say **== 2**, not == 3
Stops at START with nothing	Deposit is missing its Advanced Condition
Old program still on the robot	**Build** again, then **Load** on BLUE

NEXT TIME

Presentation 19 · Mini mission

Water, land and deposit together: **everything we have learned** in one program.