

Make your own mat

Draw a practice field, put it in RoboSimu at its real size, add things for the robot to push, and print it for the real table.

Two ways to get your mat in

	Upload a picture or PDF	Make a mat with AI
Best for	A mat you drew, or an official mat PDF	A quick practice field from a description
You need	The picture and its real printed size	To be logged in
Where	Mat page › Your own mat	Mat page › Make a mat with AI
You get	Exactly your picture; the sensors read its colours	Lines, zones, walls, objects and scored tasks

1. Draw the mat

Use any drawing app: Canva, PowerPoint, Google Slides, Inkscape or Paint all work. Set the page to the shape of the real mat before you start, so nothing gets stretched later.

2362 mm (the printed width)



Mat	Real size (mm)	Picture size, at least (pixels)
WRO RoboMission, FLL table	2362 × 1143	3000 × 1452
Practice board	2000 × 1000	3000 × 1500
Sumo ring	1200 × 1200	2000 × 2000

Colours the sensors read reliably

Colour sensors read the exact colour of each spot on your picture, so flat, strong colours work best.

Use these values in your drawing app:

	Colour	Code to type in	Use it for
	Black	#000000	Lines to follow (about 20 mm wide)
	White	#FFFFFF	The background, or a light grey #F2F2F0
	Red	#E3000B	Zones, stop marks
	Green	#00A651	Start area, zones
	Blue	#0072CE	Zones, water
	Yellow	#FFD500	Zones, warnings

- **No shadows, gradients or photos** under lines or zones: the sensor would read the shading.
- **Keep zones at least 50 mm across**, bigger than the sensor's spot, so a robot can stop on them.
- **Leave a plain margin** of about 50 mm around the edge, where the walls stand.
- Save it as **PNG** or **JPG**, or as a **PDF** (the first page is used).

2. Put it in RoboSimu

1. Open the **Mat** page.
2. Under **Your own mat**, drop your picture or PDF on **Upload an image or PDF** (or click it to choose the file).
3. Type the real **Width** and **Height** in millimetres, or pick a **Size preset**. Tick **Keep the image's proportions** so it is never stretched.
4. Under **Table walls**, choose **On** or **Off** and set their **Height** and **Thickness** in centimetres.
5. Press **Apply size and walls**, then **Run on this mat**.

Check the size. Drive a robot along a line you know the length of. If it looks too short or too long, the width and height you typed are not the real printed size.

3. Add things to push, avoid or collect

On the **Run** page, open **Add objects** and pick what to place. Each one goes to a random free spot on the mat:

Object	What it does
Bottle (2 L)	Pushable: sumo, clean-up and sorting games
Can	Pushable, lighter: collecting games
Block (5 cm)	Pushable cube
Ball (tennis)	Rolls when pushed
Wall	Fixed: the robot cannot move it (mazes, obstacles)

- **New random spots** moves the objects you added; **Remove added** takes them away.
- **Shuffle** gives a new random layout and **Reset objects** puts everything back at its start.
- Added objects stay through Reset and never change the official score of a competition field.

4. Or describe it to the AI

Log in, then on the **Mat** page type what you want under **Make a mat with AI** and press **Make mat**. Say the size, what to draw and how points are scored. For example:

"A 2000 × 1000 mm mat with a black line from a green start box on the left to a red finish on the right, three blue squares along the way worth 10 points each, and walls around the edge."

Not quite right? Describe the change ("make the line wider", "add a yellow parking zone") and make it again.

5. Print the mat for the real table

- Send the same picture to a print shop as a **banner or matte vinyl** at its real size. Ask for **100 % scale, no "fit to page"**.
- Matte printing works best: shiny vinyl reflects light into the sensors.
- Measure the print when it arrives. If the size is different, type the measured size on the Mat page so the simulator matches.
- Tables and official mats to print are on the **Help** page, under **Print and build**.

Checklist

- The picture has the same shape as the real mat (for example 2362 × 1143).
- Lines are pure black and about 20 mm wide; zones are flat colours from the table above.
- The real width and height are typed on the Mat page, and the walls are set.
- A test drive along a known distance matches the real mat.

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