Tidy up the Toys

Premise:

You keep on tripping over toys that are strewn all over the floor. It's time to get them organised!

Aim of the Challenge:

To organise the toys into one of two arrangements, using one of two methods.

Control Method:

Remote control or Autonomous.

Time Limit:

5 minutes.

Rules

Three coloured cubes with sides of 50mm will be placed inside your 1500mm x 1500mm arena.

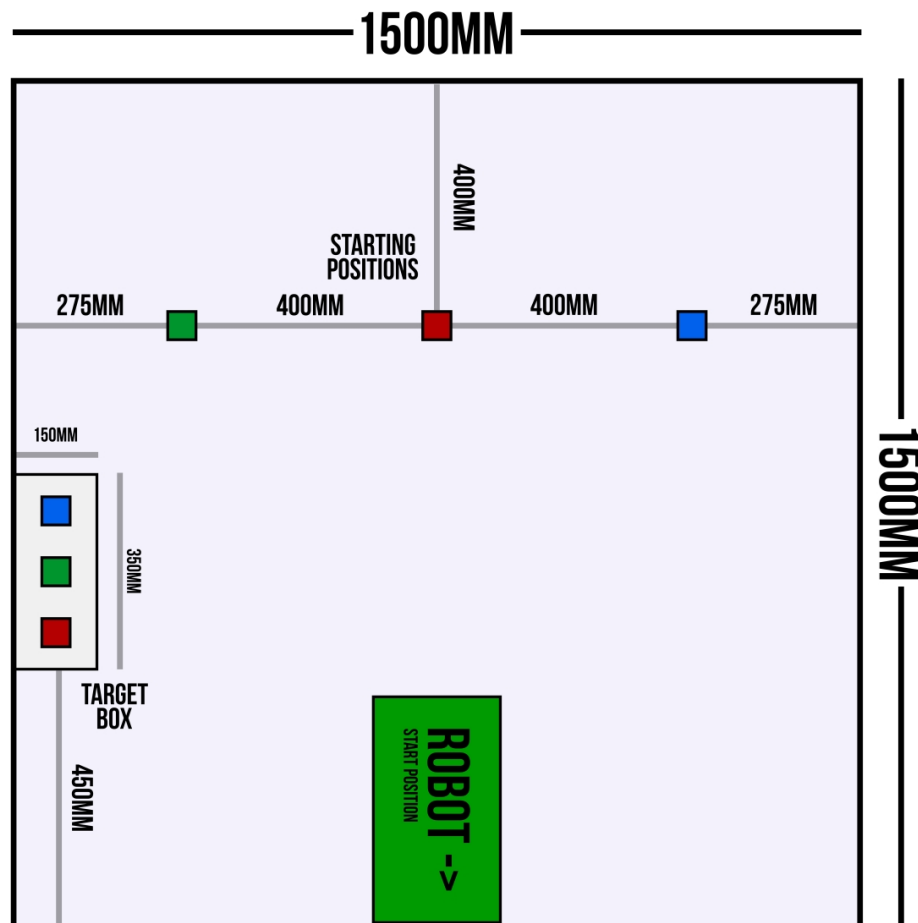They must be placed according to the diagram below, in the same order as shown.

Your blocks may be made out of any material. There are some wooden ones available on Etsy, just as an example. There are also plenty of different ones on eBay.
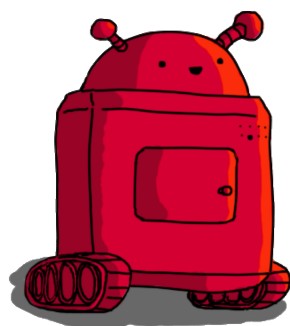
A 3D printable, hollow cube available on Thingiverse.

A laser-cuttable version available over at Open Pi Robotics. Thanks to Brian Corteil for designing it!

Your robot will start facing the "bottom" wall and will need to turn around to face the blocks. If you are planning on mounting a "grabber" on the back of the robot, the front of the grabber should face the wall.

You must turn around to face the blocks in their starting positions.

TIDY UP THE TOYS

(Diagram: Arena 1500MM x 1500MM)
- 400MM
- STARTING POSITIONS
- 275MM | 400MM | 400MM | 275MM (green, red, blue cubes)
- 150MM
- 350MM
- TARGET BOX (blue, green, red)
- 450MM
- ROBOT START POSITION

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Rules

Your robot will need to move all of the blocks so that they are placed inside a target box (shown on the diagram) and so that they are ordered Red, Green, Blue in one of the following two 'arrangements':

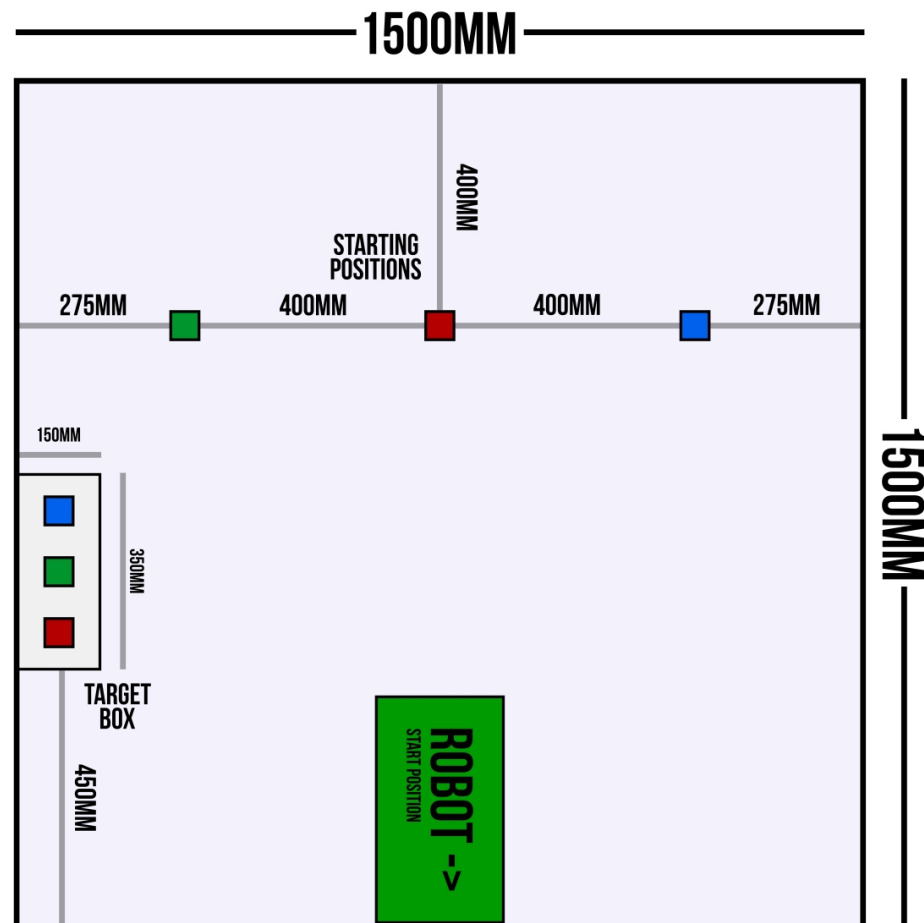Side by side with no more than 50mm between them.

One on top of the other with the Red block on the top, Green in the middle and Blue on the bottom.

You can place the blocks in either of the two arrangements by whichever method you wish: Remote control or Fully autonomous.
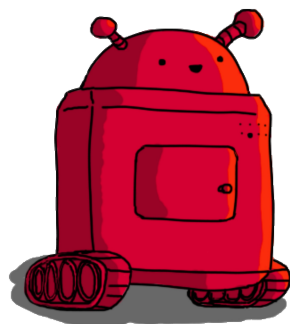
Please do not mix methods as it will make it impossible to rank you.

You may run the course as many times as you wish but you should submit the video of your fastest run which should be completed in less than five minutes.

The colour of the cubes, whilst needing to be Red, Green and Blue, can be any shade of those colours that you choose.

1500MM

400MM

STARTING POSITIONS

275MM   400MM   400MM   275MM

1500MM

150MM

350MM

TARGET BOX

450MM

ROBOT
START POSITION

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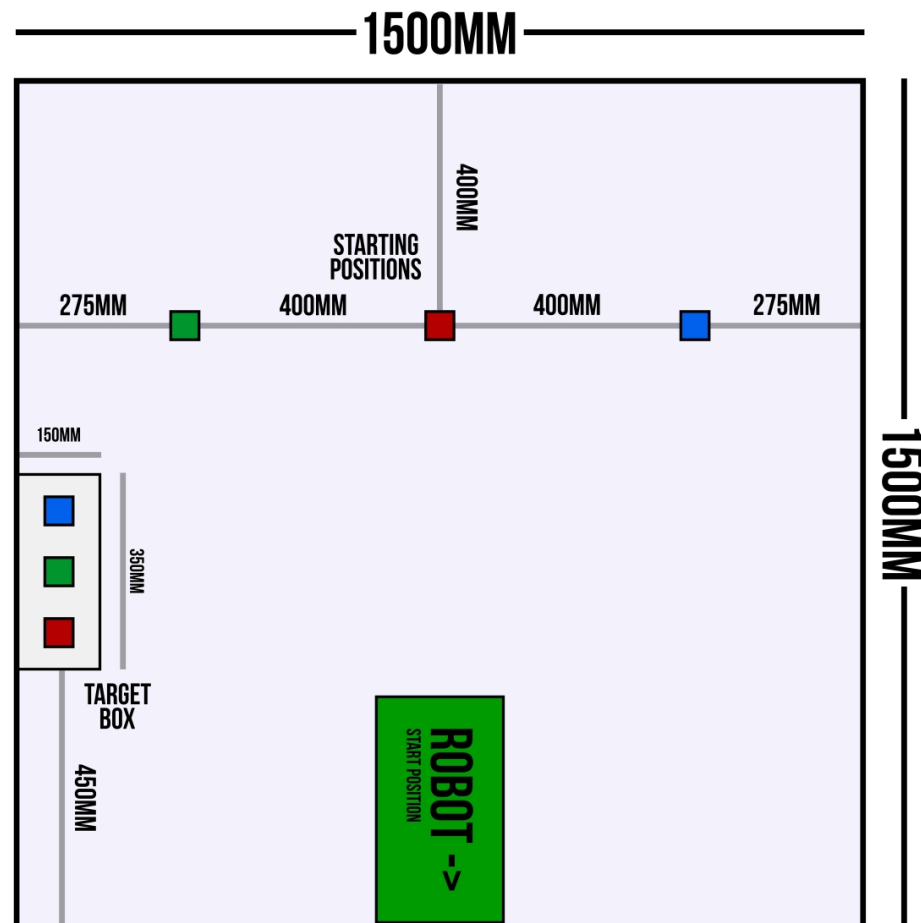
Aim of the Challenge:

To organise the toys into one of two arrangements, using one of two methods.

Control Method:

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Time Limit:

5 minutes.

Rules

You may place markers (such as QR codes) or coloured patches on or around the Target Box to aid navigation and placement of the blocks.
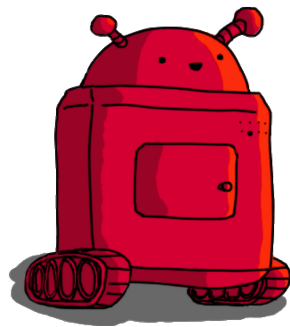
Ranking and Points

Robots will be grouped together in Remote Control and Autonomous categories and then ranked according to their fastest run.

Points will be awarded to the top ranked robots in each group according to the Formula Scoring System.

Additional Points

There will be points awarded for each coloured block placed inside the target box on your fastest run. That way, if you fail to complete your run in five minutes, you will still receive some points for the completed elements. (These points may be different depending on method and arrangement).

There will be a bonus for successfully completing a stacked arrangement.
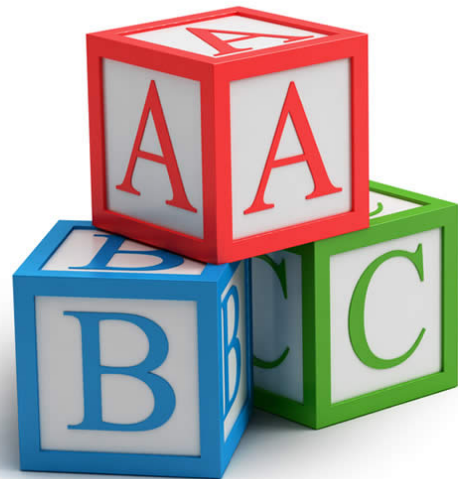
1500MM

400MM

STARTING POSITIONS

275MM 400MM 400MM 275MM

1500MM

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350MM

TARGET BOX

450MM

ROBOT
START POSITION
->

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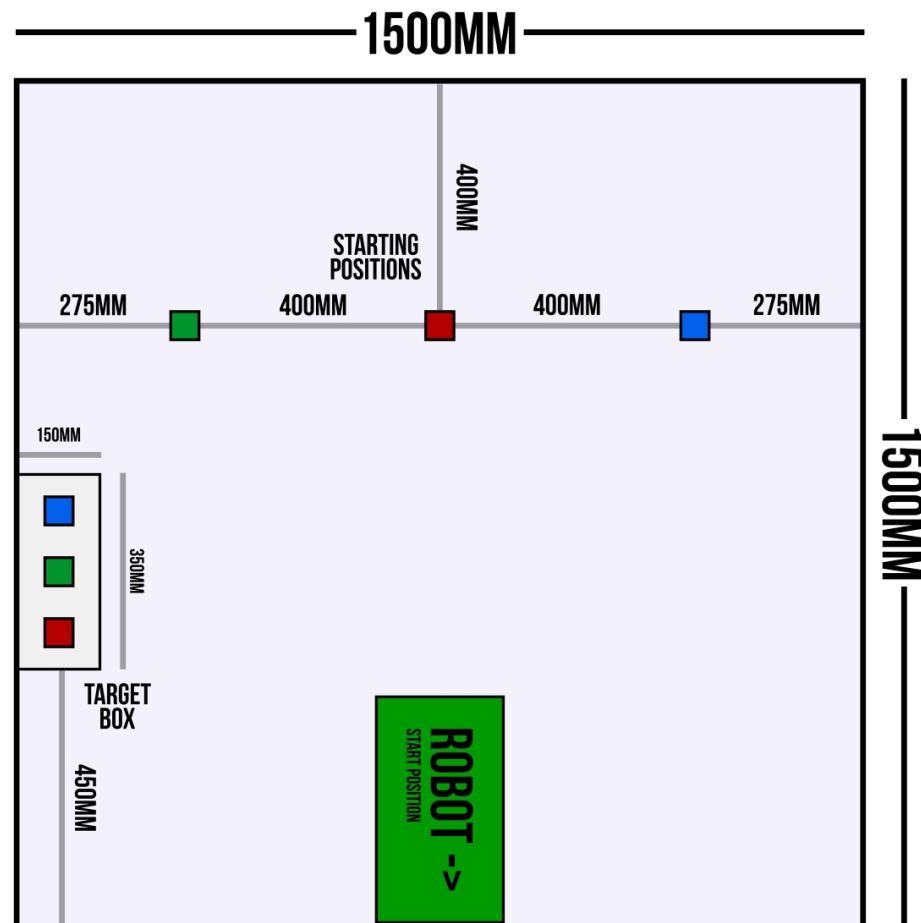
Remote control or Autonomous.

Time Limit:

5 minutes.

Penalties

You will be deducted points each time your robot hits the arena side wall. (You are allowed to push the blocks against the wall without penalty).

Notes:

1500MM

1500MM

400MM

STARTING
POSITIONS

275MM   400MM   400MM   275MM

150MM

350MM

TARGET
BOX

450MM

ROBOT
START POSITION

TIDY UP THE TOYS