techcamp
.org.uk
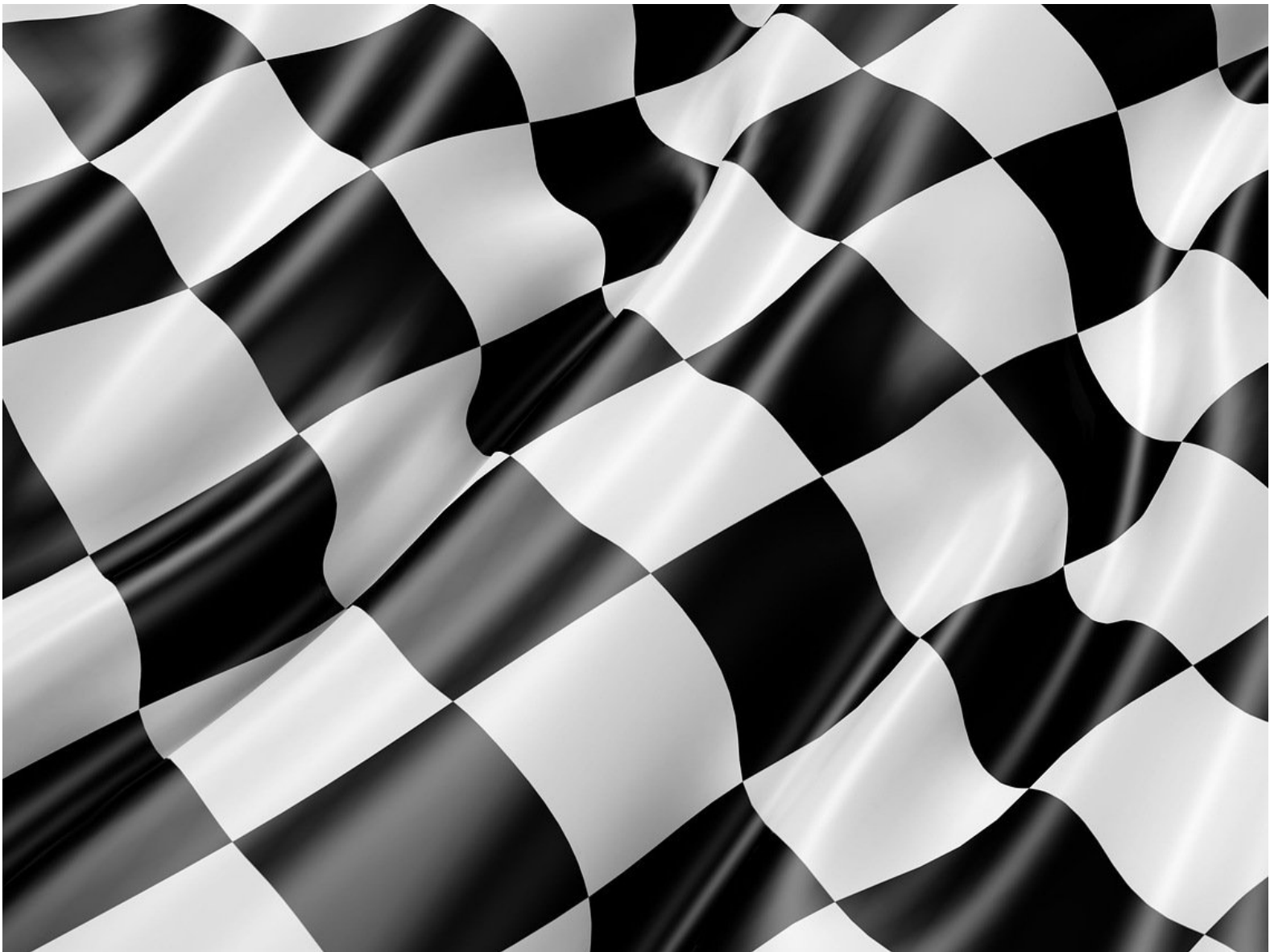
D - Speed Competition!

Using all the things you've learned so far, build them all into one big line follower program that is as clever and reliable as possible!

INTRODUCTION

Using all the things you've learned so far, build them all into one big line follower program that is as clever and reliable as possible!
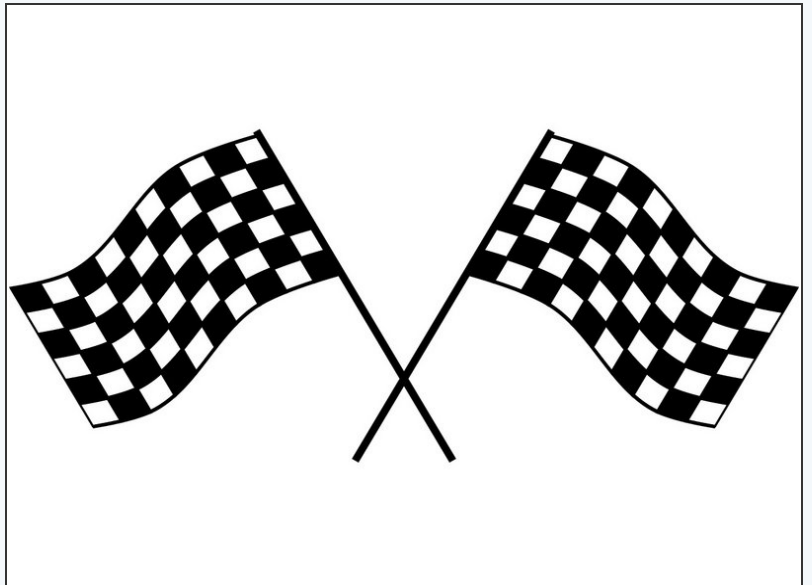
Step 1

Speed Line Following

- Whilst line following robots are very important in factories, **speed line following competitions** are very popular in Universities and schools all over the world.

- Have a look at the video from a competition in Japan - this robot even does **2 runs**. On the first run it **learns the track** so it can go really fast on the second run!

Step 2

Race time!

- **Your teacher will tell you exactly what course you will be racing on,** but it could contain **anything** you have learnt so far:

  - Curvy tracks

  - Breaks in the track

  - Sharp Turns

  - Obstacles

- You need to make the **best program you possibly can** to complete the course in the **fastest time.**

- You will have a chance to **test your robot** on the course before the race at the end.

This document was generated on 2021-12-30 11:42:33 PM (MST).

© 2021   courses.techcamp.org.uk/   Page 2 of 6

Step 3

Some Tips

- A **proportional** system will usually be faster than a simple digital one

- Test your robot as much as you can to find out where it might go **wrong!**

- **Use Sparkles as feedback** to help you work out exactly what your robot is doing

- Try and have something in your program that **attempts to find the line again** if the robot gets lost - you **never know what will happen** on the final run!

- Try to keep your program simple **(don't use more blocks than you need to)** to keep it running quickly.
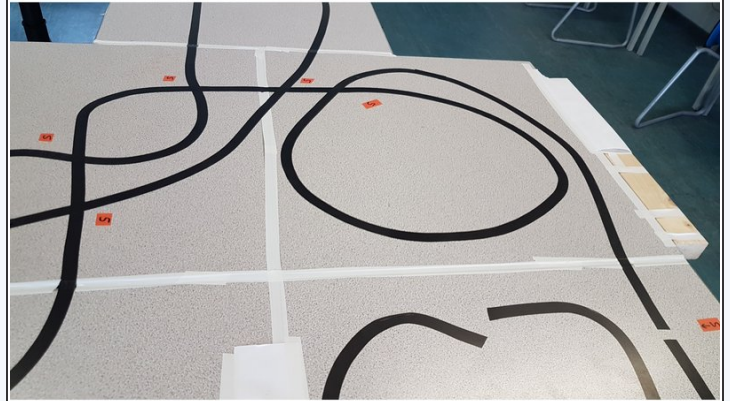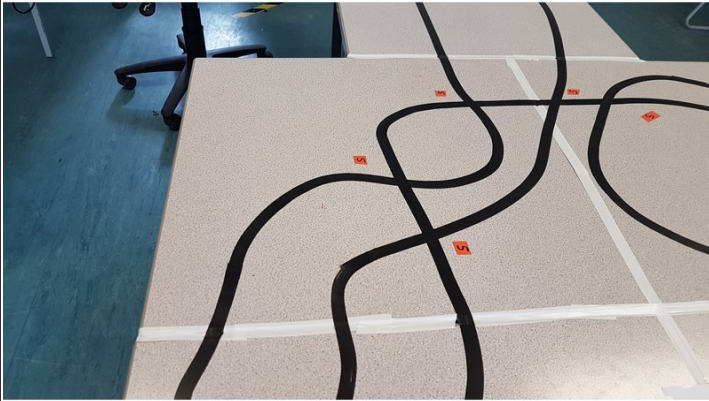
- Good luck!

Step 4

Course Examples
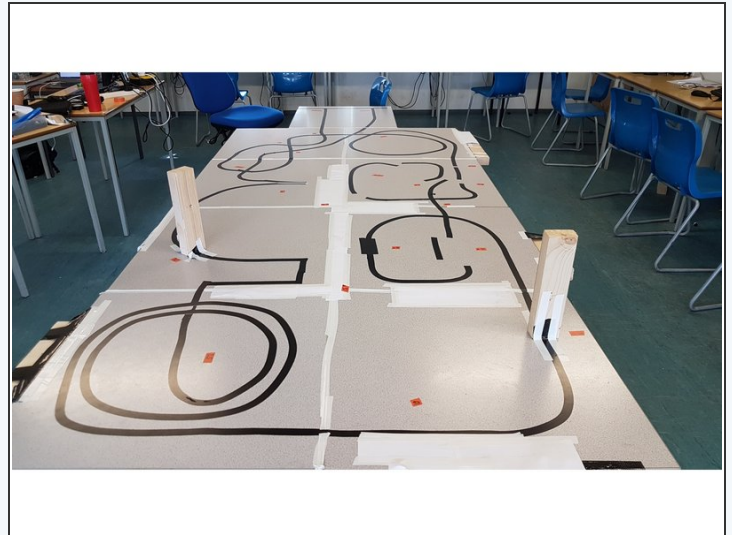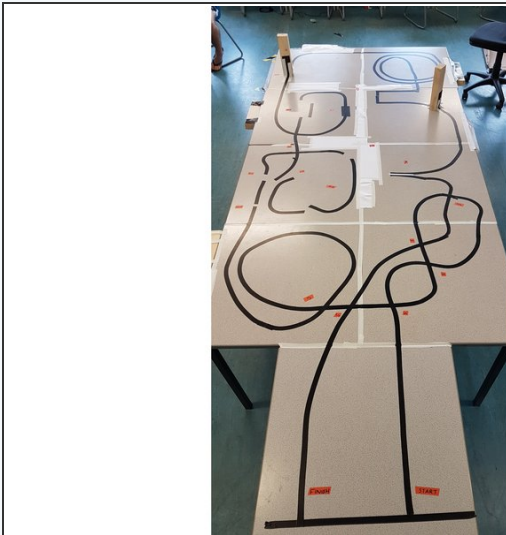
- Here are some examples of obstacles you could use in a course!

- You can assign points to each obstacle, so each one successfully navigated gets a certain number of points, depending on the difficulty.

Step 5

Crossovers

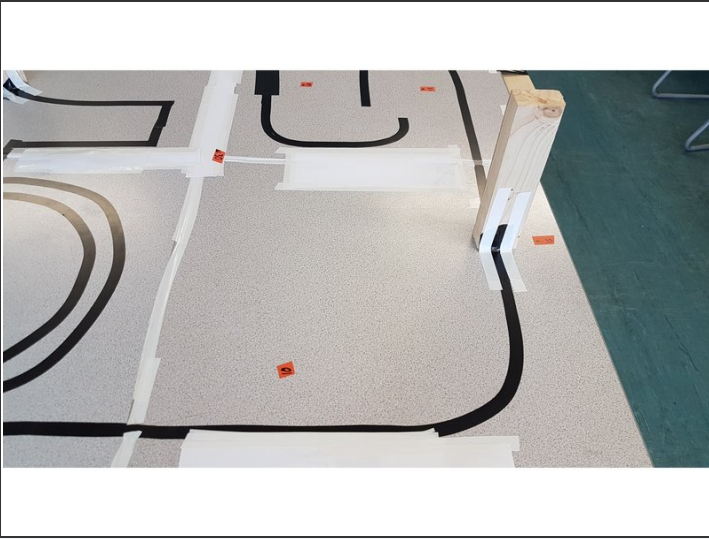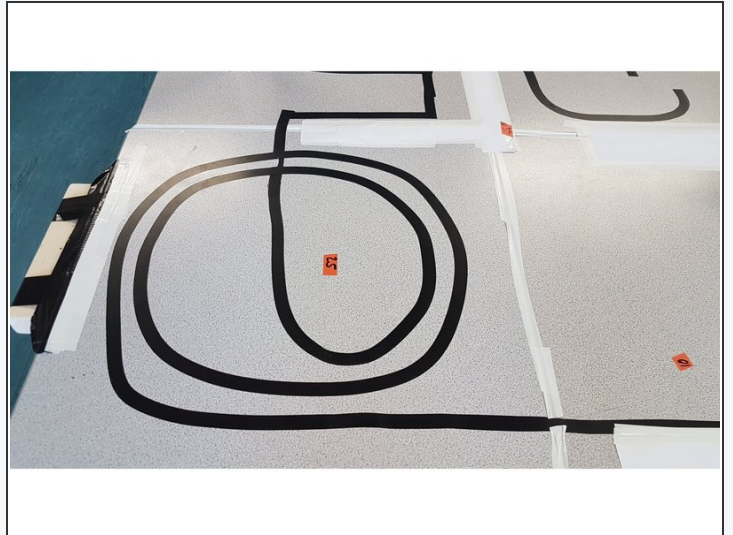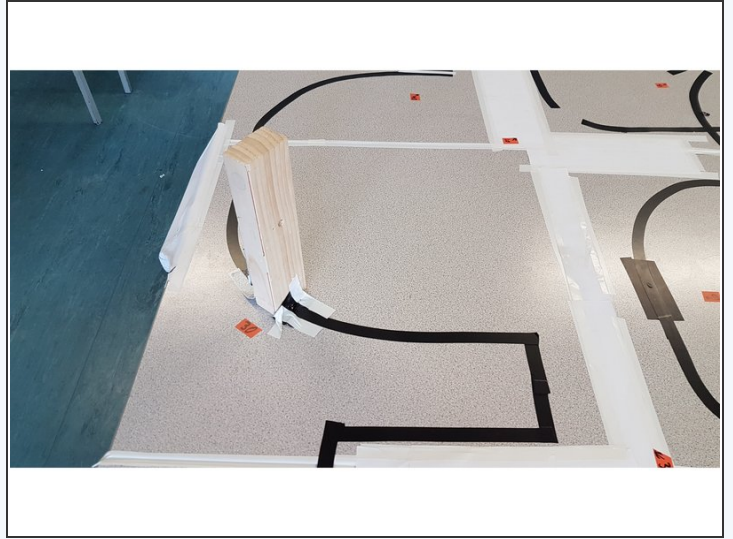- Here are some crossovers and tightly packed tracks.

Step 6

Breaks

- Straight breaks, curved breaks and offset breaks

This document was generated on 2021-12-30 11:42:33 PM (MST).

© 2021 courses.techcamp.org.uk/ Page 4 of 6

Obstacles and Spirals

- Obstacles (on curved and straight track), thin sections and a spiral

This document was generated on 2021-12-30 11:42:33 PM (MST).

© 2021   courses.techcamp.org.uk/   Page 5 of 6

Step 8

Switchback

- This one is very difficult - the dead end switchback!

This document was generated on 2021-12-30 11:42:33 PM (MST).

© 2021   courses.techcamp.org.uk/   Page 6 of 6