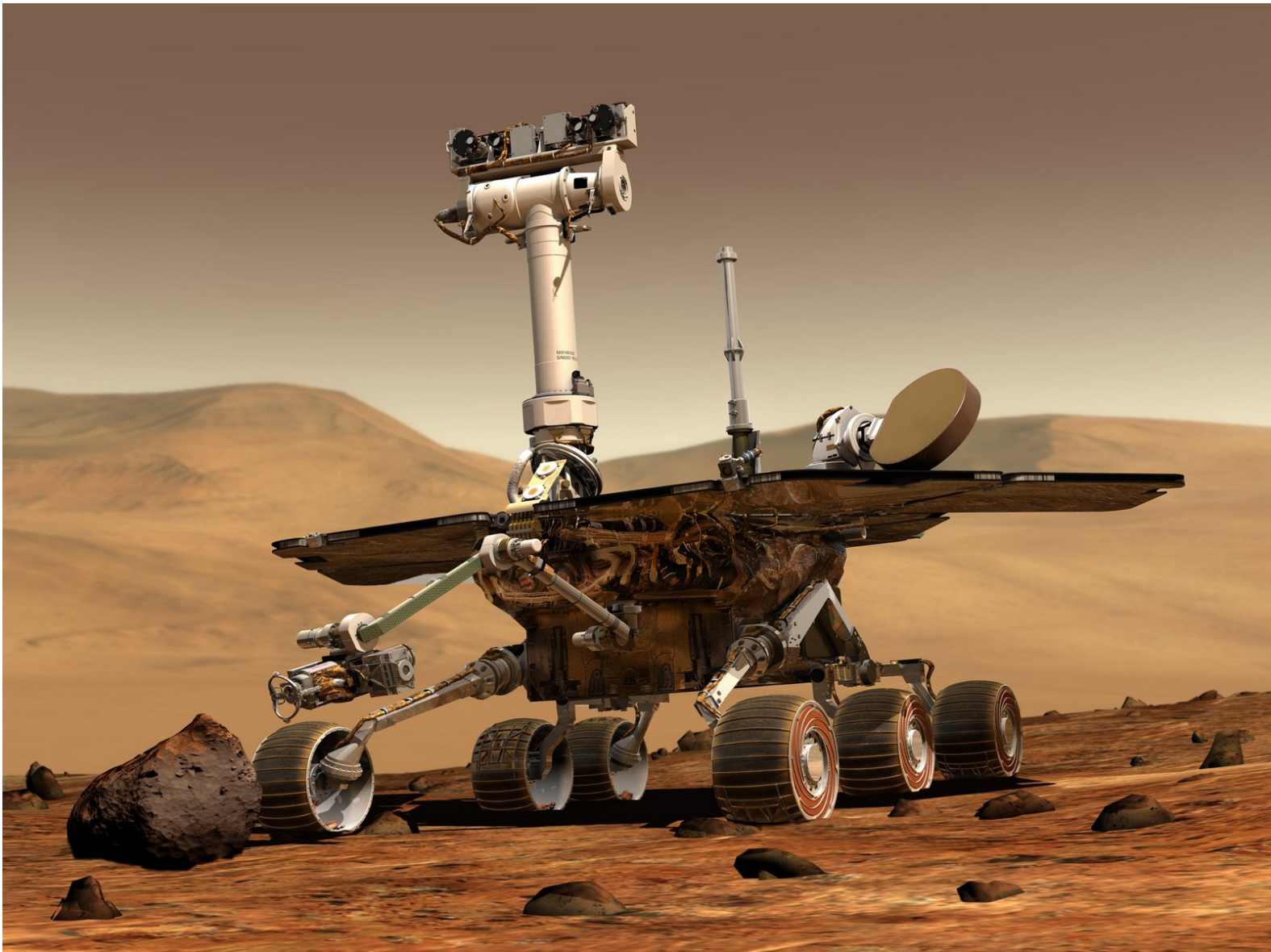# techcamp
.org.uk

B - Exploring the Planet

Our robot needs to do more than just move backwards and forwards if we are going to explore Mars - let's learn how to make it turn!
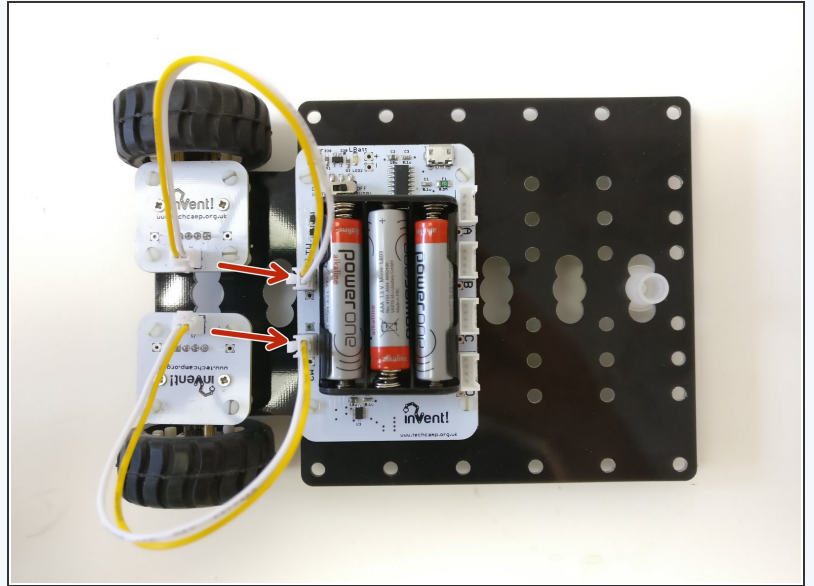

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INTRODUCTION

Our robot needs to do more than just move backwards and forwards if we are going to explore Mars - let's learn how to make it turn!

Step 1

Robot Setup

- Your robot should be setup in the same way as the previous section!

⚠️ Don't forget that the left motor should be plugged into M1, and the right motor into M2!

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How to turn

- Turning a car is easy - you can just rotate the wheels!

- However the wheels on most robots are **fixed,** so we have to do something different.

- Fixed wheel machines steer using **'skid steering'** - exactly the same way as a tank! You might have also seen small diggers that have 4 fixed wheels steering like this as well.

- Skid steering is easy - you just **increase or decrease the speed of one wheel**, and the robot will turn!

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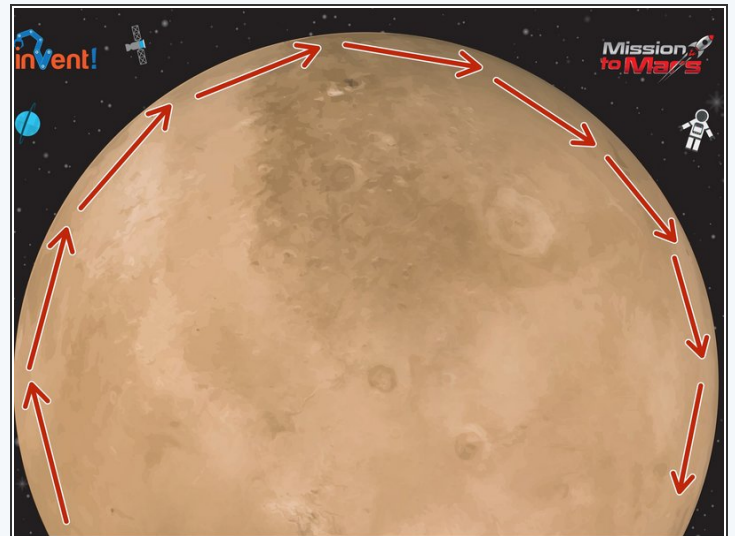
Step 3

Turning Test

- Create a simple sequence to make your robot **drive forwards**

- Now **change the speed** of <u>one</u> of the wheels, and upload your code.

- Which way do you think the robot will turn? How can you make it turn faster? **Experiment and find out for yourself!**
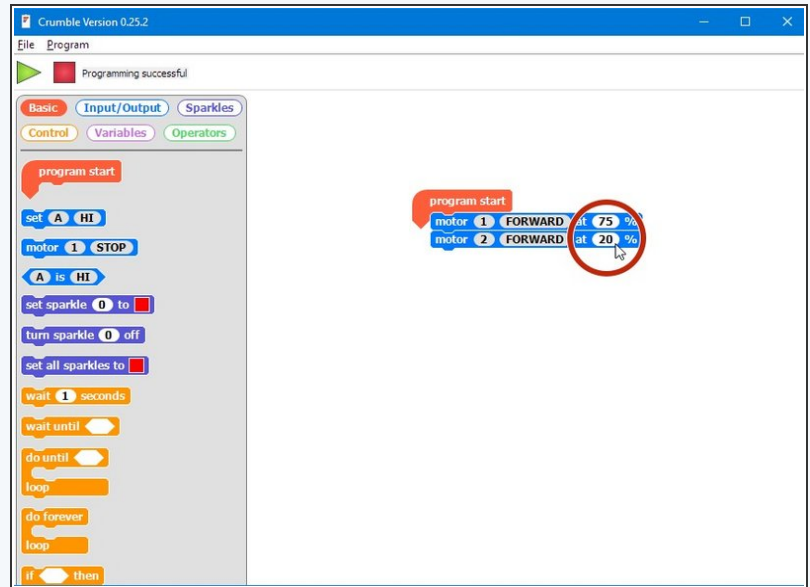
Step 4

Turning Challenge

- Let's use what we've learned to **pickup** the stranded astronaut again.

- This time, pickup the astronaut by driving your robot **around the outside of the planet!** Try and stay as close as you can to the edge.

- Make sure you **end up where you started from.**

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Step 5

Super Fast Turning!

- You may have worked this out already, but we can actually make our robot **spin on the spot** if we want to!

- Try making one motor go **forwards** at 100%, and the other **backwards** at 100%. Your robot should spin on the spot!
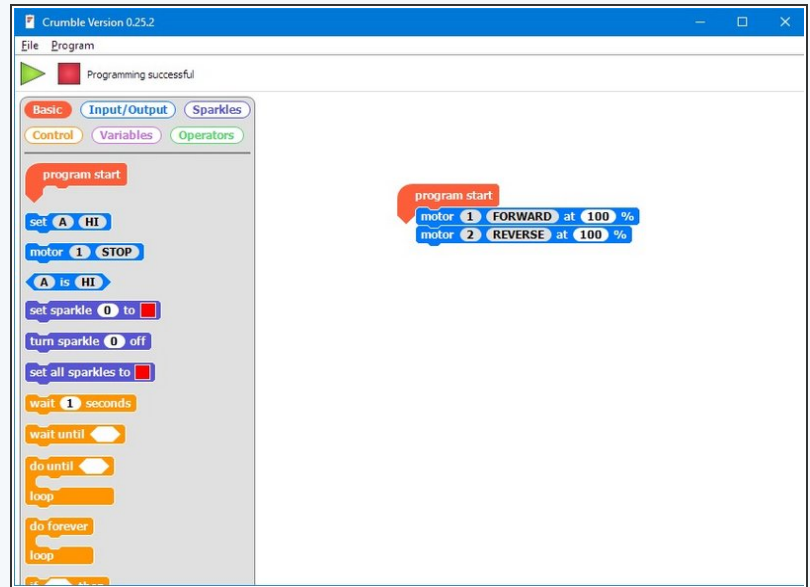
Step 6

Spinning Challenge

- Now we can turn the robot, let's pick up the astronaut by driving across the planet, but come back **facing forwards!**

- Write a program to go and **pick up** the astronaut, **turn** on the spot and drive back to base going **forwards**.

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