

Basic Robot Interaction

Introduction

We're going to explore a few of the new blocks with the Turtlebot extension.

Step 1: Moving forwards & backwards

✓ Activity Checklist

- ☐ Your teacher should have already helped you to setup Scratch with the extension for the Turtlebots
- ☐ You should see a 'More Blocks' tab in addition to the usual Scratch block lists.
- ☐ Before you continue, make sure the 'Status' Orb is green!
- ☐ Add this code to get the robot to just move forward one step when the flag is clicked.



- ☐ This sends one message to the robot telling it to move forward.
- ☐ The move for n seconds block will automate what we did above for a set amount of time.
- ☐ Try it out! Don't set the time too high, you don't want the robot to hit anything!



- ☐ Let's try changing the speed of the robot.
- ☐ There's two different blocks for setting the speed, one is for rotation, and one is for moving forward and backwards. We'll start with the forward/backward speed because these are the blocks that we've used.

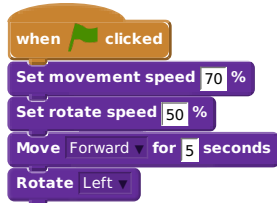


- ☐ This uses percentage to set the speed, so anything above 100 will not be counted.
- ☐ Feel free to play around with the speed a little bit before moving on.
- ☐ As we've done above, we can do exactly the same with moving backwards, the Move blocks have toggles to switch between forward and backward.

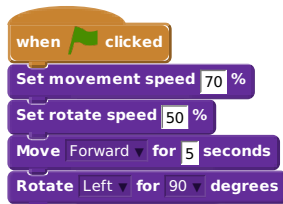
Step 2: Rotation

✓ Activity Checklist

- ☐ We've covered the basics of moving forward and backward, but robots need to be able to do more than that.
- ☐ Rotation is extremely useful when we want to send a robot to perform intelligent tasks.



- ☐ Similar to how the Move forward block worked, the Rotate block only sends one action telling the robot to rotate.
- ☐ We can add to this using rotate for a number of degrees. However be aware that inaccuracies in the robots system mean that rotations wont often be exact.



- ☐ We can put these blocks together as we wish, including already existing Scratch blocks to make the robots perform more and more complex behaviour.

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