

LEGO Mindstorms

Challenge 1

Your challenge is to create a programme that will make the NXT:

- Go forwards until
- It bumps into something using the touch sensor
- It then needs to reverse for 2 seconds
- rotate for 1 revolution
- say 'whoops'
- Wait for new instructions

Extension:

- Make the robot repeat this until it is told to stop



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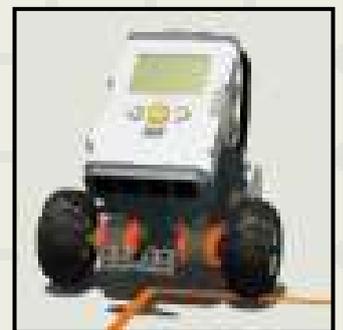
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Extension:

- Make the robot repeat this until it is told to stop



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Challenge 2

Your challenge is to create a programme that will make the NXT:

- Travel forwards until it hits something
- It should then say 'whoops',
- then reverse for 1 second,
- turn 90 degrees left,
- and drive forwards until it hits something,
- this should continue until the NXT is stopped.



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Challenge 2

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- Travel forwards until it hits something
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- this should continue until the NXT is stopped.



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Challenge 3

You will need to attach the light sensor to the NXT for this challenge.

- Use some masking tape to mark a line on the floor.

Programme the NXT to: Drive forward on unlimited until it senses the line,

- Use a movement block to move forward
- Use a wait for light box to sense the line. Our carpet gives a light reading of under 40 and the masking tape above 50.
- Once the line is sensed use a move block to tell the NXT to stop.



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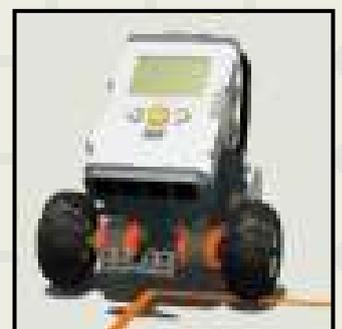
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Challenge 4

You will need to attach the light sensor to the NXT for this challenge.

- Use masking tape to mark a large rectangle on the floor.

Programme the NXT to: Move around within a frame, sensing the boundaries.

- Tell the NXT to move forward on unlimited.
- When it senses the line of tape tell it to stop moving.
- Then tell it to turn 150 degrees.
- Make sure the command is a loop so it will go back to the start.



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Challenge 4

You will need to attach the light sensor to the NXT for this challenge.

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Challenge 5

You will need to attach the sound sensor to the NXT for this challenge.

Programme the NXT to: Drive forward on unlimited until it senses a loud noise.

- Work it out yourselves!



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Challenge 5

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Challenge 6

You will need to attach the sound sensor to the NXT for this challenge.



Programme the NXT to: React with specific instructions to a clap

- This is a looped instruction!
- Tell the NXT to wait for a sound over 70 decibels.
- It should move forward at 50% on unlimited.
- It should wait for another 70 decibel sound.
- Tell it to stop moving.
- It should wait for another 70 decibel sound.
- It needs to rotate for 3 seconds and say 'Good job!'.



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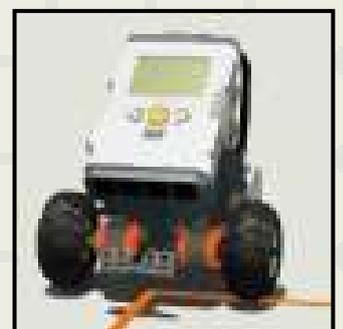
Challenge 6

You will need to attach the sound sensor to the NXT for this challenge.



Programme the NXT to: React with specific instructions to a clap

- This is a looped instruction!
- Tell the NXT to wait for a sound over 70 decibels.
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- It should wait for another 70 decibel sound.
- Tell it to stop moving.
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Challenge 7

You will need to attach the proximity sensor to the NXT for this challenge.

Programme the NXT to: Stop and turn each time it reaches an object.

- Tell the NXT to drive forward on unlimited.
- When it gets within 40cm of an object it should stop and turn left 90 degrees.
- This should be repeated three times.
- After the final time the NXT should rotate through 360 degrees.



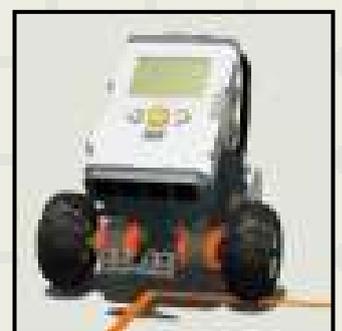
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Challenge 10

You will need to attach the light and sound sensors for this challenge.

Programme the NXT to: Escape from a maze you have created!

- Use thin masking tape to create a maze on the carpet.
- Programme the NXT to find its way out of the maze.
- Think about using the types of instructions you have used before.
- When the NXT escapes, you need to be able to clap to make it stop and the NXT should say: 'You're good!'
- GOOD LUCK!



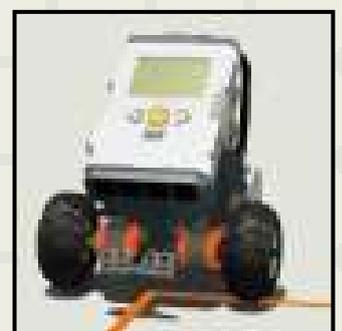
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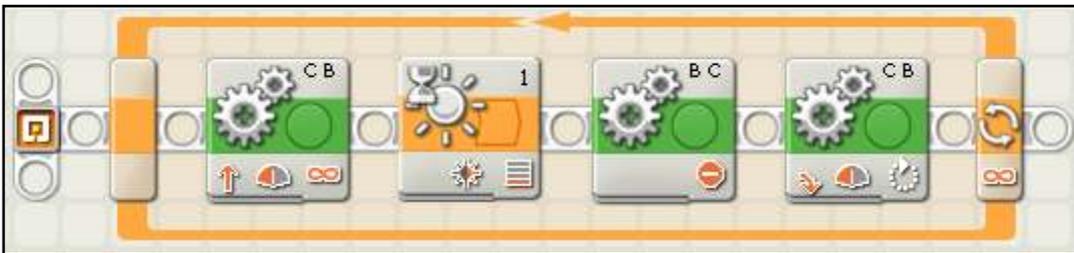
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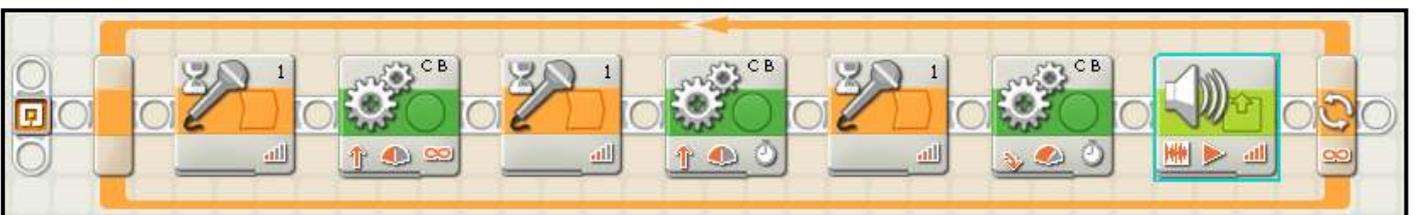
Challenge 4:



Challenge 5:



Challenge 6:



Challenge 7:

