U1-1.2 Let's explore barcode programming

Just like all robots and computers, Edison needs programs to function.

What is a computer program?

Jargon buster

A **computer program** is a collection of instructions that tell a computer to perform a specific task.

Jargon is a term for the special words or expressions used by people in a particular group, like a type of job. Jargon is often difficult for people outside of that profession or group to understand. Computer programming uses some words and phrases that might seem like 'jargon' to you now – but these new vocabulary words will soon become very familiar! The jargon buster boxes in these lessons will introduce you to new terms.

Now, let's get back to programming Edison.

Using barcodes to program Edison

Edison comes with some programs already loaded in the robot. We can get the robot to access and run these programs by using special barcodes.

Why is that?

Edison's microchip has the ability to store some things, like programs. These programs are stored in the robot's memory. We can tell Edison which of these programs we want to run by driving over special barcodes.

Whenever you use one **of Edison's special barcodes**, you need to follow the same four steps:
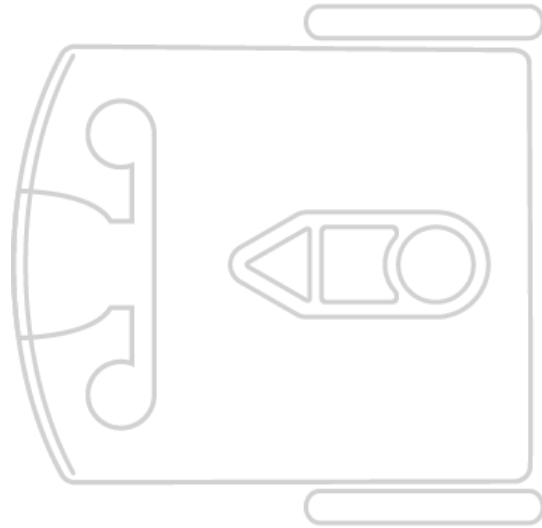
1. Place Edison facing the barcode on the right side of the barcode.
2. Press the record (round) button three times.
3. Wait while Edison drives forward and scans the barcode.
4. Press the play (triangle) button one time to run the program.

Let's try using some of Edison's barcodes.

Task 1: Clap-controlled driving

This program uses Edison's sound sensor. The sound sensor can detect loud sounds, like when you clap your hands. This program tells Edison to 'listen' for a clap.

Have Edison read the barcode.

Don't forget

To program Edison with a barcode, always follow these steps:

1. Place Edison facing the barcode on the **right side** of the barcode.
2. Press the record (round) button **three times.**
3. Wait while Edison drives forward and scans the barcode.
4. Press the play (triangle) button **one time** to run the program.

Scan the barcode, then put Edison on the floor or table before you press the play (triangle) button. After you press the play button, clap your hands one time. Edison will turn to the right.
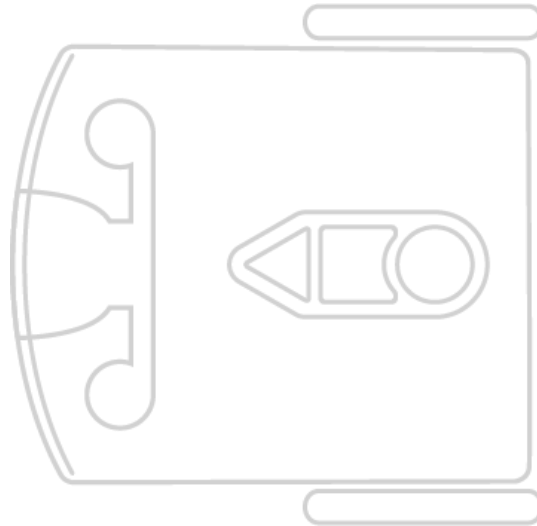
Next, clap your hands two times. Edison will drive forward.

If Edison **can't detect** your clapping, try tapping your finger on the top of the robot near the sound sensor instead.

Task 2: Avoid obstacles
This program uses Edison's infrared light sensor to detect and avoid obstacles in the robot's path.

Have Edison read the barcode.

Before you press the play (triangle) button, you need to put Edison on the floor or table with some obstacles. Make some obstacles for Edison by putting some objects around Edison. Choose objects that are at least as tall as Edison and are not see-through. You can also use your hands to make little 'walls' for Edison.

Press the play (triangle) button. Watch what happens when Edison detects an obstacle.

Task 3: Follow a torch
This program uses Edison's light sensor to detect and follow a bright light. You will need a torch, a flashlight, or some other way of making a bright light for this program to work.

Have Edison read the barcode.
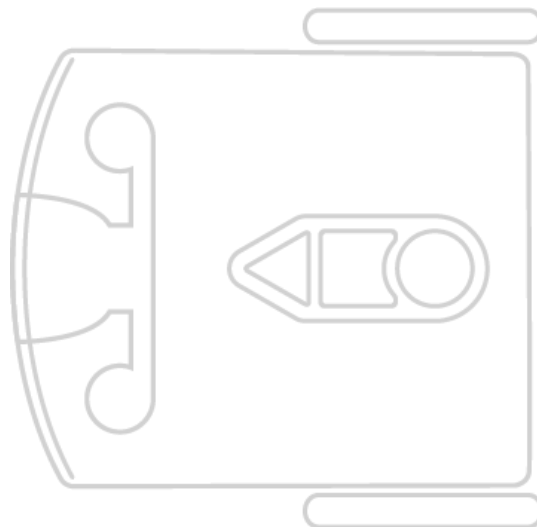
Put Edison on the floor or table and get your torch ready before you press the play (triangle) button. Shine your torch at Edison. The robot will follow the bright light.

Task 4: Follow a line

This program uses Edison's line tracking sensor to detect and follow a dark line. You will need a dark line for Edison to follow. Use activity sheet U1-1, an EdMat or make your own line for Edison to follow.
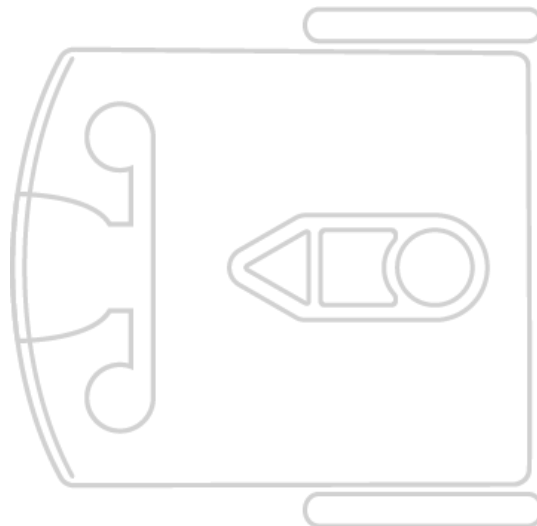
Have Edison read the barcode.
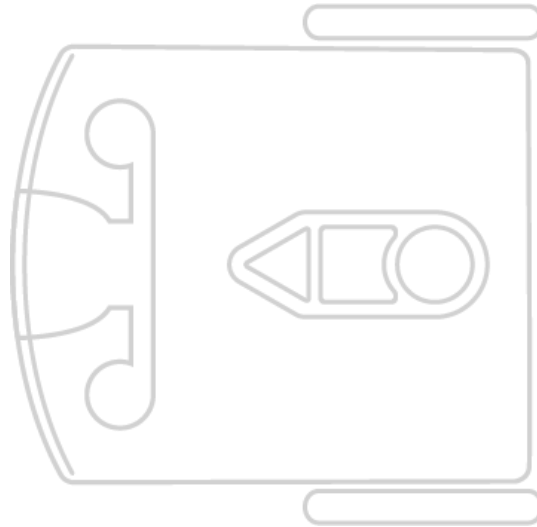
Get your activity sheet ready. You need to start the robot on the white surface near the black line. Put Edison next to the black line, but not on the line. Press the play (triangle) button. Edison will find and follow the line.

Task 5: Bounce in borders

This program uses Edison's line tracking sensor to detect and avoid dark surfaces. You will need a shape with a dark outline to **'trap' Edison**. Use activity sheet U1-1, activity sheet U1-2, an EdMat, or make your own shape to trap Edison.

Have Edison read the barcode.

Get your activity sheet ready. You need to start the robot on the white space inside of the black line. You can put Edison next to the black line, but not on the line. Press the play (triangle) button. Edison will **'bounce' around inside the dark borders**.

Student Activity: Make a game

U1-1.2: Explore barcode programming

Now that you have tried these barcodes can you think up a game that younger students can play using one of the barcodes.

Allow students to be creative with any game they want to create.

You can highlight student ideas for the whole class which can help

other students know what to do. Games can be simple such as: an

obstacle course, a racing game, etc.

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Draw your game.