SHIFTING RHYTHMS
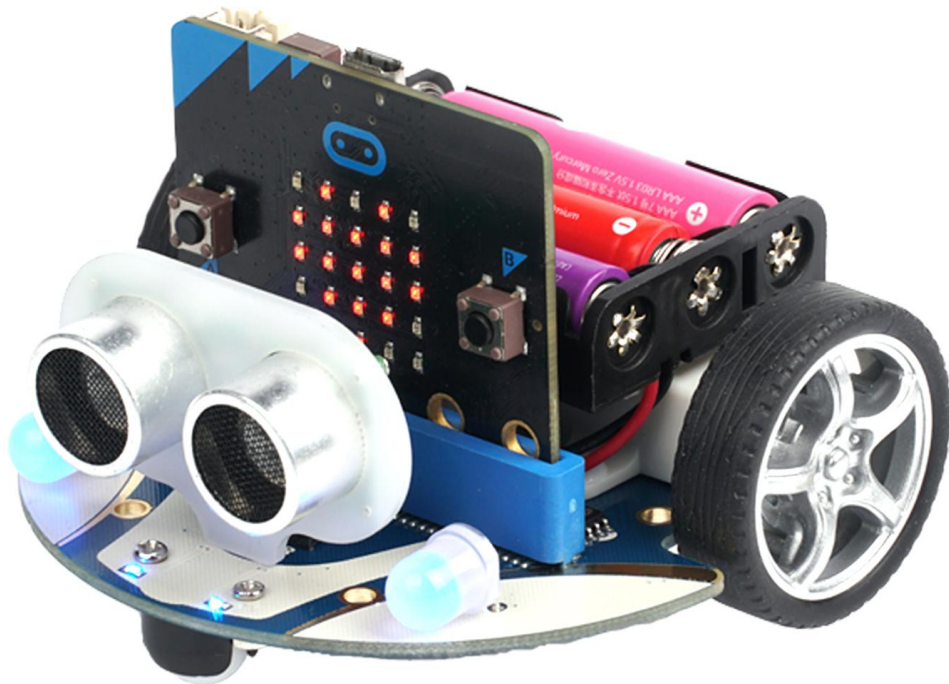
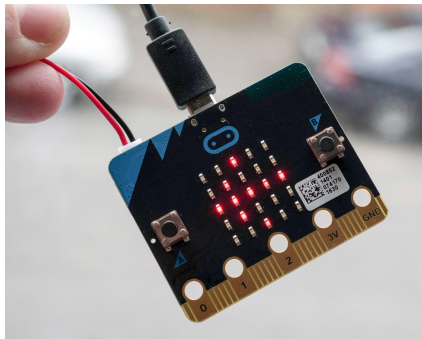# Microbit + Cutebot Intro

Time Estimate: 1 hour

Tags: Coding & Engineering

Part 1: Materials & Tools

To make your Cutebot, you will need the following:

1. Computer
2. Micro:bit (with battery pack)
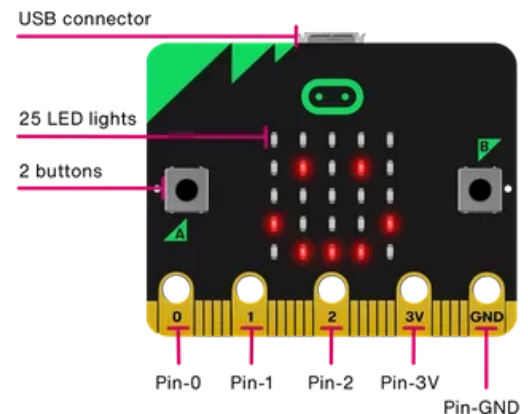3. USB Cable
4. Internet Connection
5. Cutebot

Part 2: Understanding Your Micro:bit

For this module, we will be coding a Micro:bit and using it to control a Cutebot.

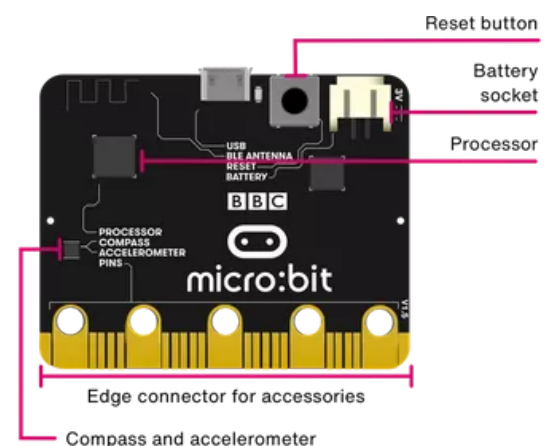A Micro:bit is made up of multiple parts. Here are the 4 you will need to know for this module:

Front of Micro:bit
- 5 x 5 LED Light Grid

Back of Micro:bit
- USB Connector
  - This is used to connect your coding device to the micro:bit and upload code.
- Reset Button
  - This button is useful to restart your code's actions.

Part 3: Open the Coding Platform

1. First, Open your computer and go to your internet browser.

2. Go to the webpage: makecode.microbit.org/#editor . You should see a page that looks like this:
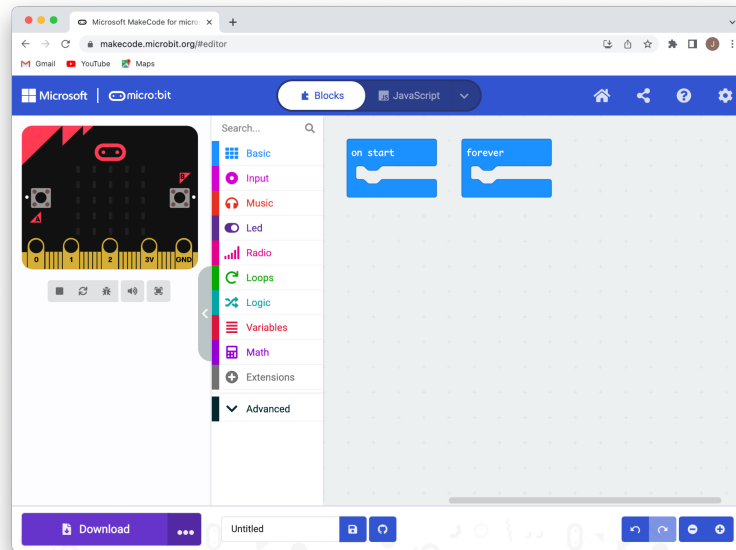
3. Change your filename from "Untitled" to "Cutebot Intro". You can do that by going to the download/save section at the bottom and change the text in the textbox.

Part 4: Programing your Micro Bit

Let's begin!

Before we start controlling the Cutebots - lets create a little program to show an icon on the microbit display.

1. From the "**Basics**" block section, choose the "**show icon []**" command and drag it into your "**forever**" container.
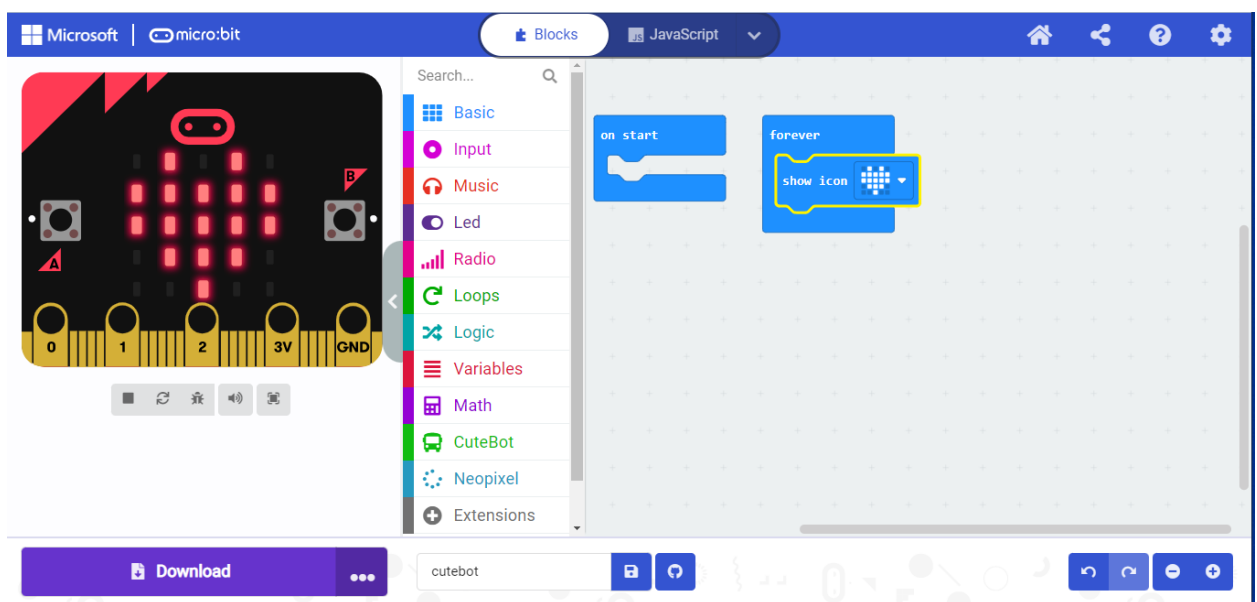
*** Microbit image on the left will show what your microbit will look like when you load the program on it.
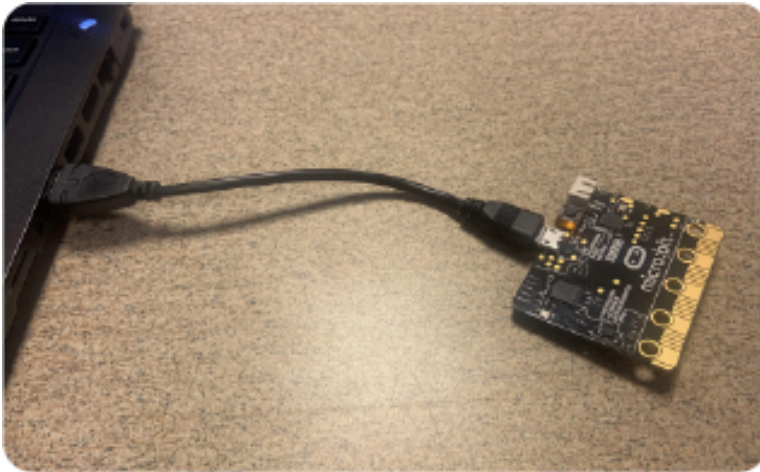
2. Change the icon by clicking the down and choosing an icon that you like.

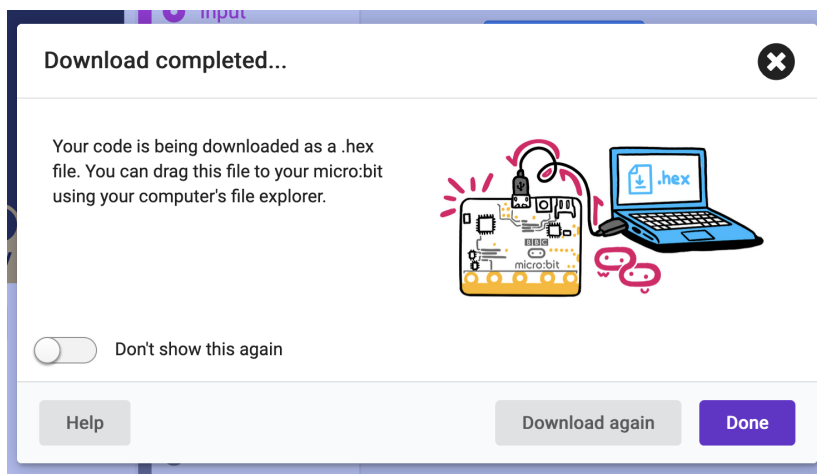**Congrats! You just made a function!**

# Part 5: Test out your program!

To make the code come to life...

1. Connect your micro:bit to your computer using the USB Cable.


2. Click on the **Download** button.

3. Once you have had a successful download, this will pop-up. At the bottom left corner you should also see your file "microbit-cutebot-intro.hex"

4. Open up your windows folder and go to the downloads folder.

5. Look for your file "microbit-cutebot-intro.hex" and right click on it. Go to **"Send to >"** and click on **"Microbit"**.
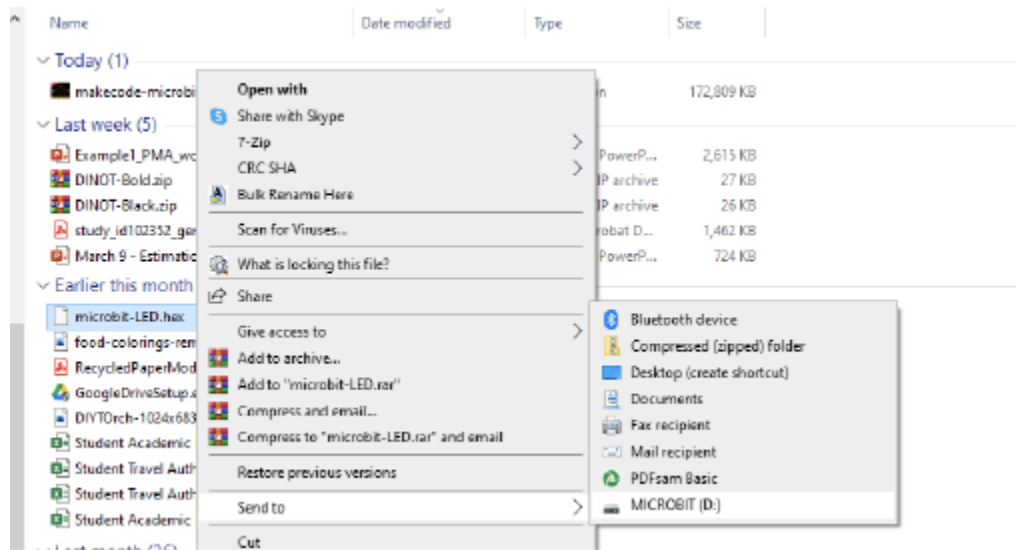
6. Click the reset button on your micro:bit once you have sent the file. Your micro:bit should light up with what you have programmed!
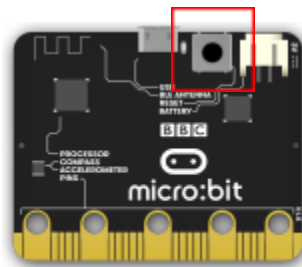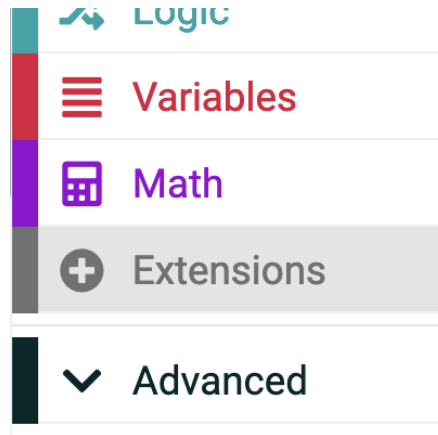

* Sometimes it might not work as it should. Go back and debug your code! Try re-downloading it!

**Did your Icon appear?! If so, nice work! If not no worries – ask for some help or try again!**

Part 6: Add the Cutebot Package

Now let's try programming the Cutebot using your Microbit!

1. Click on "Extensions" in the list of coding blocks.

2. Search "Cutebot" in the search bar and click on the result with the image of the Cutebot. This should take you back to the code editor with the Cutebot package added.
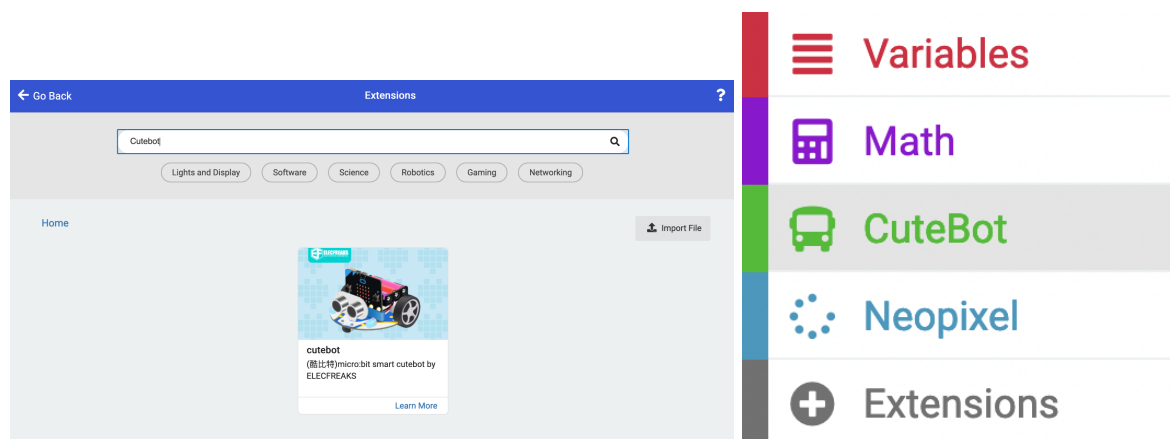
Part 7: Set up your Cutebot!

1. Plug in the Micro:bit into the slot in the car as shown in the photo below. Make sure the side with the lights and buttons is facing away from the wheels.

2. Stick the battery pack onto the back of the car and plug it into the Cutebot port.

3. **Optional:** plug in the "eyes" (distance sensor)

Part 8: What do the Blocks do?

Clicking on the Cutebot package will show you a collection of blocks you can use to tell your car to move in different ways.
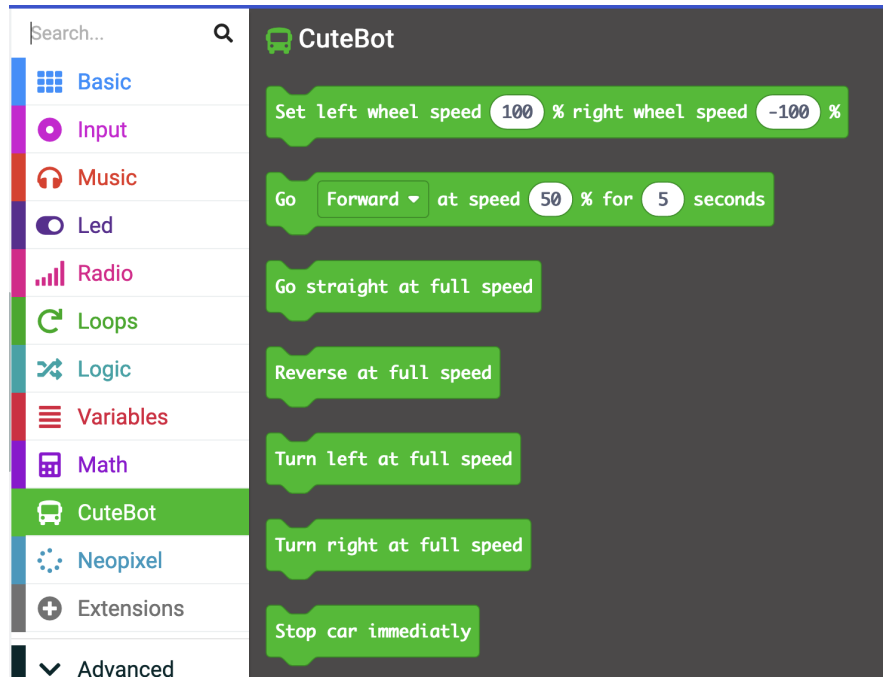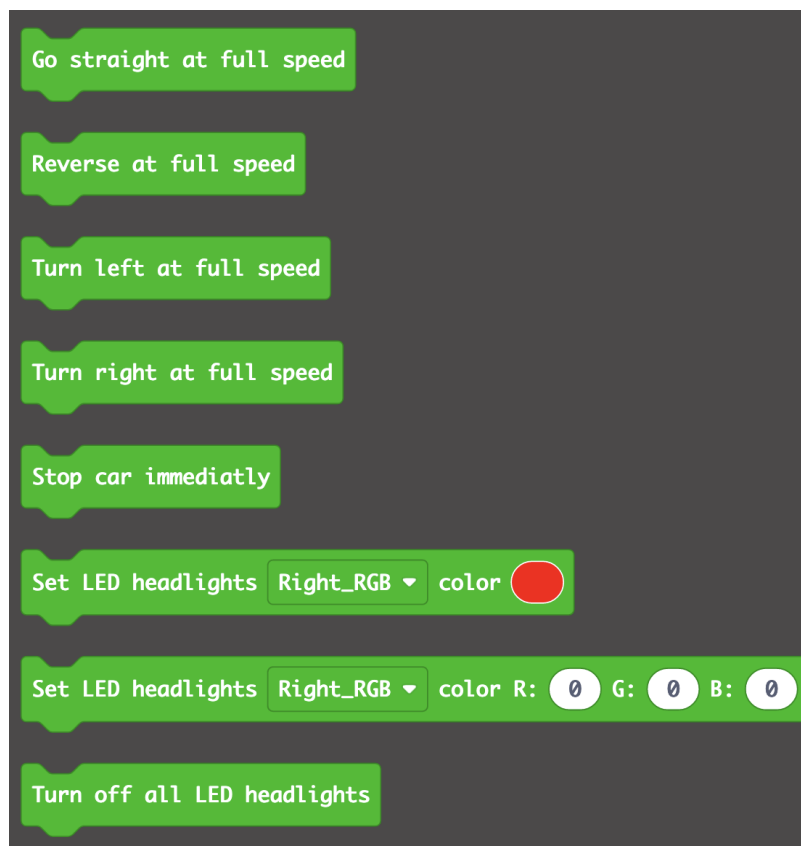

1. The first block allows you to set the speed of both wheels on the Cutebot independently. You might notice that the slider allows you to set the speed to a negative number, what do you think the wheel will do if you set it to a positive number vs. a negative number?
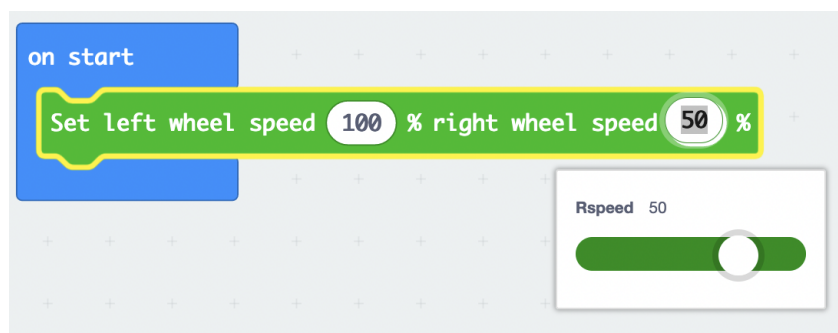
2. The next block makes the cutebot go forward, backward, left, or right at a set speed for a set number of seconds.

on start
Go Forward at speed 50 % for 5 seconds
✓ Forward
Backward
Left
Right
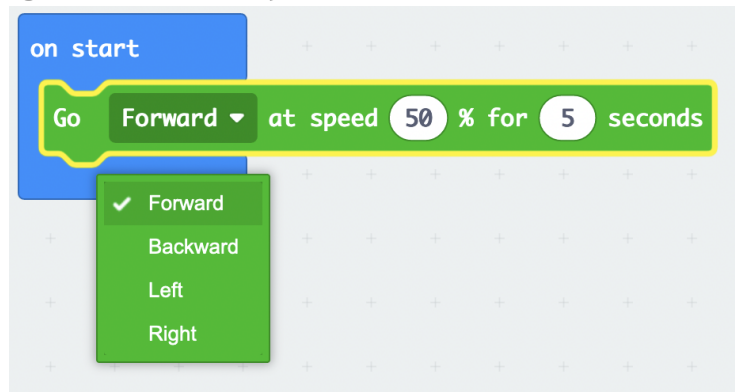
3. You can probably tell what this section of blocks do just by reading what they say. Try experimenting with all of them and see if your cutebot does anything you don't expect.

Go straight at full speed

Reverse at full speed

Turn left at full speed

Turn right at full speed

Stop car immediatly

Set LED headlights Right_RGB color ⬤

Set LED headlights Right_RGB color R: 0 G: 0 B: 0

Turn off all LED headlights

Part 9: Test it out!

1. Once you have some instructions for your cutebot, **Test it out:** Download your program onto your micro bit - go back to Part 5 if you need a reminder on how to do that

2. Unplug Microbit from your computer and attach the Microbit to your Cutebot

3. Make sure the battery is plugged in, and click the reset button

4. Give your Cutebot some space and watch it run!

Did your cutebot do what you expected? If so, cool! If not, what did it do? Why do you think it is different from what you expected?

What can you try out next?!