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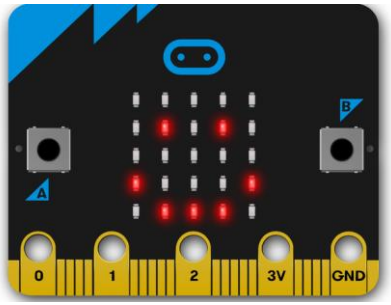
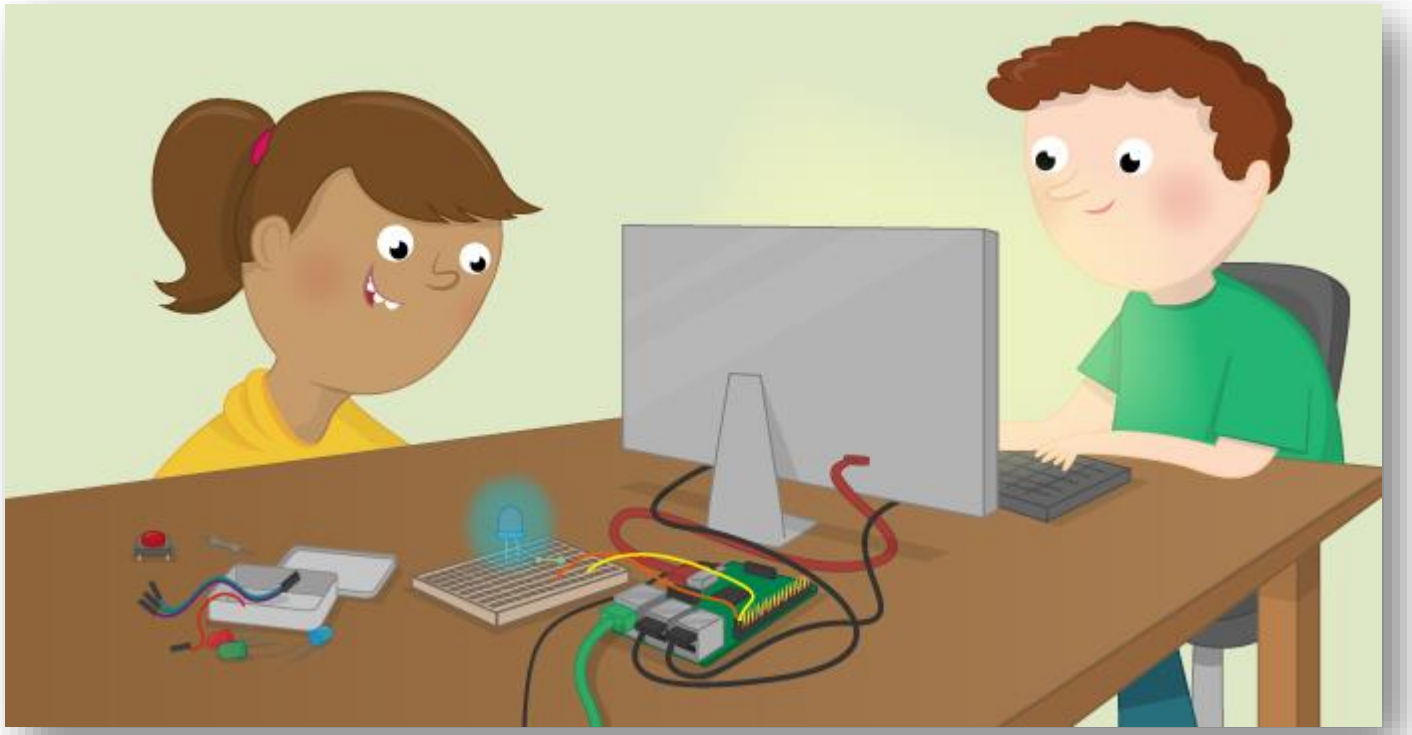
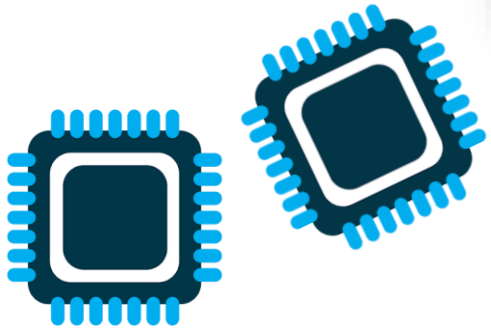
Automation Engineers

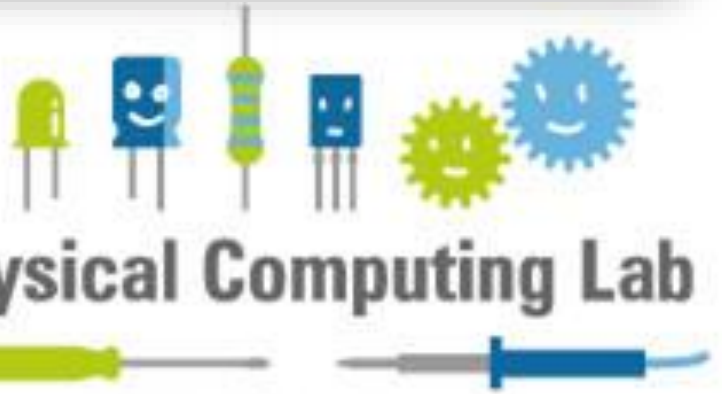


Automation Engineers

Introduction to Physical Computing







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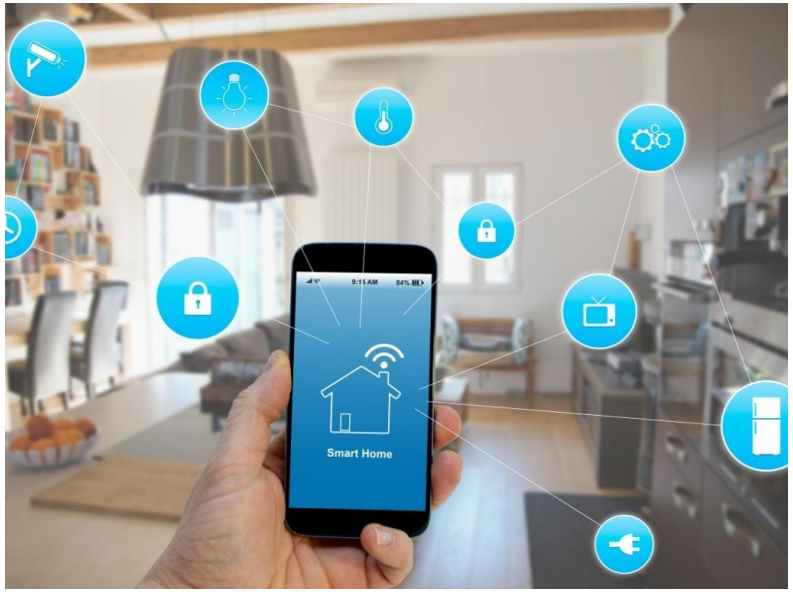
Let’s start with what is a microcontroller
A microprocessor is an integrated system, that is design to perform one specific function. It consists of a board, where, for example, sensors, switches, relays, motors, speakers and lights are connected.



For instance, there are many microprocessors in a smart house, which communicate with each other, or with a more complex central system.
Microprocessors can:

- Control temperature, turn heat/air-condition on/off
- Clean
- Set the alarm/central lock on/off
- Turn the lights on/off
- Turn music-TV on/ff

(say your examples)

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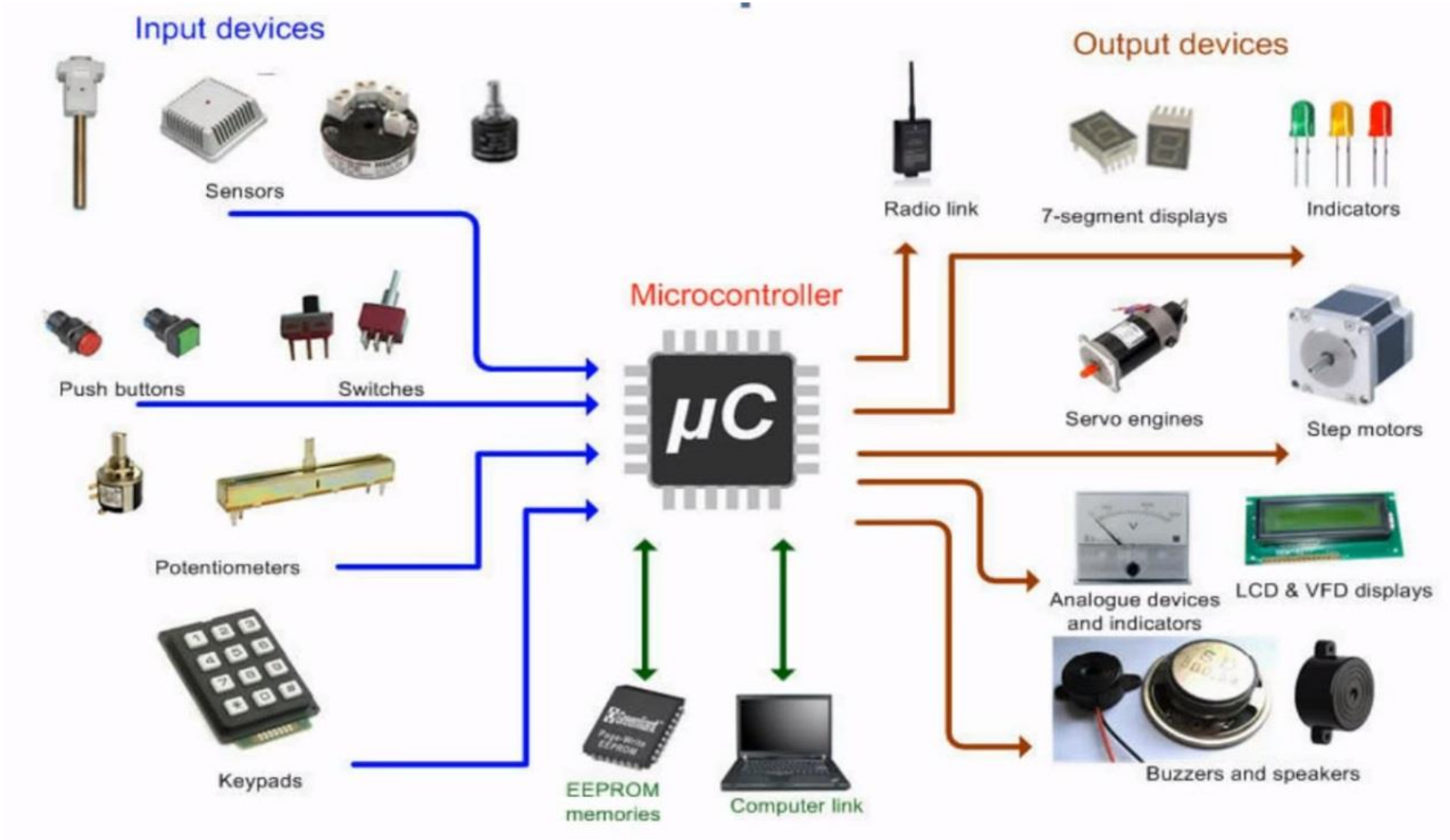
Input

Processor

Output

Coding in the proper programming language is needed



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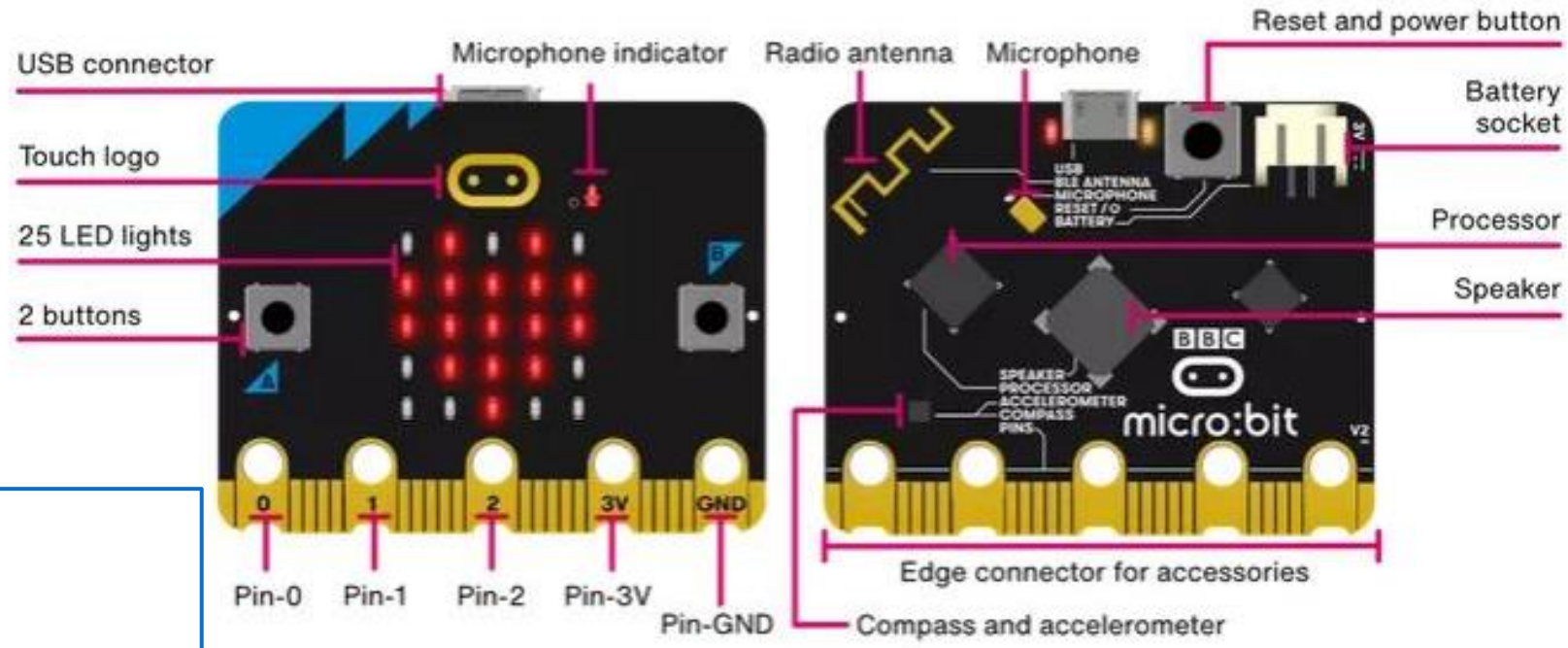
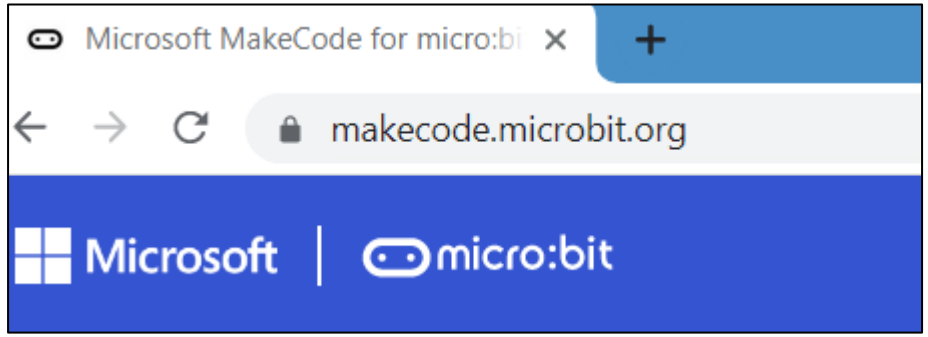
We will use the BBC micro:bit

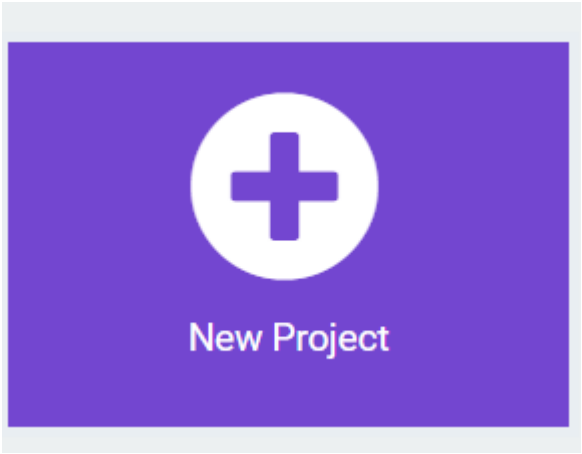


Advantages:

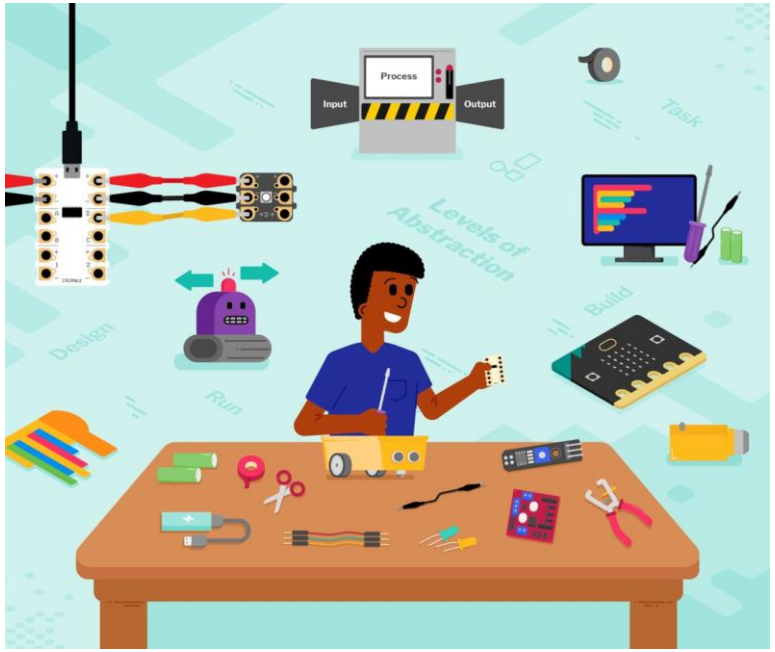
- Block-based programming
- Connected with digital and analog sensor
- Low volume
- Low cost

Program in https://makecode.microbit.org/
in Google Chrome or Microsoft Edge.
There are ready-made courses for practice and a simulator





Press “New Project”, left in your screen and we are ready to start!



Name your project “Introduction”!

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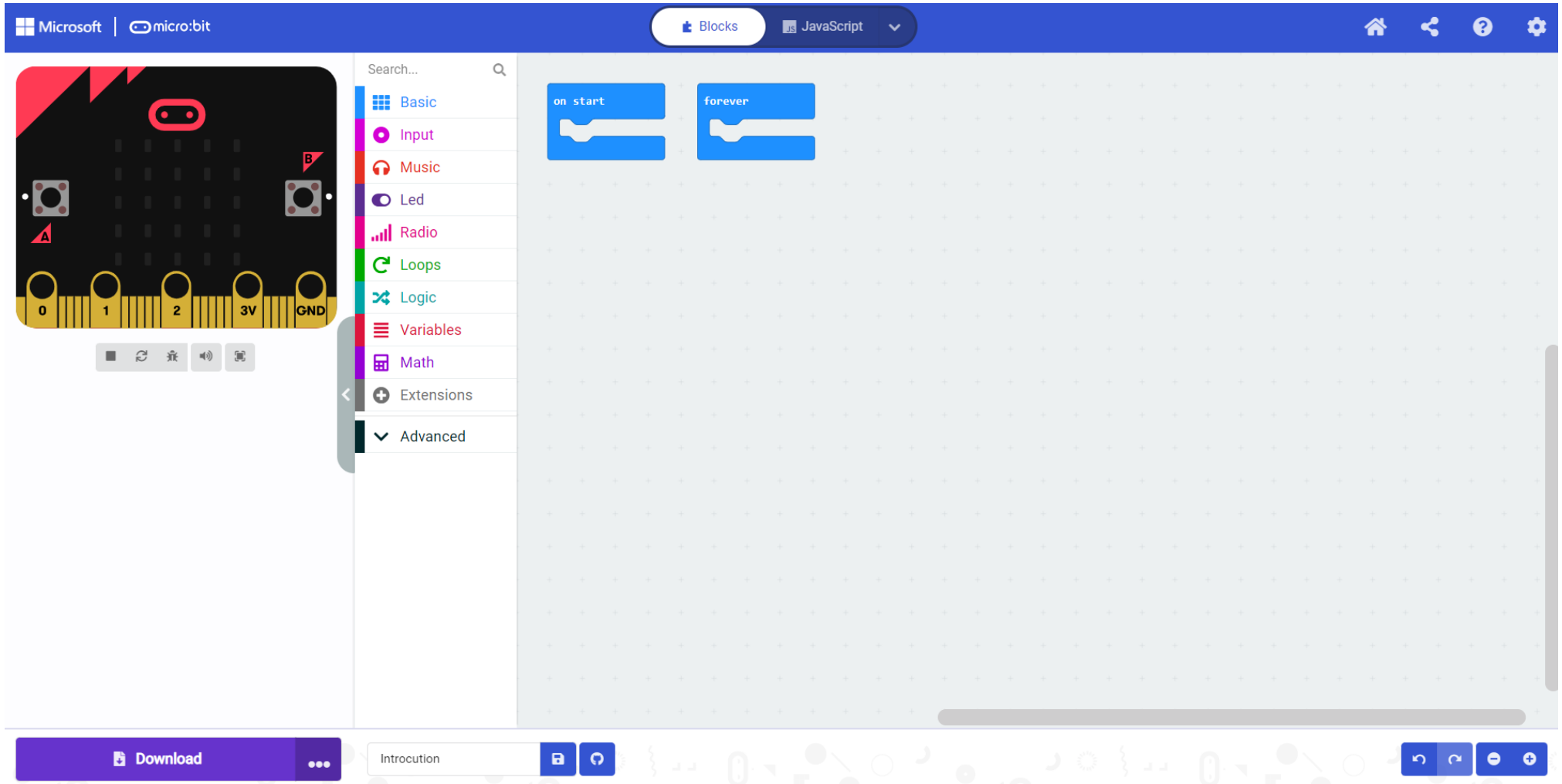

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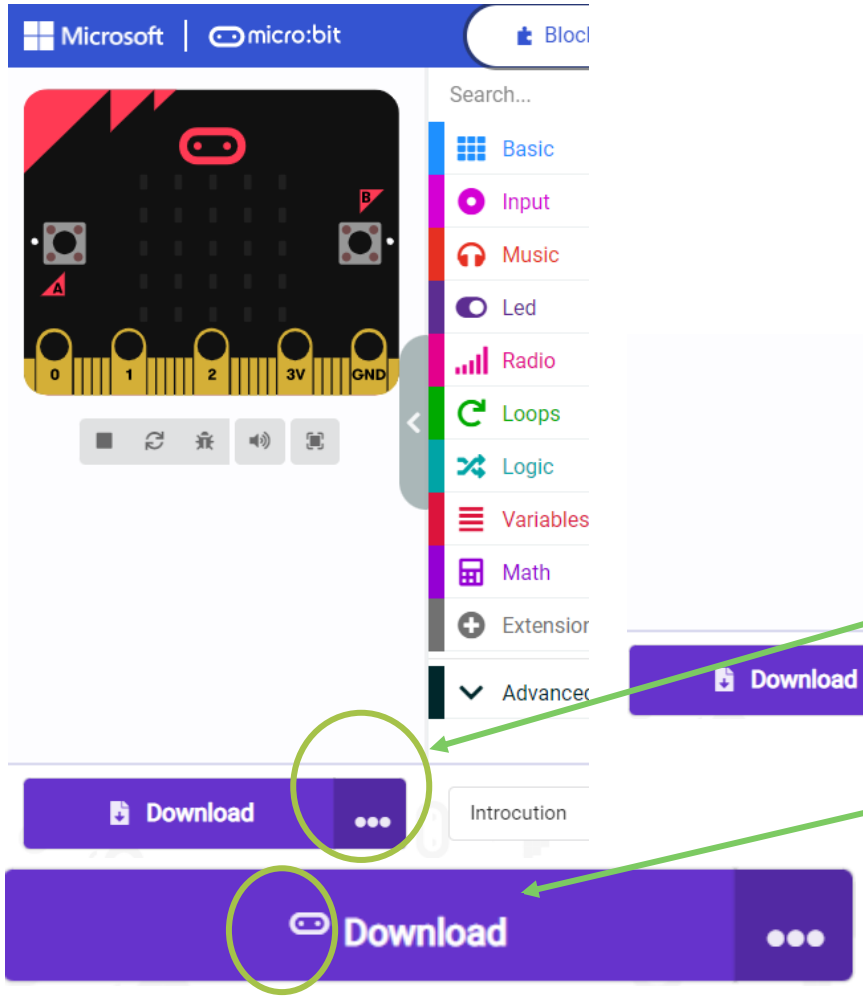
Study the environment of the program



To download our program to the micro:bit, we connect it with a cable to a USB-port.

When connected, you will see a pop-up window in your PC.

Then, press the three dots, and select “Connect Device”. Follow the guides that appear, until you get the message that your device is connected.

Then, the symbol next to “Download” has changed.

When you finish your program, press Download. Then, you will get the message that it is downloaded, and the simulator runs your program!

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Move on to the worksheet
and do the exercises all together!

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