



CSEF 2023 Micro:bit Bootcamp

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Board of Volunteer, CASPA



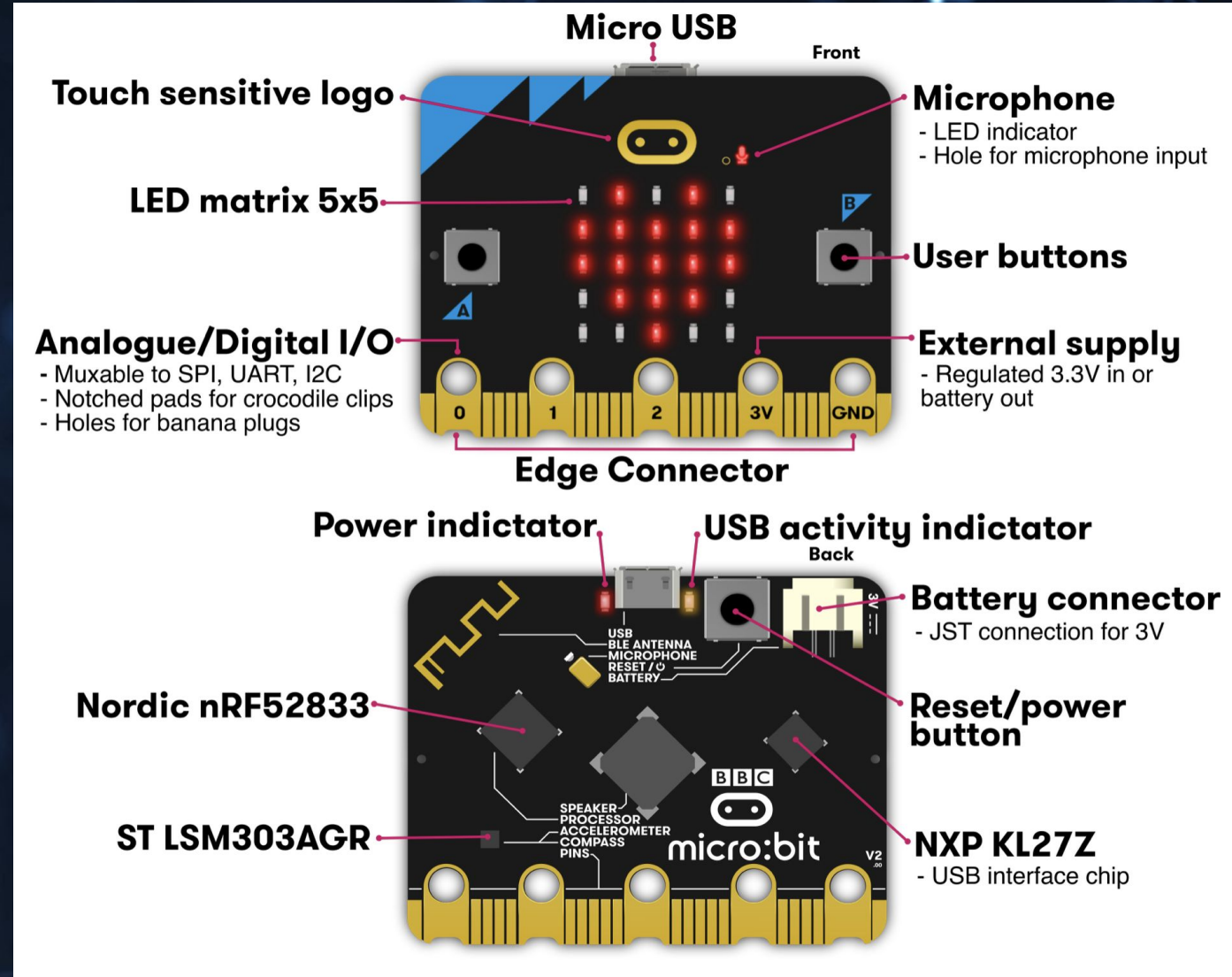
About Myself

- Silicon architect @ Microsoft (current)
- Silicon architect @ NVIDIA (2016-2019)
- Volunteer @ CASPA
- I loved
 - Computer architecture, playing with development board (e.g. Raspberry Pi, Micro:bit)
 - Sharing whatever I learn
 - Teaching



Micro:bit Intro

- A pocket-sized computer
 - sensors
 - buttons
 - expansion support
 - computing power
 - easy to program and play with



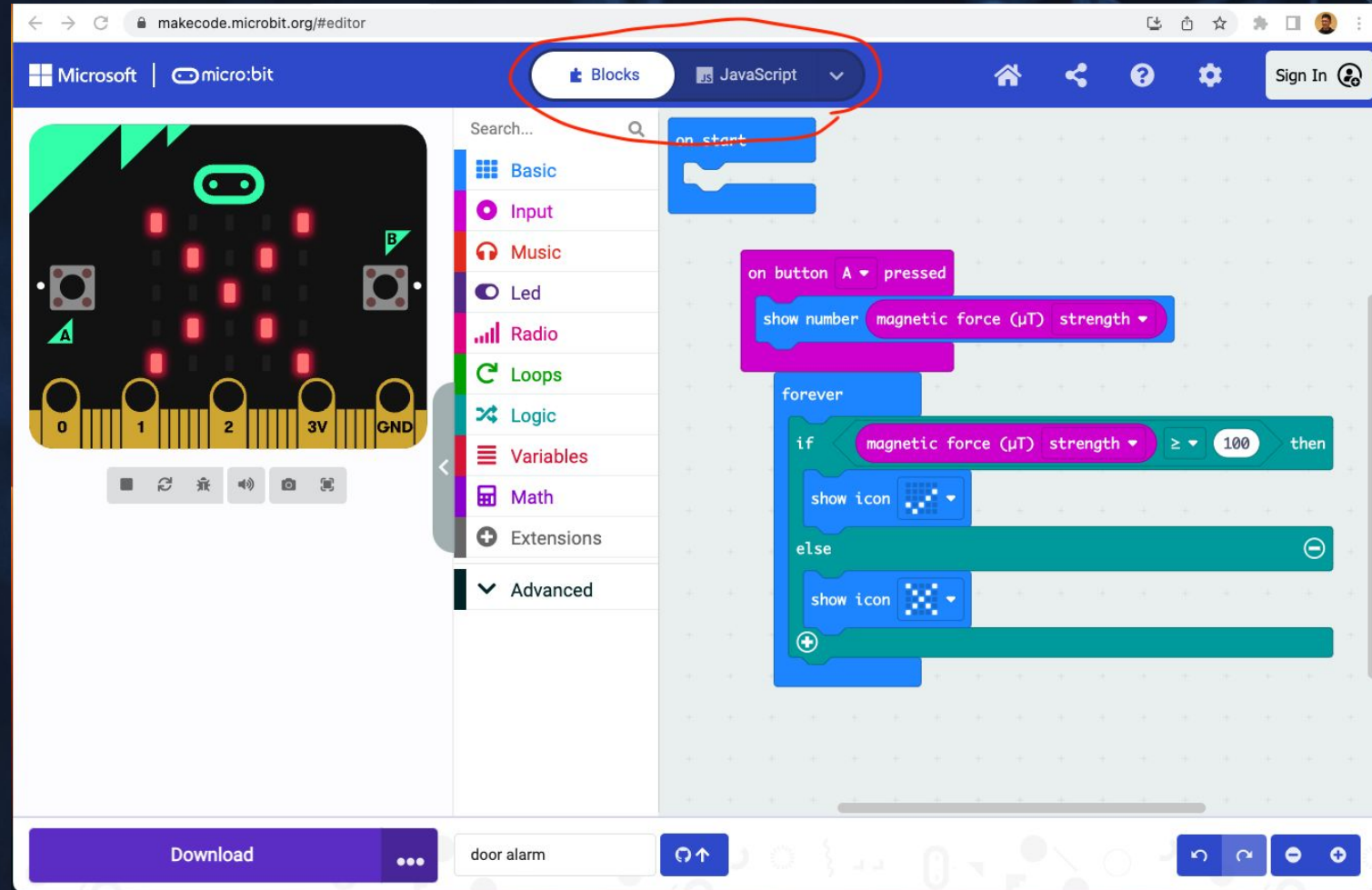


How to use the Micro:bit

- Write Program
- Connect to board
- Download & run the program

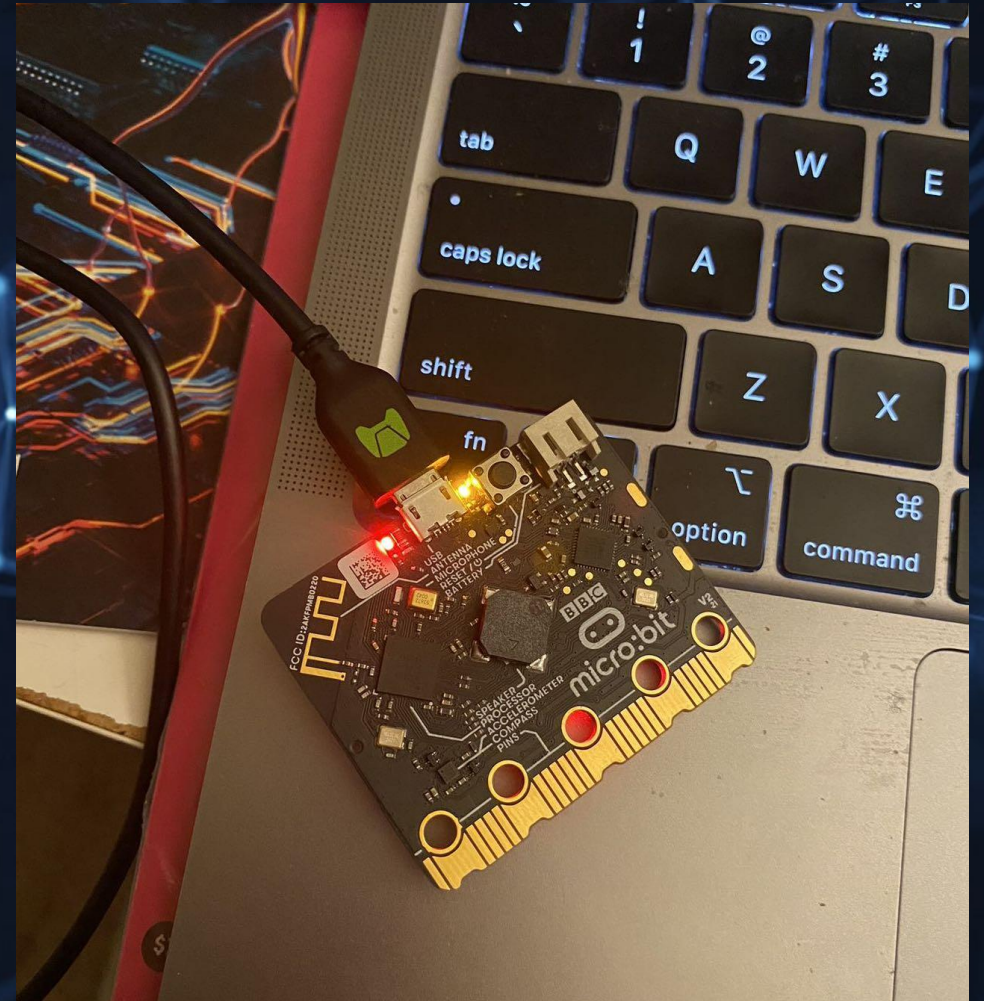
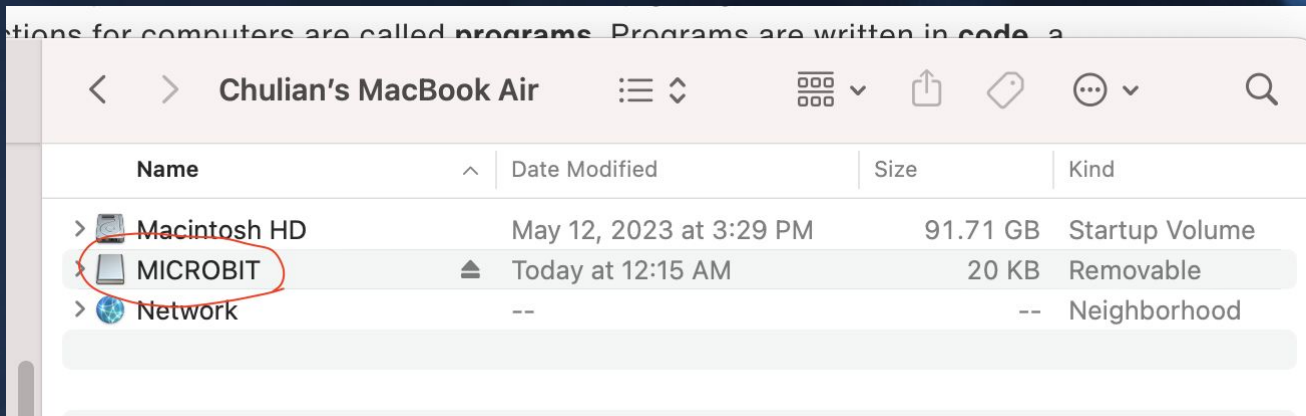
Write Program

- Online website
 - MakeCode block
 - Python / JavaScript



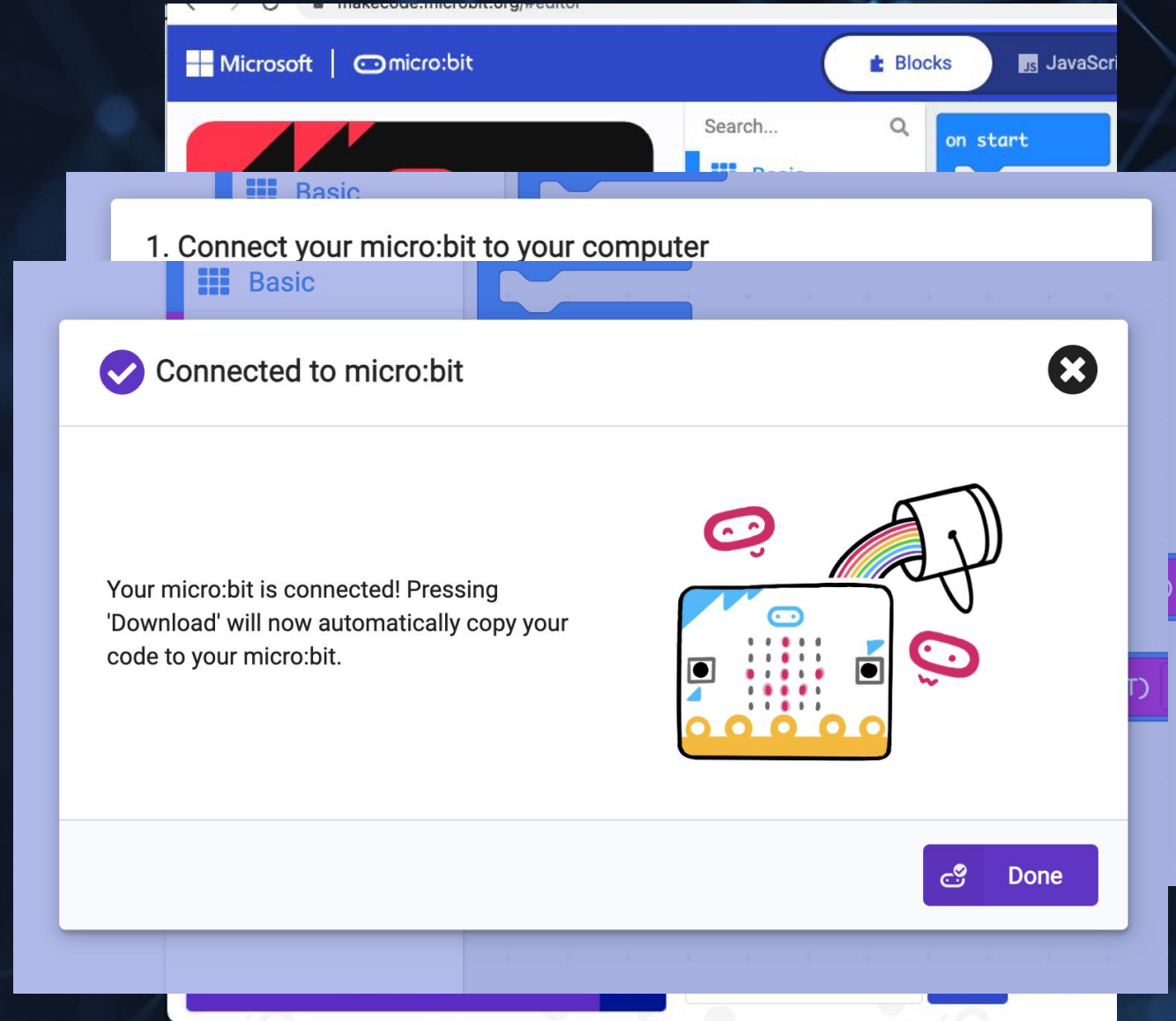
Connect to Micro:bit Board

- Computer or phone/tablet
- Computer
 - Connect using micro USB cable
 - Show up in “Computer” in Finder



Connect to Micro:bit Board

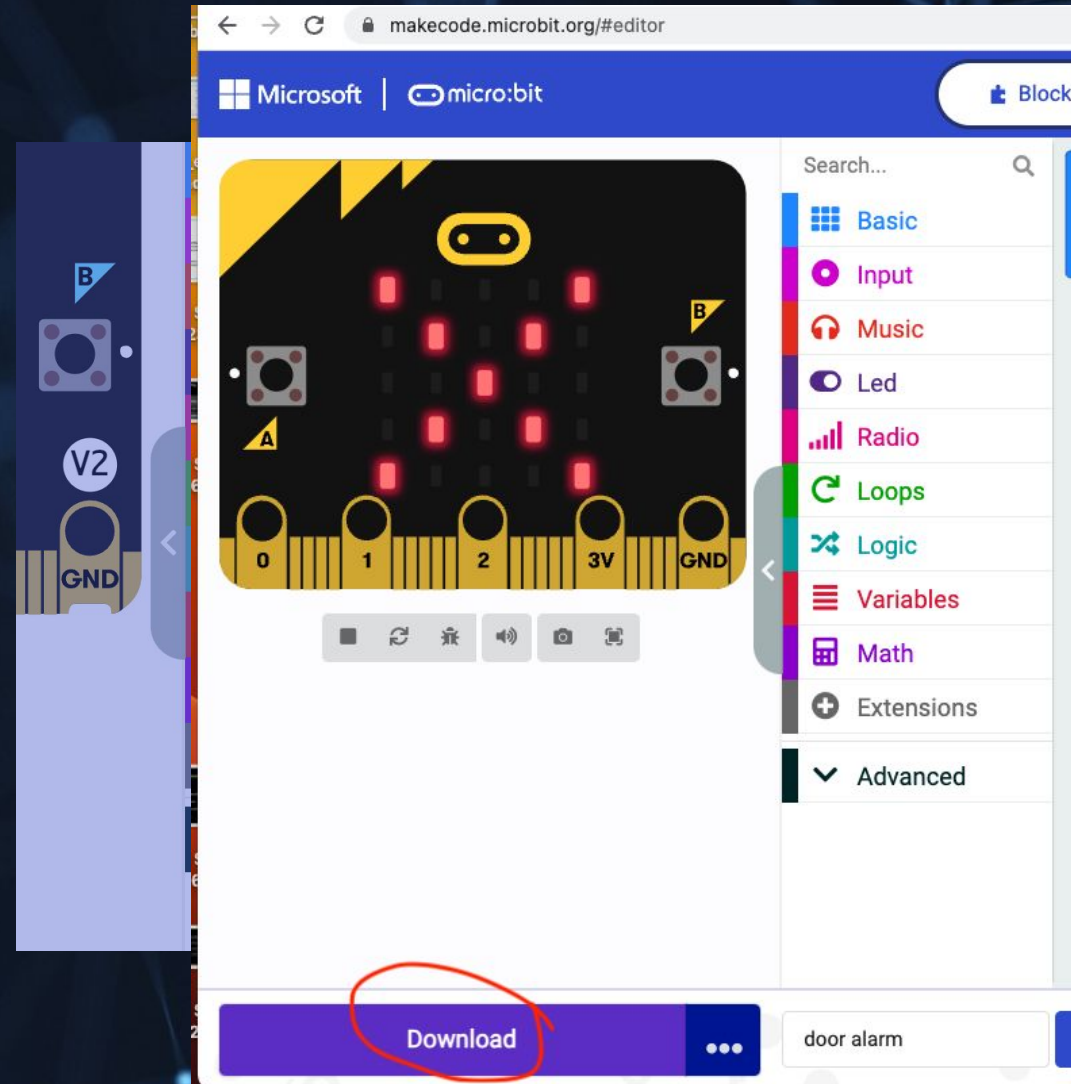
- Connect Device
- Next
- Done



The screenshot shows the Microsoft MakeCode Micro:bit IDE interface. At the top, there's a navigation bar with 'Microsoft | micro:bit' and tabs for 'Blocks' and 'JavaScript'. Below the navigation bar, there's a search bar and a 'on start' button. The main content area displays a step-by-step guide: '1. Connect your micro:bit to your computer'. A modal dialog box is open in the foreground, titled 'Connected to micro:bit', with a checkmark icon and a close button. The dialog contains the text: 'Your micro:bit is connected! Pressing 'Download' will now automatically copy your code to your micro:bit.' To the right of the text is an illustration of a micro:bit board with a rainbow streamer and two small robot-like characters. At the bottom right of the dialog is a 'Done' button with a checkmark icon.

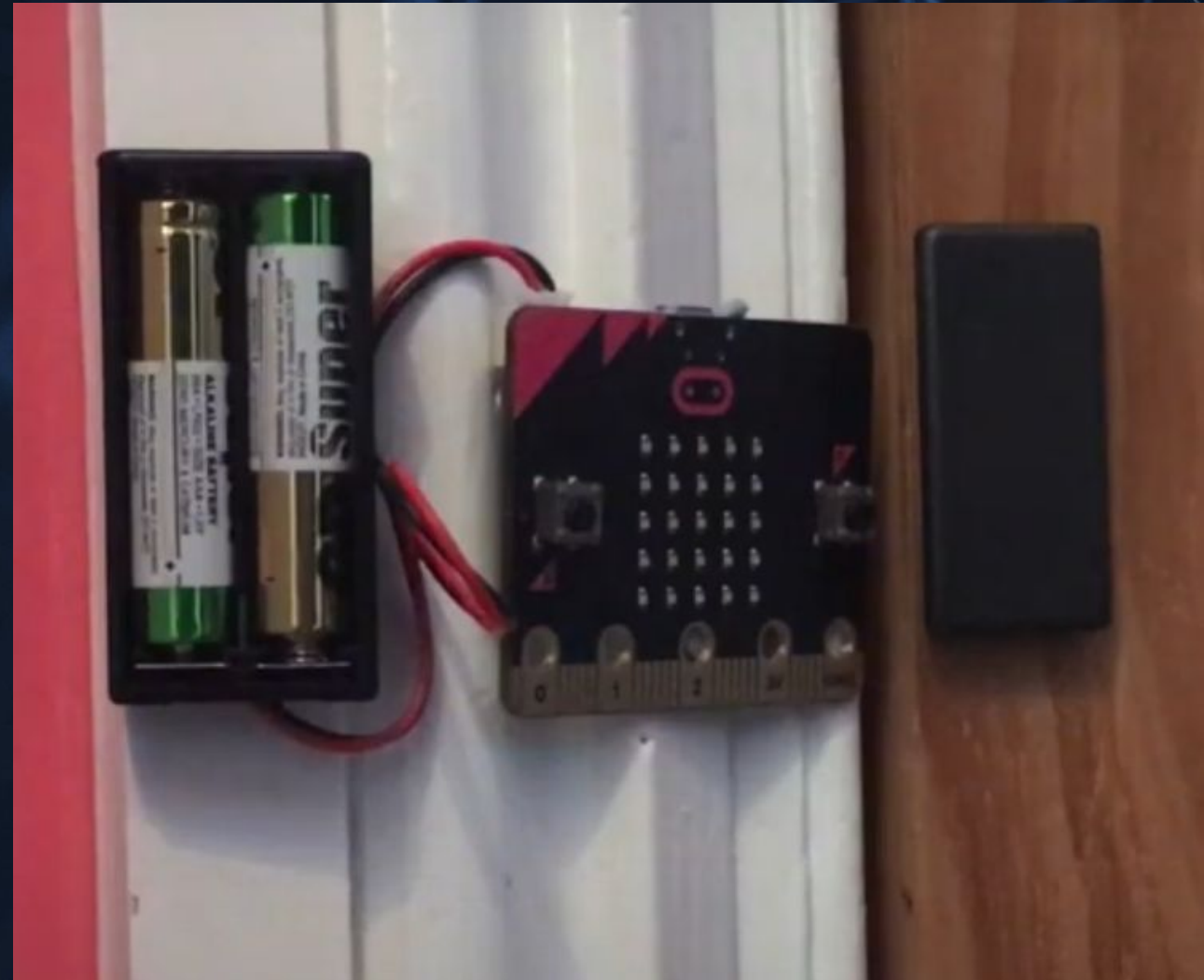
Download & Run

- Download
- Micro:bit runs the program once the download finishes



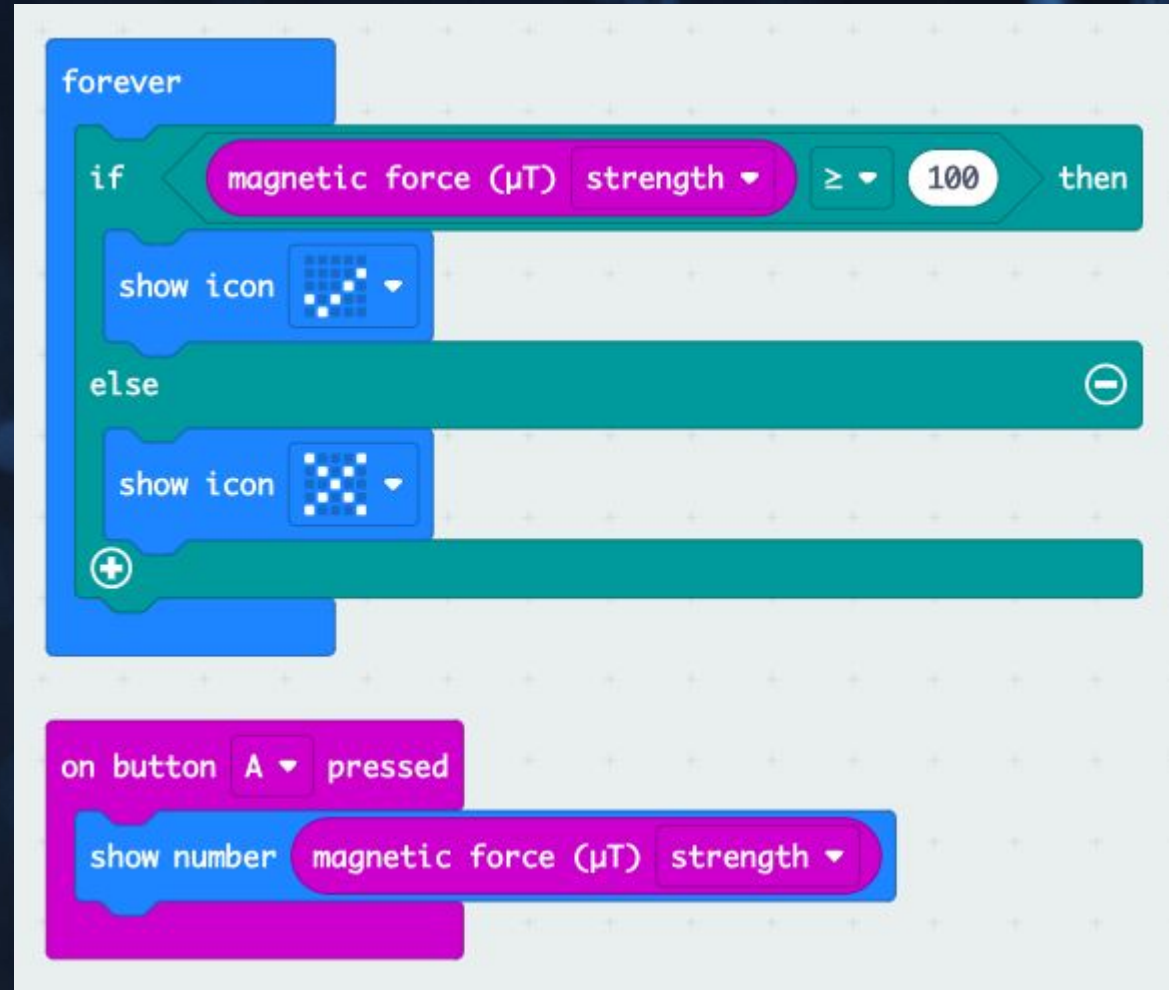
Sample Project 1

- Door alarm
 - Program that can detect the strength of magnetic field
 - <https://microbit.org/projects/make-it-code-it/simple-door-alarm/>



Sample Project 1

- Door alarm
 - Source code



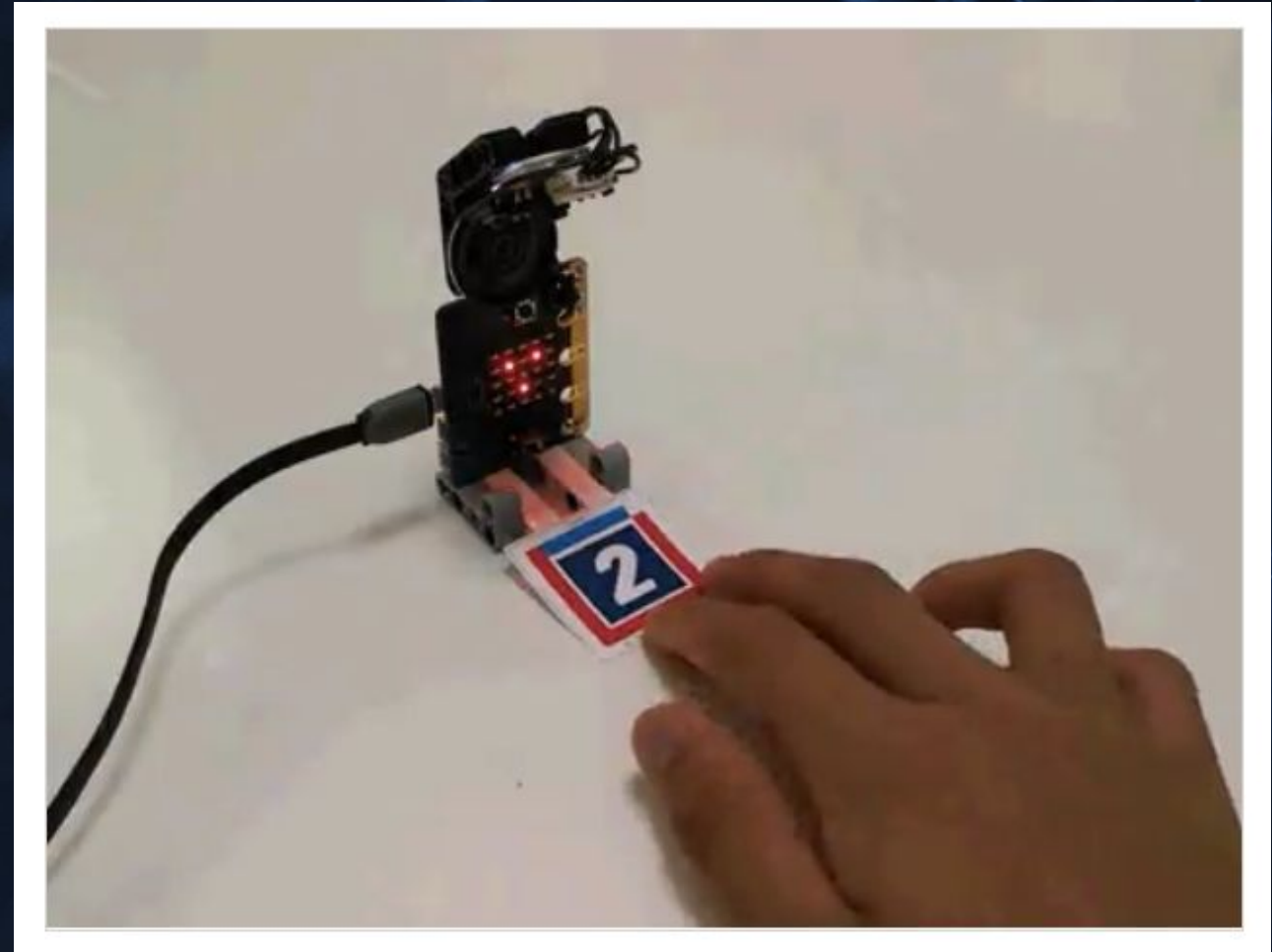
```
forever
  if magnetic force (μT) strength ≥ 100 then
    show icon [grid icon]
  else
    show icon [grid icon]
  +

on button A pressed
  show number magnetic force (μT) strength
```

The image shows a Scratch script for a door alarm. It consists of two main parts. The first part is a 'forever' loop that checks the 'magnetic force (μT) strength' sensor. If the value is greater than or equal to 100, it shows a 'grid' icon. If not, it also shows the 'grid' icon. The second part is an 'on button A pressed' event that shows the current 'magnetic force (μT) strength' value as a number.

Sample Project 2 (AI related)

- Mini "Guess the Number" Game Machine
 - A vision sensor with number recognition capability
 - <https://microbit.hackster.io/tianli-yu2/mini-guess-the-number-game-machine-with-micro-bit-f384db>



Sample Project 3 (AI related)

- Voice controlled vehicle
 - <https://microbit.hackster.io/lillian-brevik/micro-bit-ai-vehicle-3051f5>

Micro:bit AI Vehicle

with two servos,
running with voice commands
over Bluetooth

Connect

Disconnect



Label: ...

Confidence: ...

Commands: "go", "down", "stop" "left", "right"