

Maker MakeCode Block Help Sheet

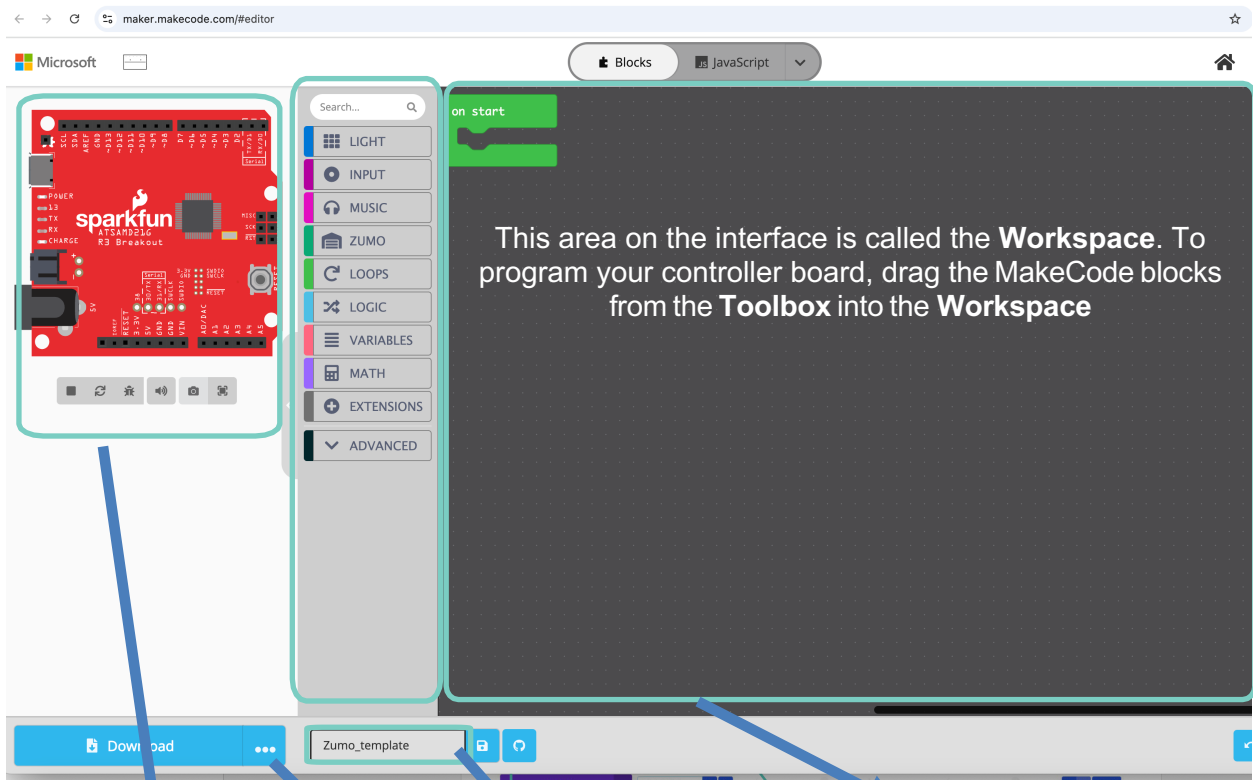
Use this help sheet to explore the MakeCode blocks in Microsoft MakeCode.

Getting Started

1. Ensure you have the Internet connected.
2. Open Link
<https://maker.makecode.com/50001-59800-51366-34284> or
<https://bit.ly/owlsumobot>
3. Click on Edit to start a **New Project**.

The Microsoft MakeCode Interface

- Microsoft MakeCode has two editing modes: **blocks editor** and **language editor**.
- The image below shows the Microsoft MakeCode interface in the **blocks editor**.
- The **blocks editor** uses MakeCode blocks that slot together to create a program.



A **simulator** can be seen on the interface. This **simulator** will run the program you have created in the **Workspace** and show you what will happen on your board.

This is the **Toolbox**. The **Toolbox** is split into different block categories. Each block category contains MakeCode blocks. The blocks are colour-coded and link to their category name.

File name

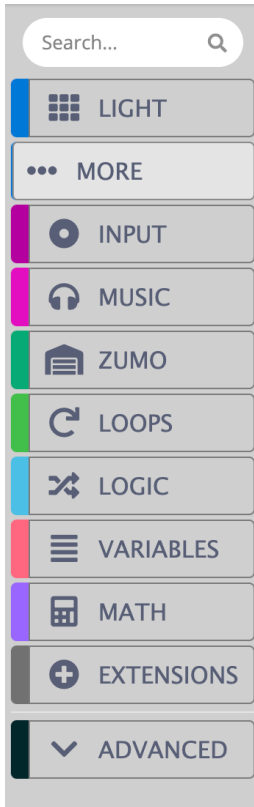
Connect device to download utf2 file



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What Are the Block Categories?

Each of the blocks in a block category represent different coding actions:



The **Light** category contains

Select more to see basic neopixel functions (15 neopixels).

The **Input** category contains event blocks with push buttons.

The **Music** category contains blocks that generate music tones.

The **Zumo** category contains OLED screen, motors and sensors

The **Loops** category contains blocks that repeat code.

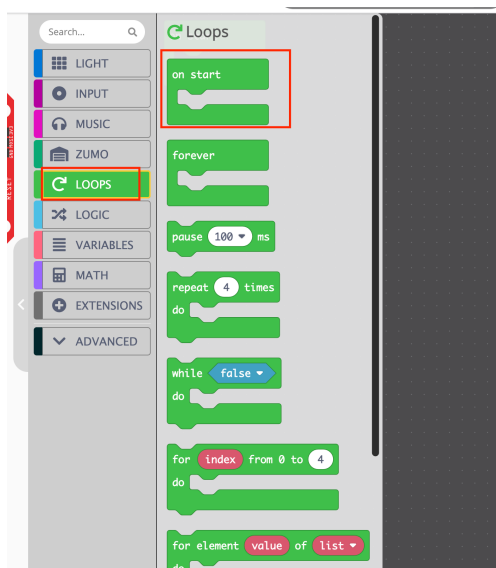
The **Logic** category contains logic operators and constants.

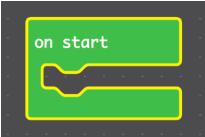
The **Variables** category contains blocks that measure variables.

The **Math** category contains maths functions and number operators.

The **Math** category contains some thread and event-driven program

Select and Add a MakeCode Block



1. Select a block category in the **Toolbox**. The MakeCode blocks that link to the selected category will appear in a pop-out menu.
2. Hover over a block you want to use. A yellow outline will show around the block.
- 
4. Click and drag the block from the **Toolbox** into the **Workspace**.
5. Click on the category again or select a different block category to add another block.



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Explore the MakeCode Blocks

Use Microsoft Marker MakeCode to explore the zumo projects below. The blocks shown in each project will help you to create your program. Don't forget to test your program on the robot, please DO NOT turn on the robot when you program the board!

Get Neo

```
on start
  set strip to create WS2812 strip on D6 with 15 pixels
  strip show animation [rainbow] for 500 ms
  pause 2000 ms
  set strip all pixels to [black]
```

OLED display

```
on start
  create I2C at scl SCL and sda SDA
  initialize OLED with width 128 height 64
  show string "Hello Temple!"
```

Get Music

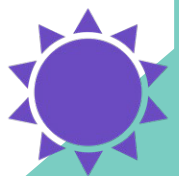
```
on button A1 click
  play sound wawawawaw

on button D12 click
  play melody [C4-D4-E4-F4-G4-A4-B4-C5] at tempo 120 (bpm)
```

Ultrasonic Sensor

```
on start
  create I2C at scl SCL and sda SDA
  initialize OLED with width 128 height 64

on button D12 click
  clear OLED display
  show number Ultrasonic at trig D7 and echo D6
```

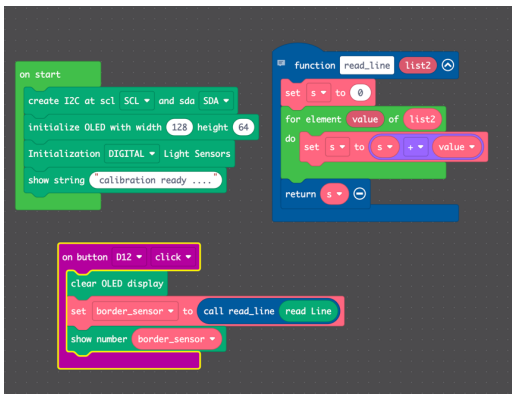


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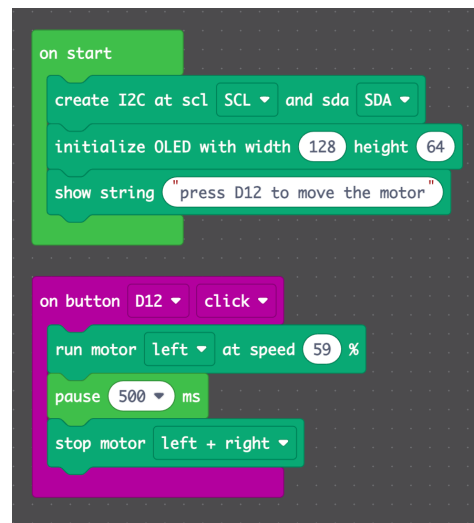
Read Line Color



Calibrate in white area

Setup a function to add multiple numbers

Move Robot



Dr. Li Bai (lbai@temple.edu)

Dylan Esposito and Serena Wu



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