# 1.8inch LCD for micro:bit

This is a colorful display module designed for the BBC micro:bit, 1.8inch diagonal, 160x128 pixels, capable of displaying 65K colors.

Tired of the 5x5 LED matrix? Time to get a tiny monitor for your micro:bit, this one would be the ideal choice.

## Specification

- Driver: ST7735S

- Resolution: 160x128

- Display color: RGB, 65K colors

- Operating voltage: 3.3V

- Dimension: 61mm x 51.5mm

## Pinouts

| PIN | micro:bit PIN | Description |
|---|---|---|
| Vcc | 3V3 | Power |
| GND | GND | Ground |
| MISO | P14 | SPI data master input/slave output |
| MOSI | P15 | SPI data master output/slave input |
| SCK | P13 | SPI clock input |
| LCD_CS | P16 | LCD chip selection |
| RAM_CS | P2 | SRAM chip selection |
| DC | P12 | LCD data/command |
| RST | P8 | LCD reset |
| BL | P1 | LCD backlight |

## Programming Guide

Micor:bit has variety of programming methods like mbed, micropython, typescript and other programming methods, as well as code online websites which are abundant.
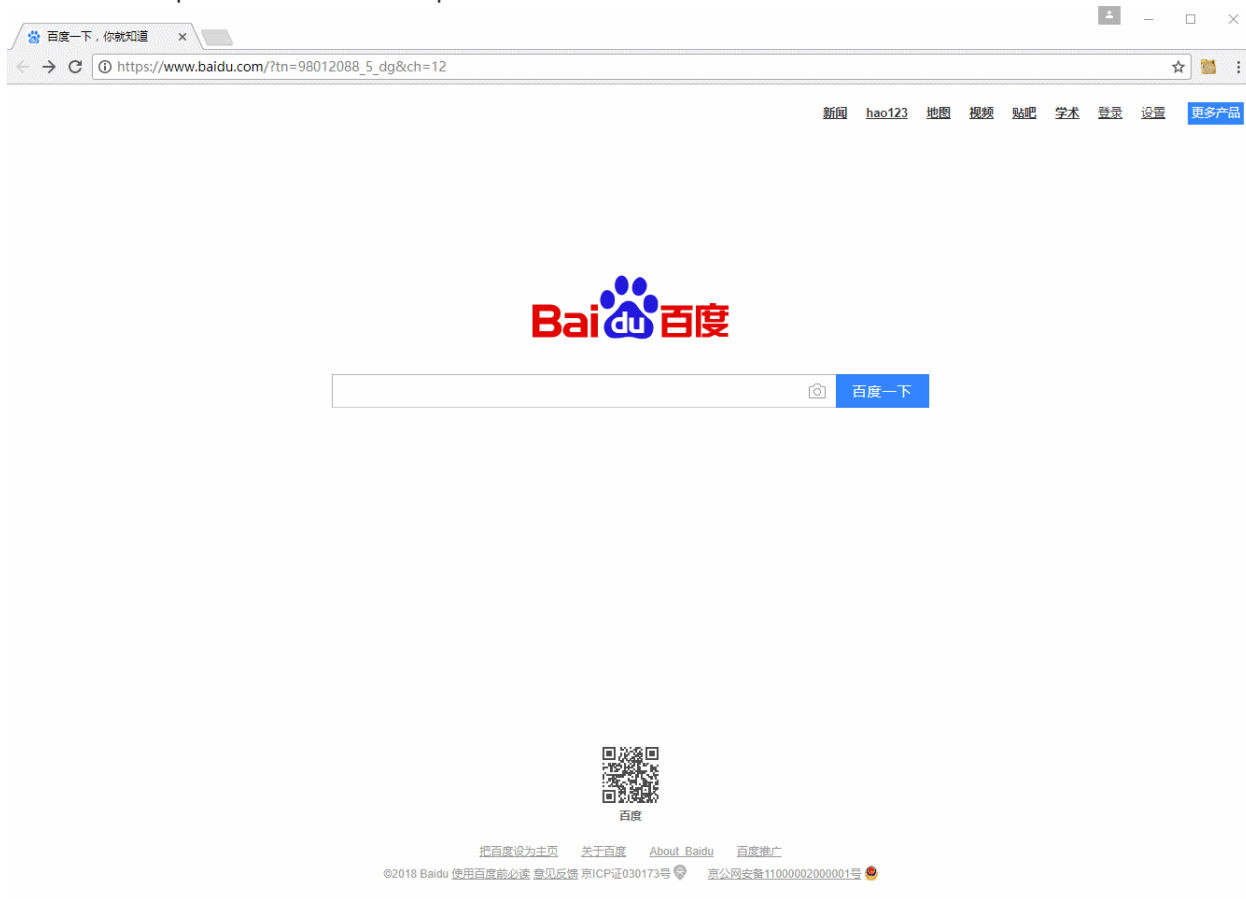
The official recommendation are two programming methods: typescript and micropython. Typescript is the graphical programming language.

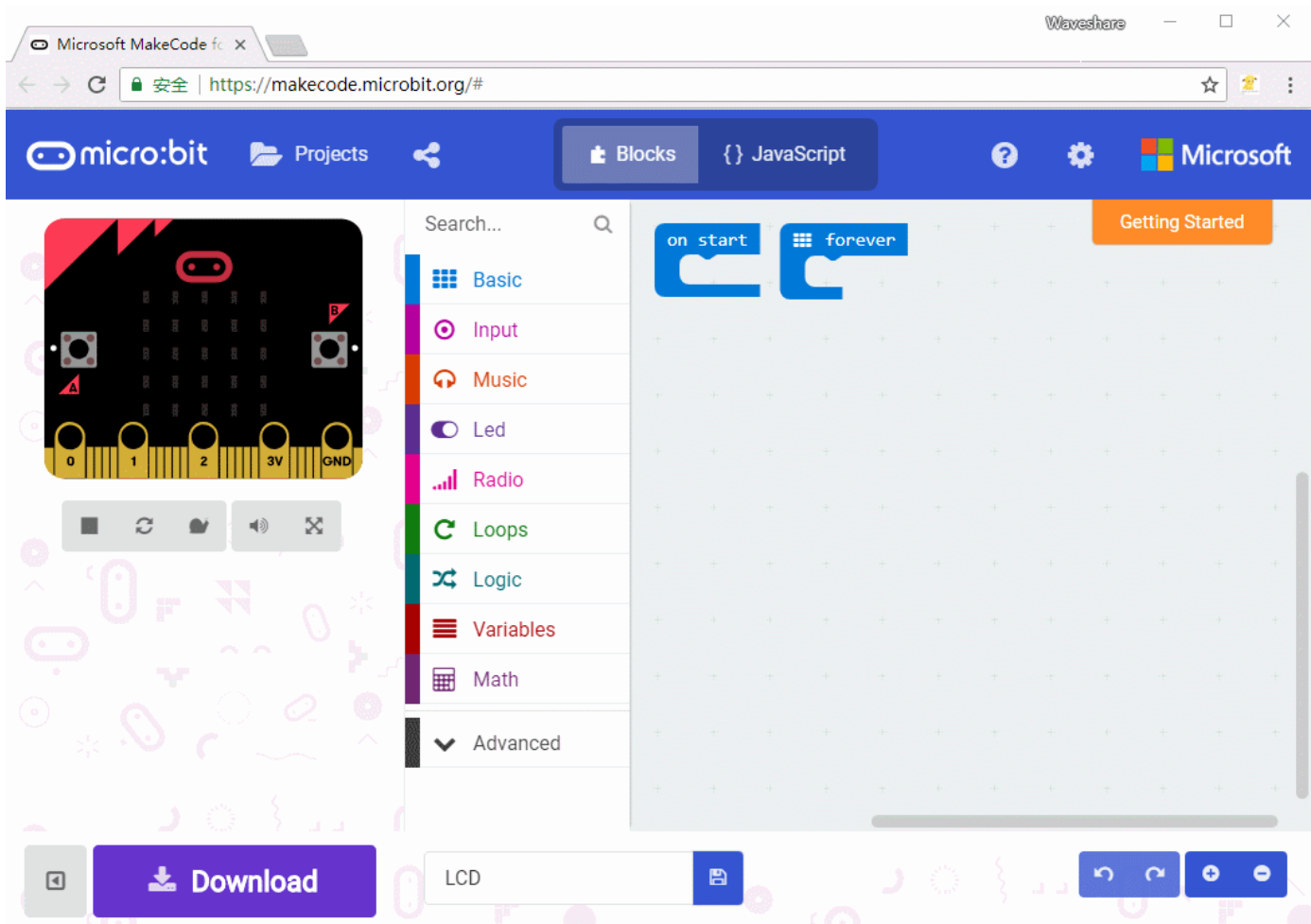**Note:**For this LCD, we only provide demo code of typescript

## Typescript

Typescript is a kind of graphical programming, its website is that: https://makecode.microbit.org/#

- Open a browser and input the next URL



- Create a new empty project

Click Project->New Project to create an empty project. Rename the project as LCD or any one you like to.

- Add Packeage

You can get the package of 1.8inch LCD for micro;bit from github. Click More..->Add Package, then copy the URL to the Edittext.
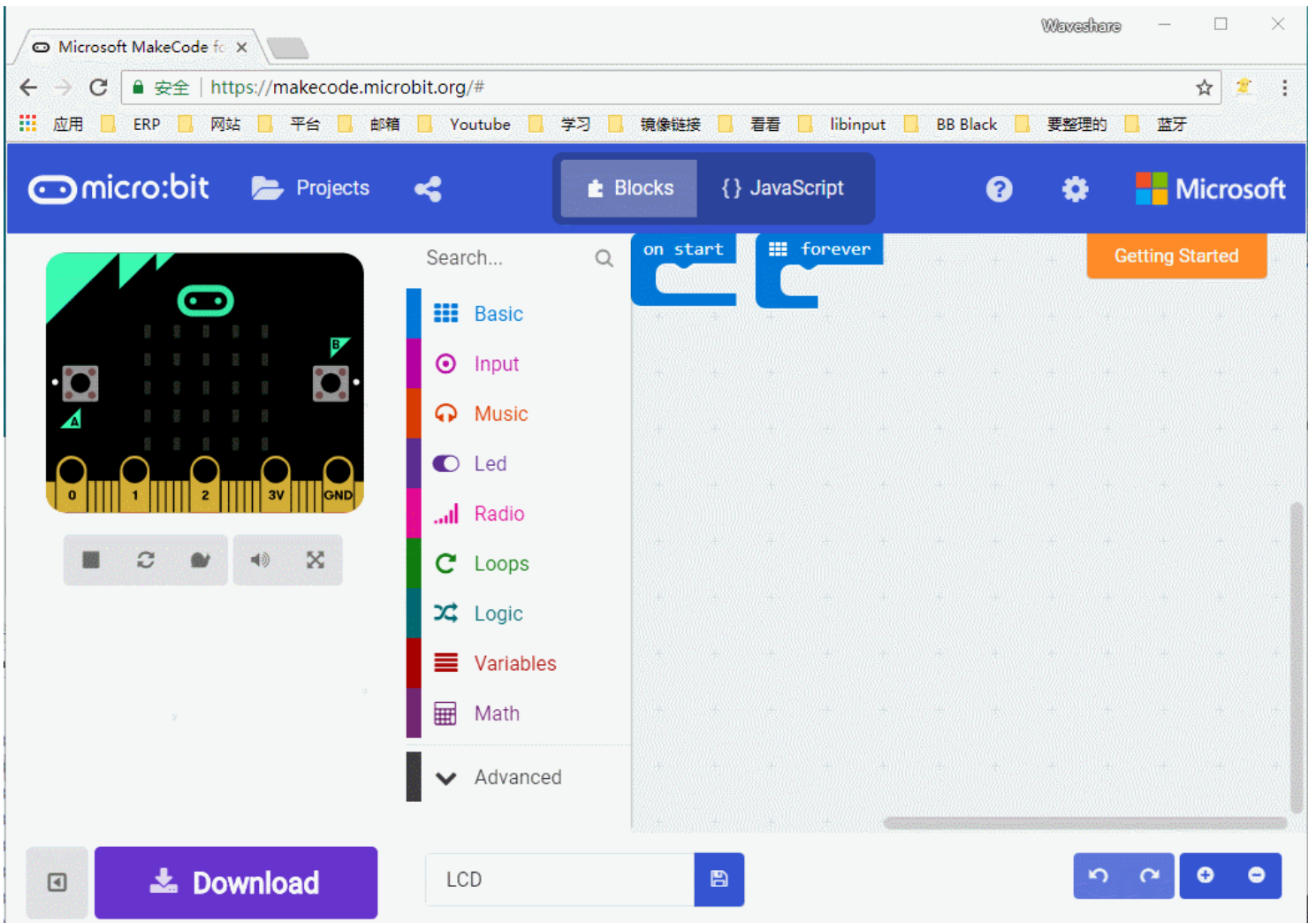
**If you have the old Micro bit**

https://github.com/waveshare/WSLCD1in8

**If you have the Micro bit V2**
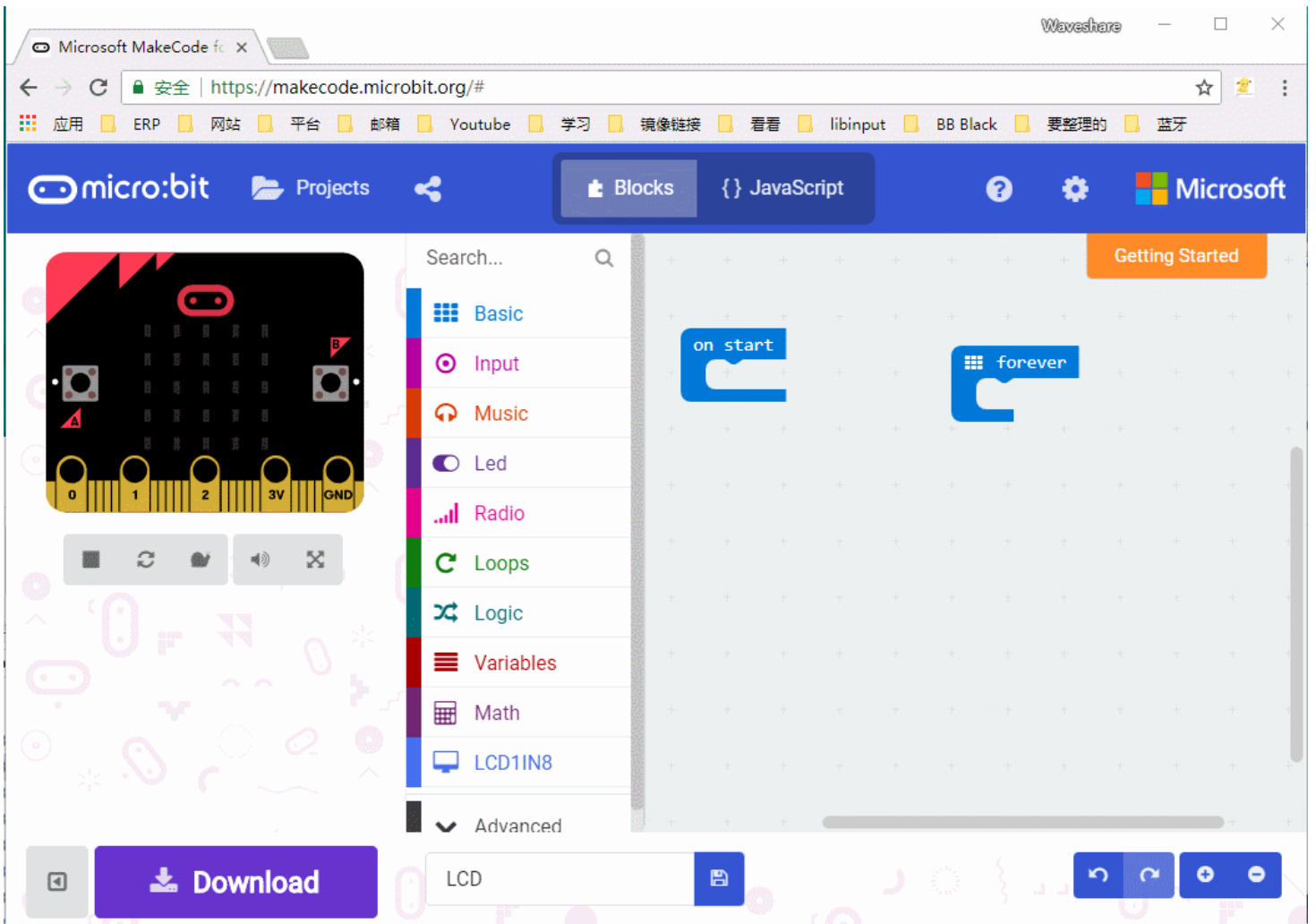
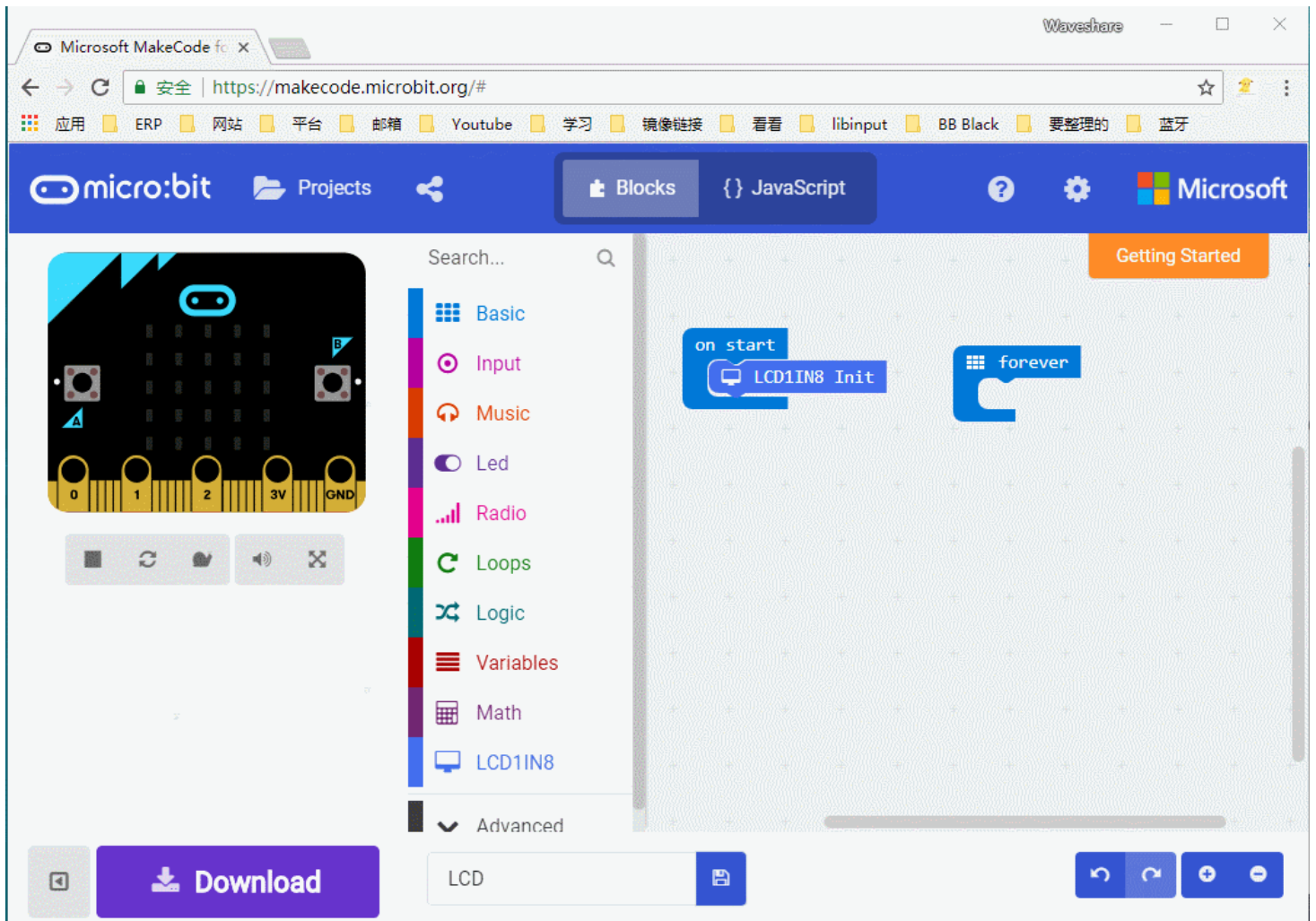https://github.com/waveshare/PXT-WSLCD1in8

Note: add a space follow the address

## The Blocks

- Initiation

You need to initial LCD module first.

- Clear the screen

Clear the screen to white. Create an buffer on RAM with the resolution size 160*128 and initial it to white.
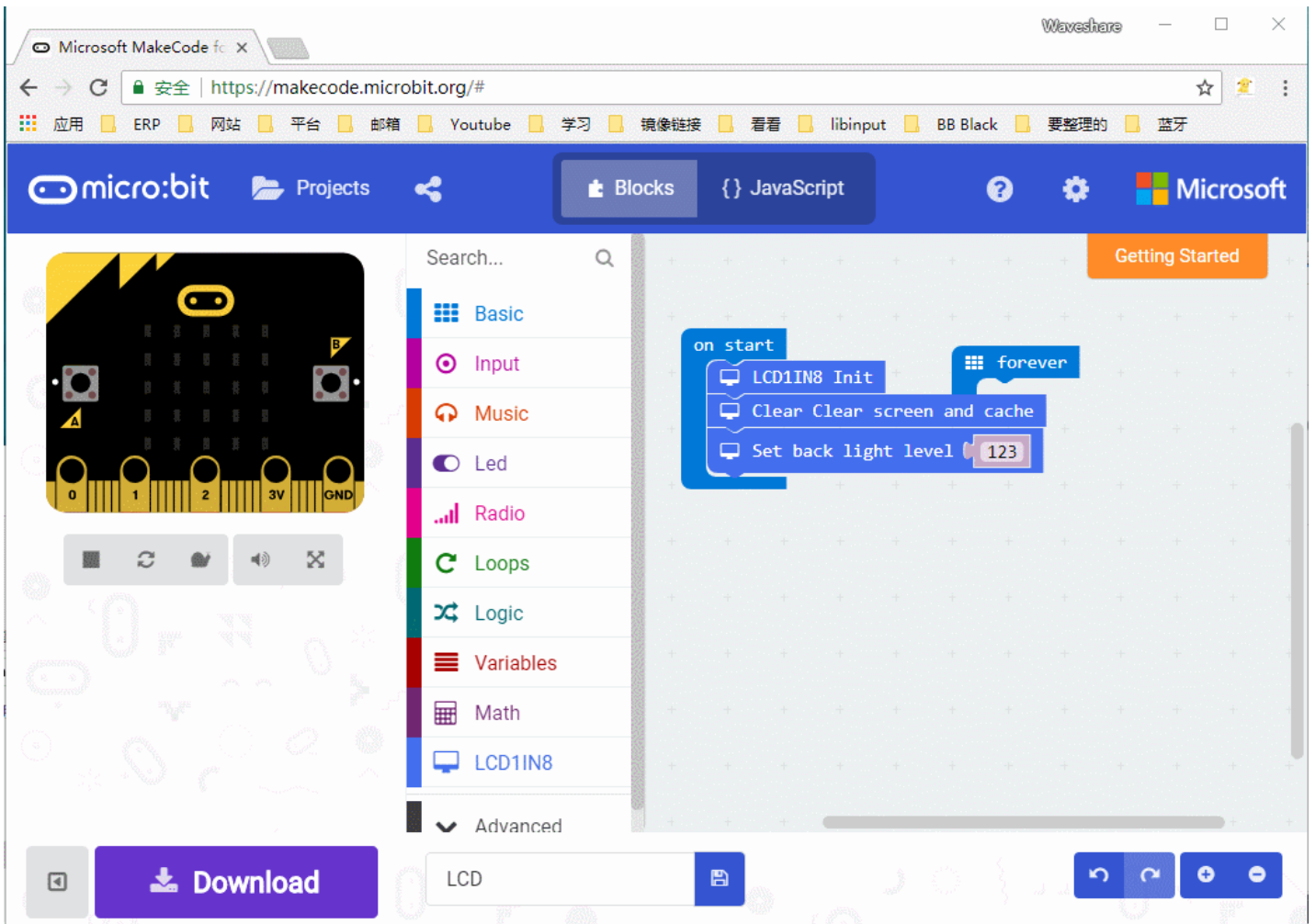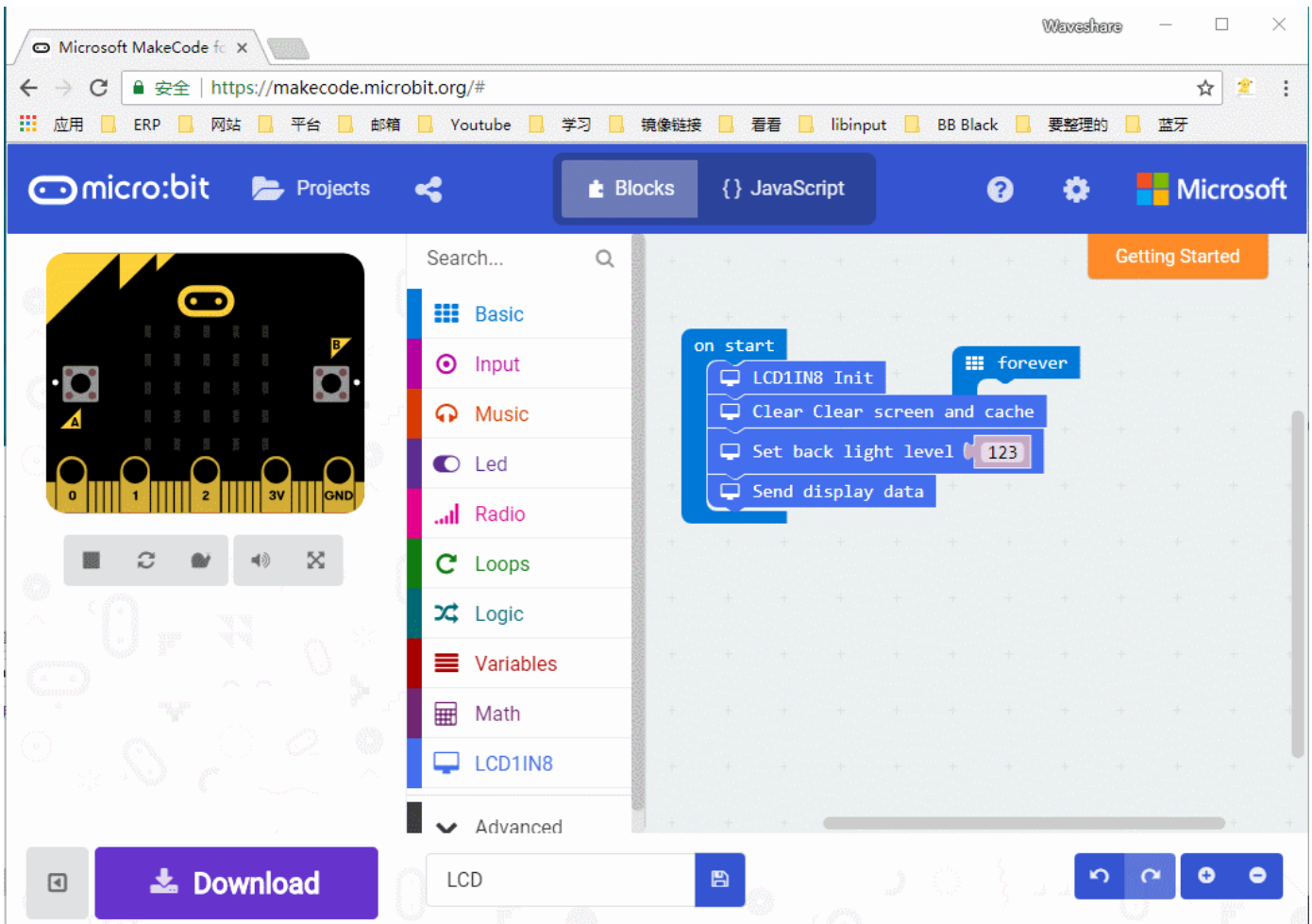
- Set the backlight
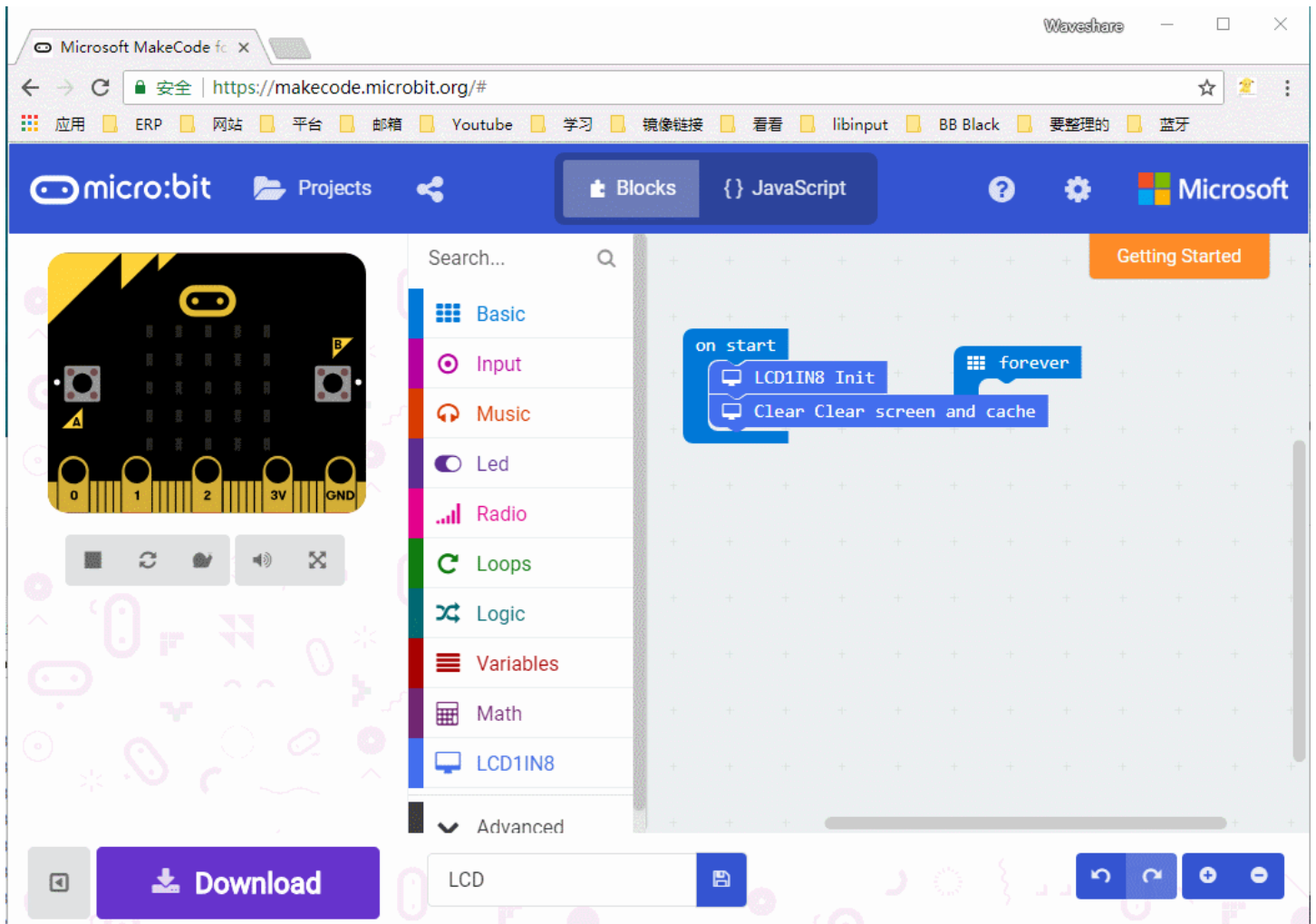
- Send display data

With this block, it will send one frame of buffer to the LCD and display. Note: it is always following drawing operation
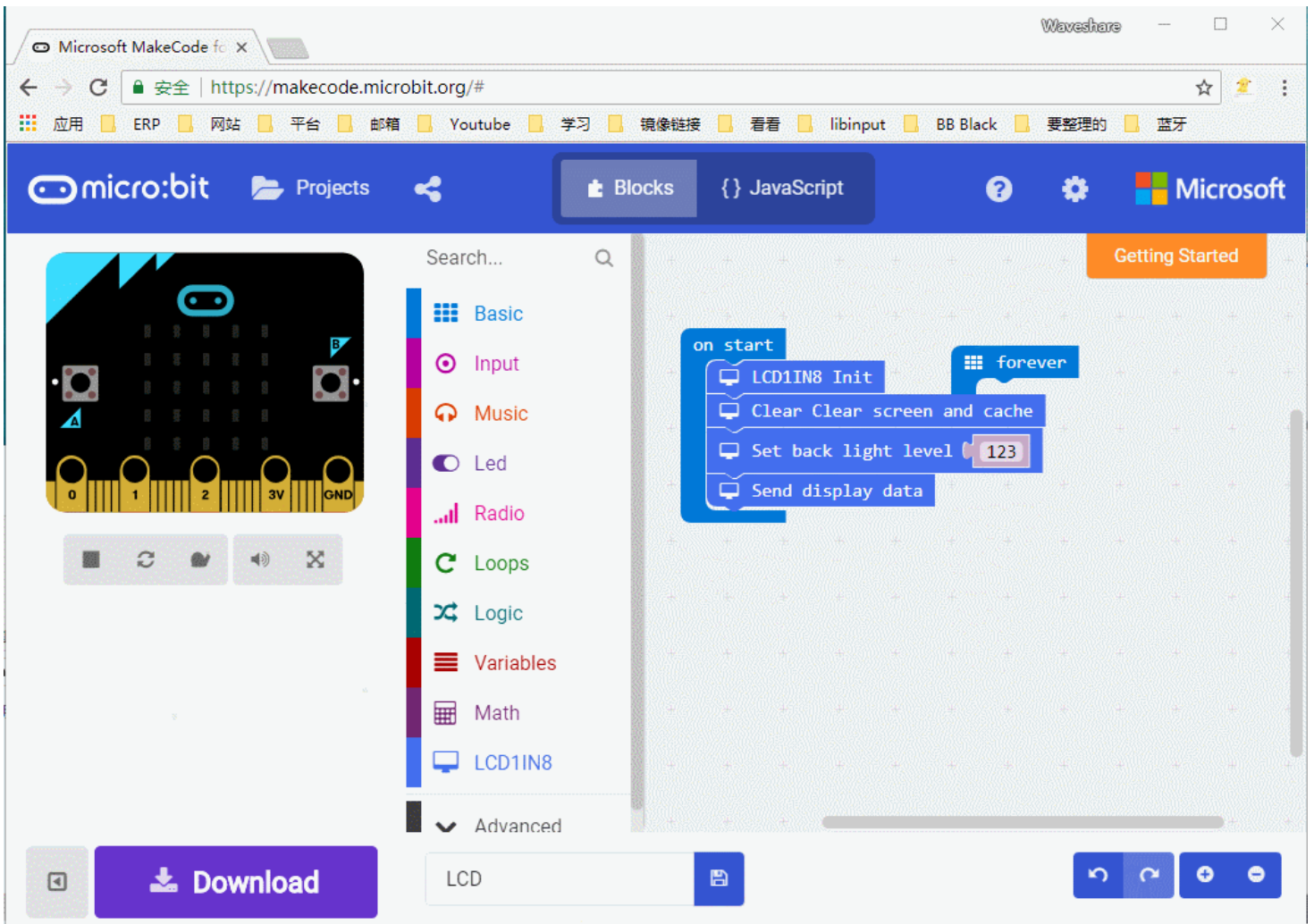
- Draw point

Place the block before send display data. You can choose the position, color and size. For the screen, (1,1) is on top-left, and (160,128) is on bottom-right

There are tow way to set the color, the one is use the color block as above, another is to set the value (RGB565) by drag the slider.
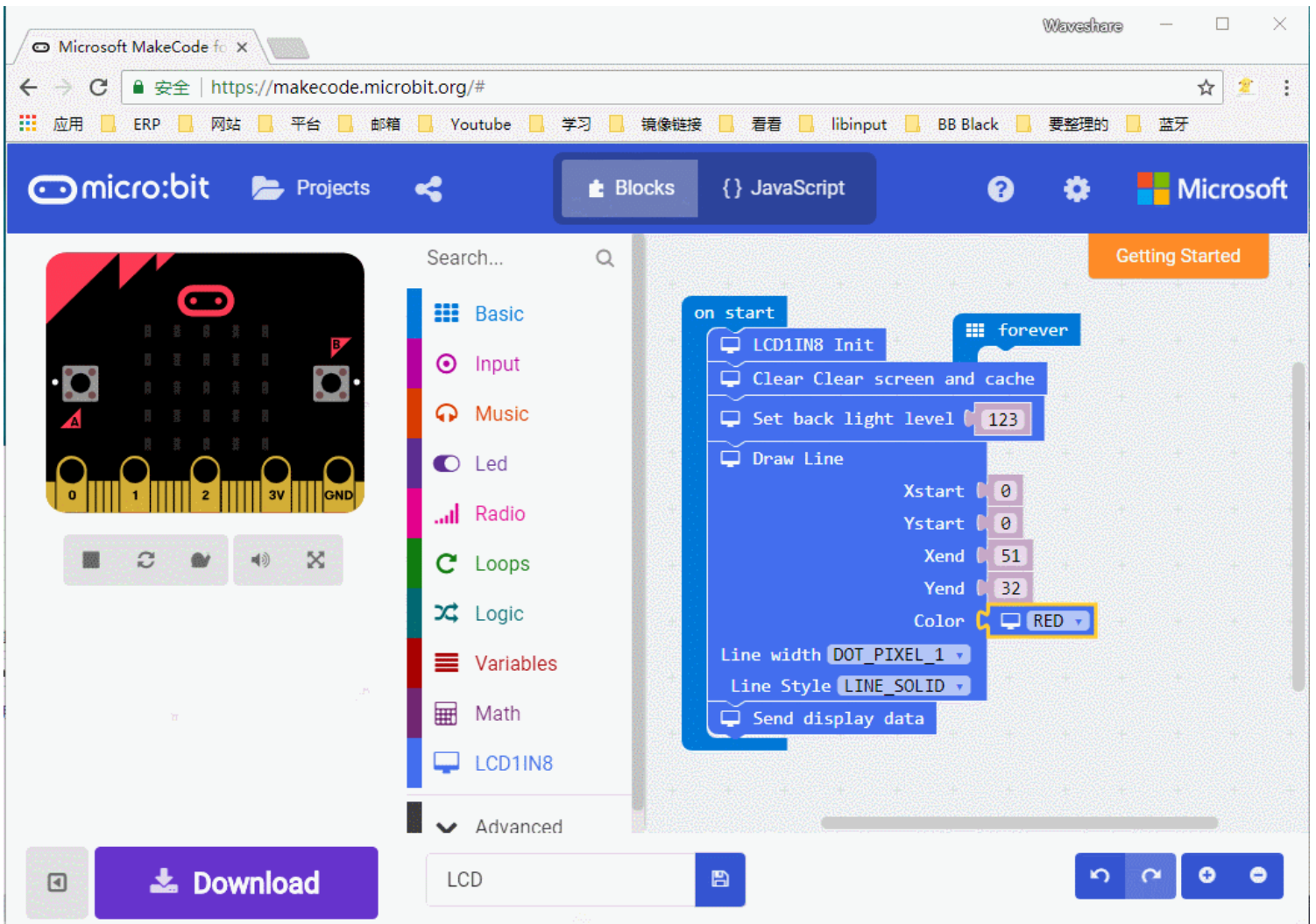
- Draw line

You can choose the the line's position, color, size and its sytle

**solid line**:

**dotted line**: just need to change the Style
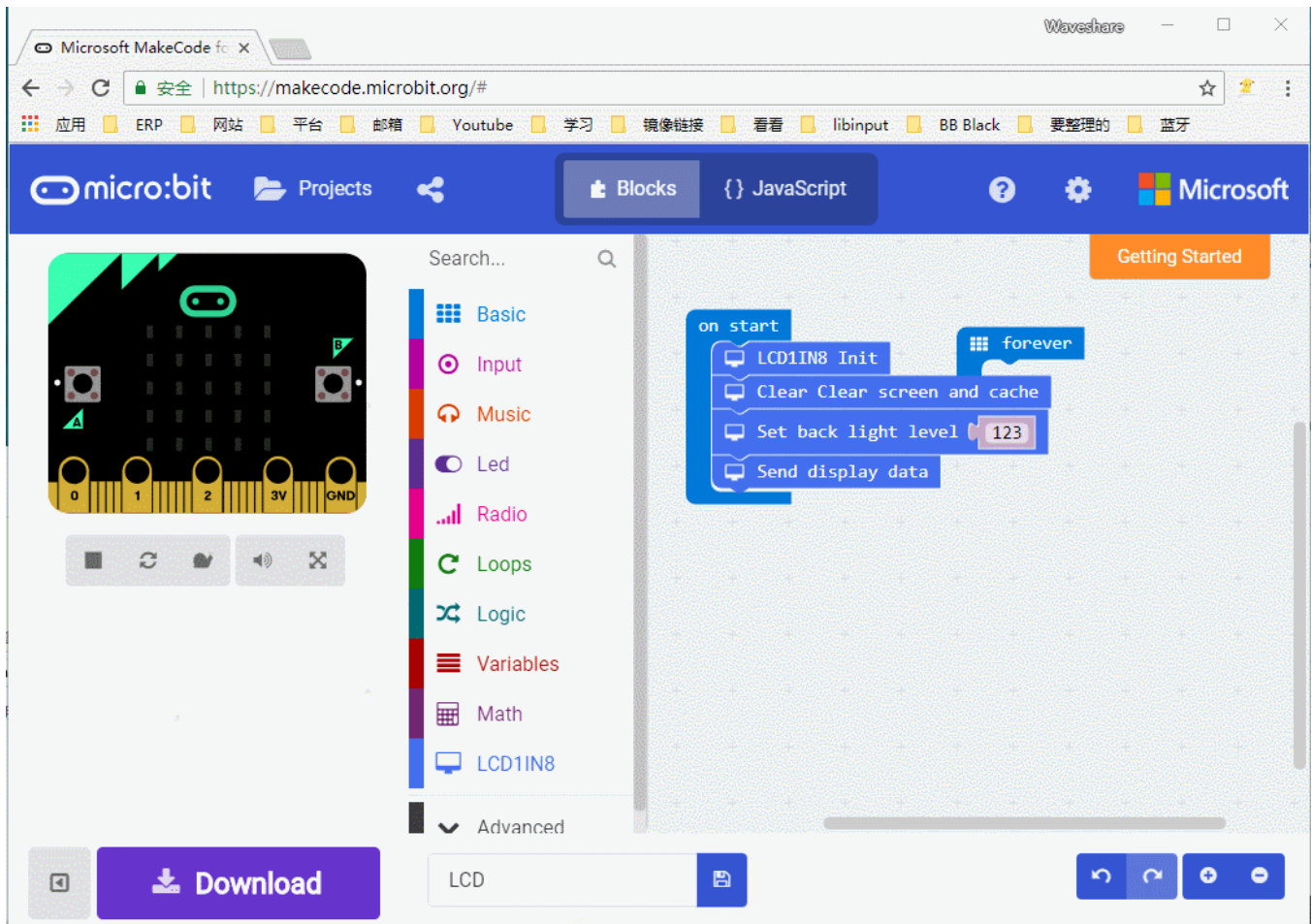
- Draw frame

**Draw empty rectange**:
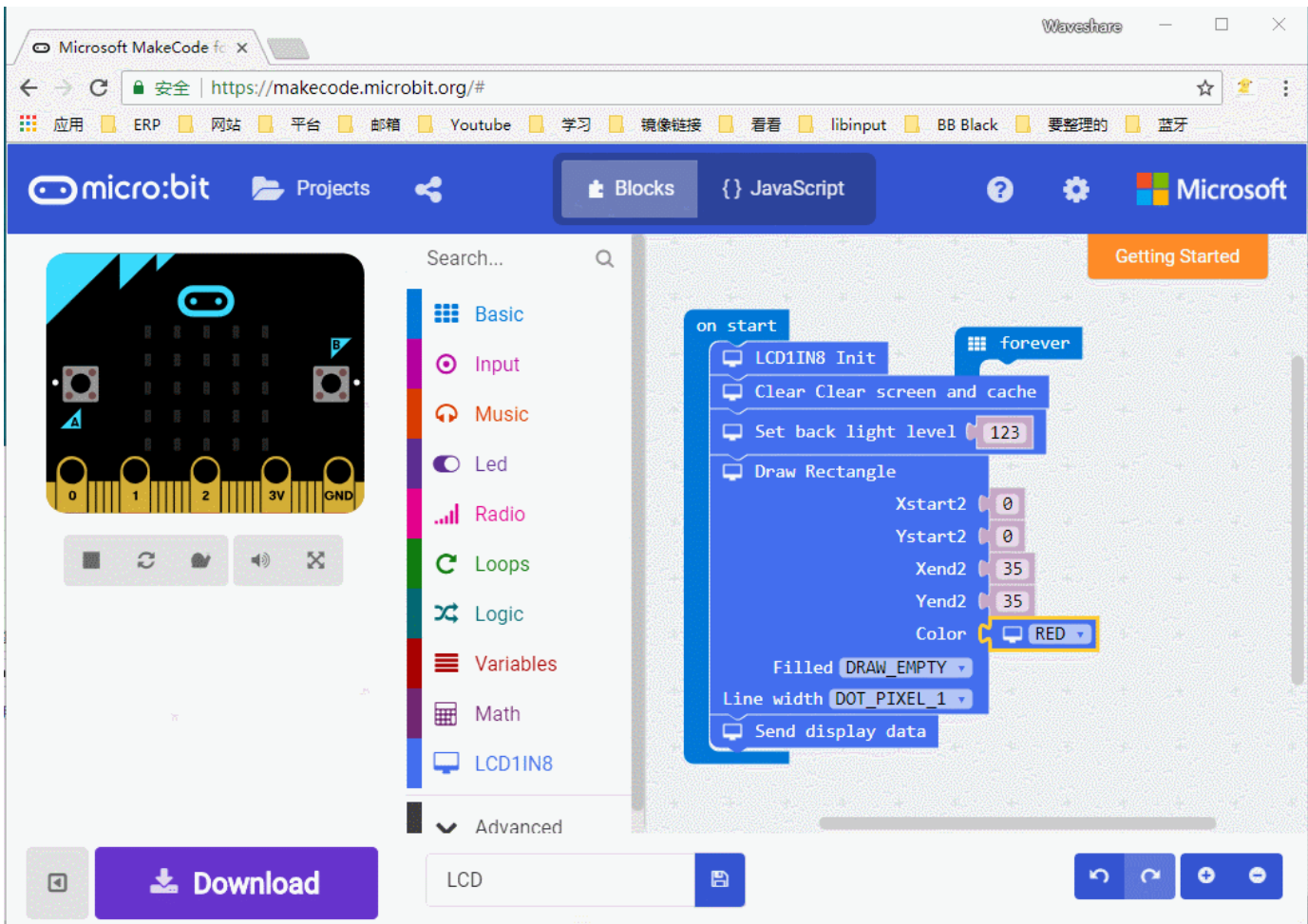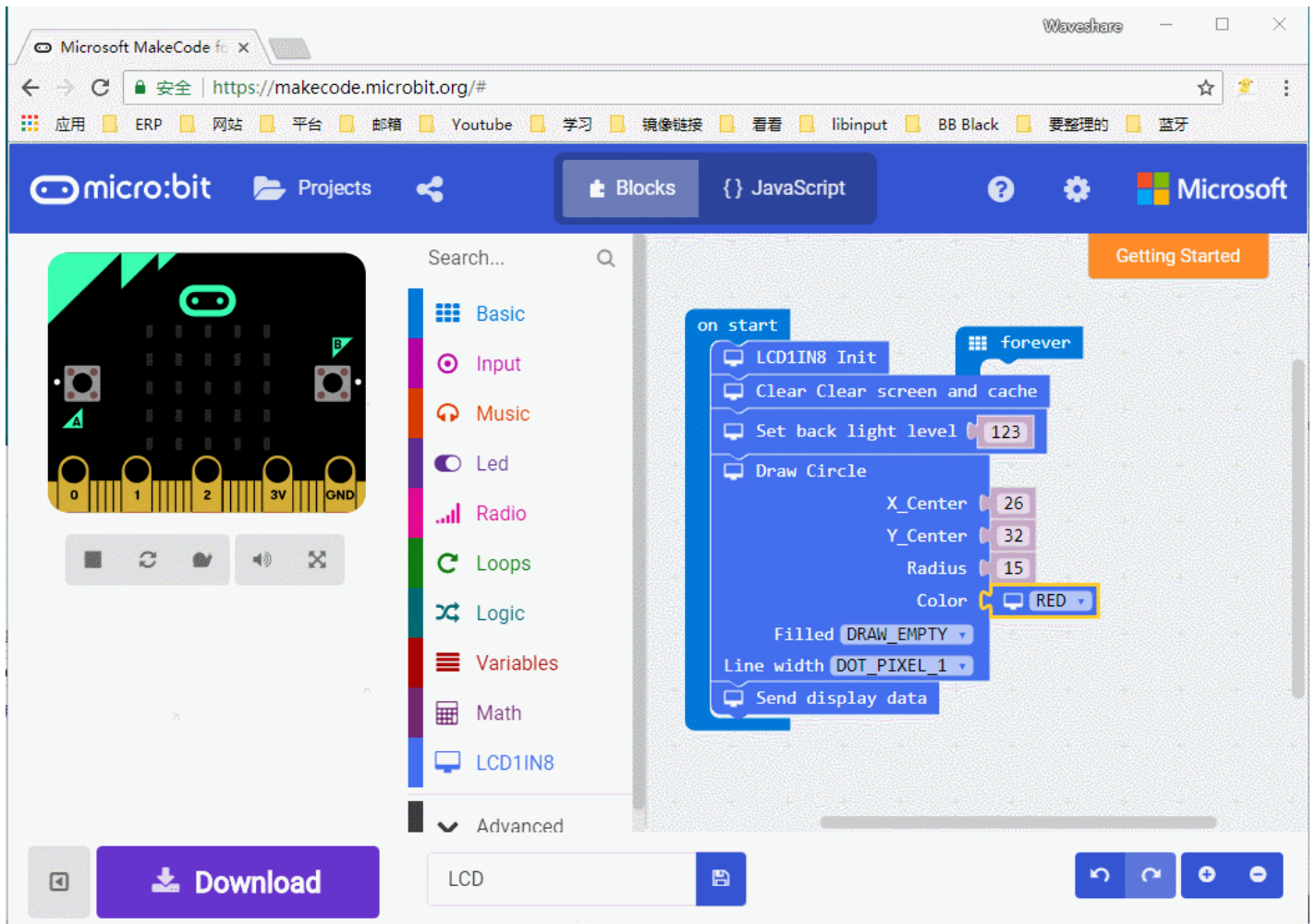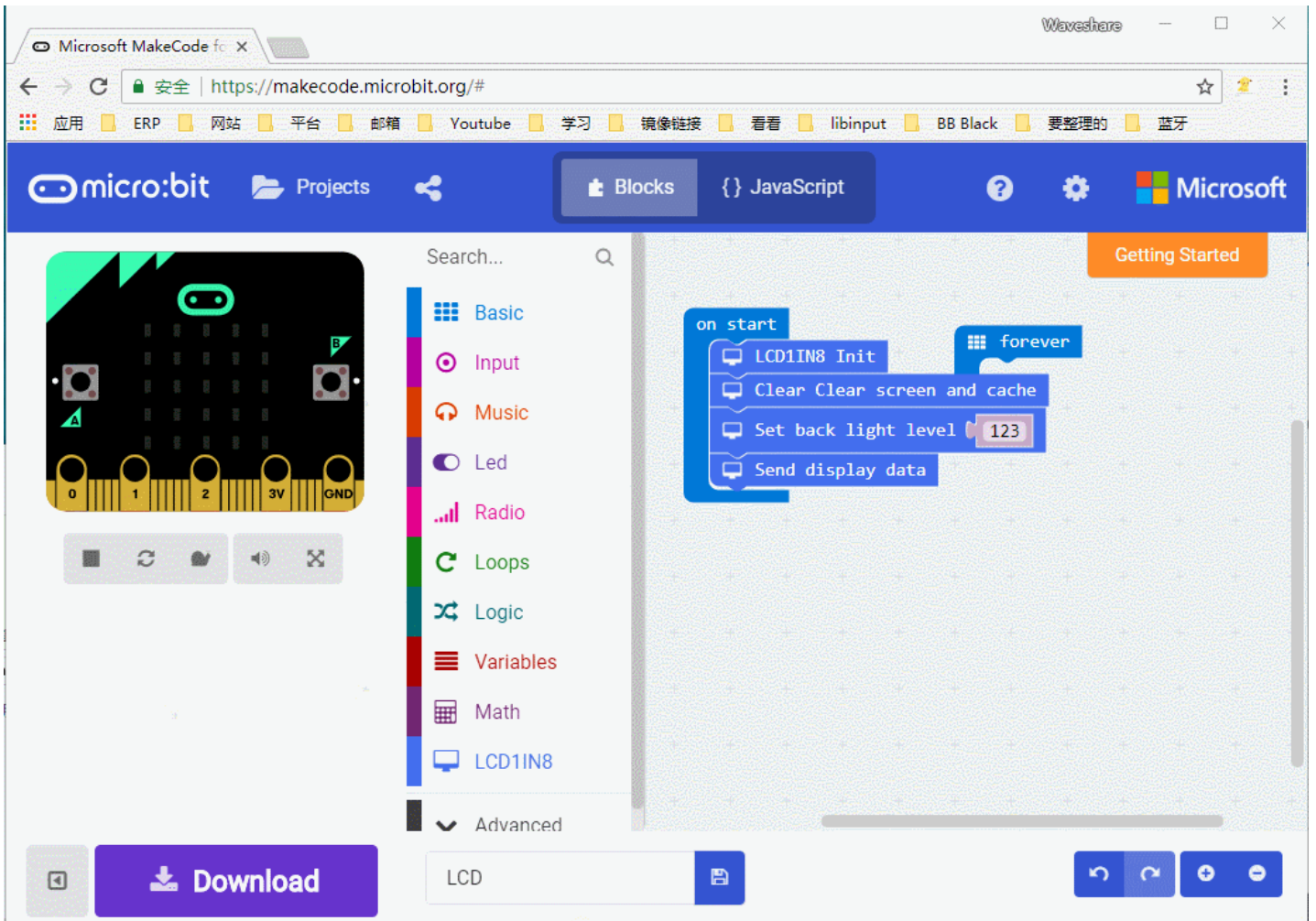
**Draw full rectange**:

- Draw circle
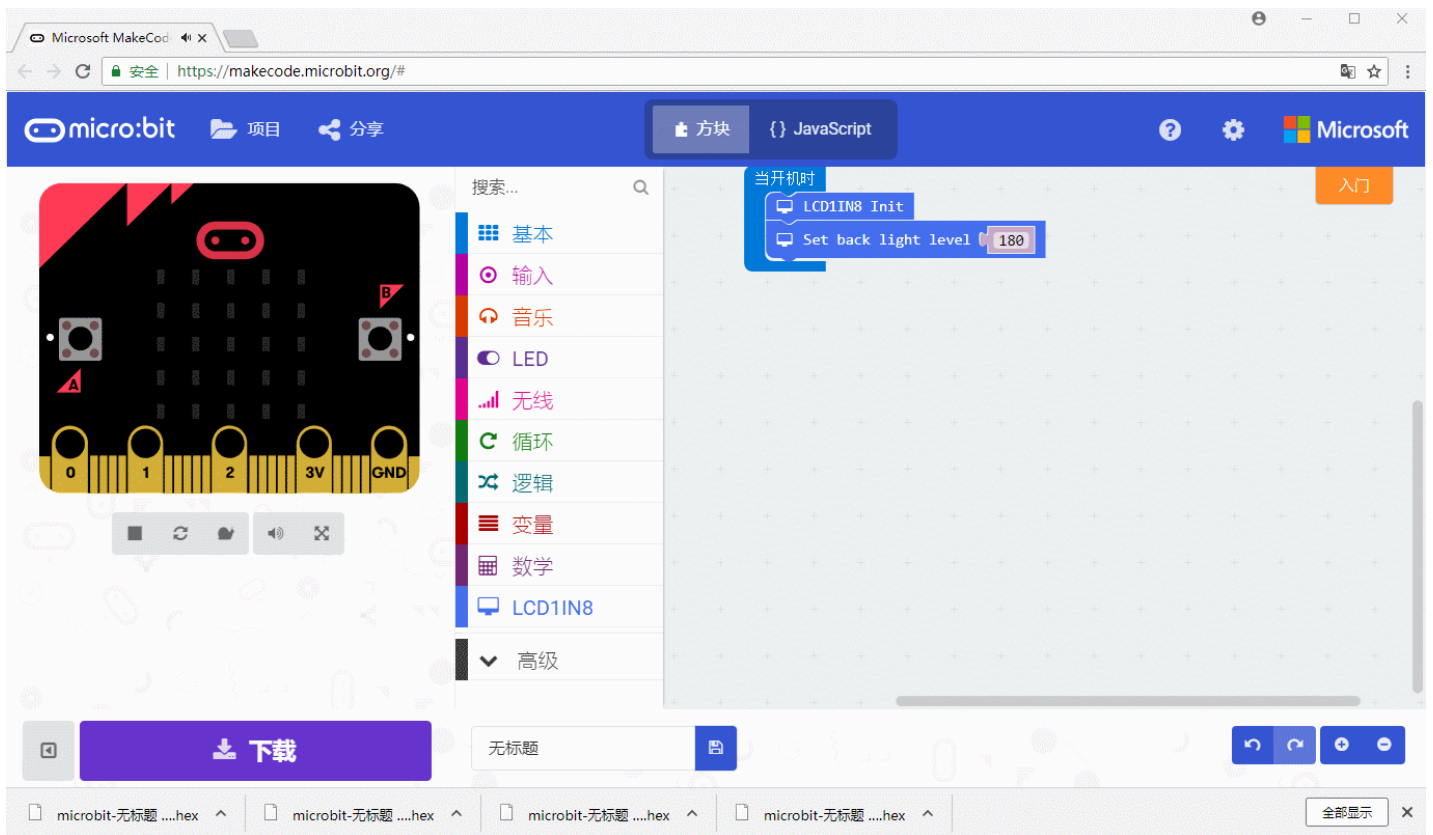
**Draw empty circle**:
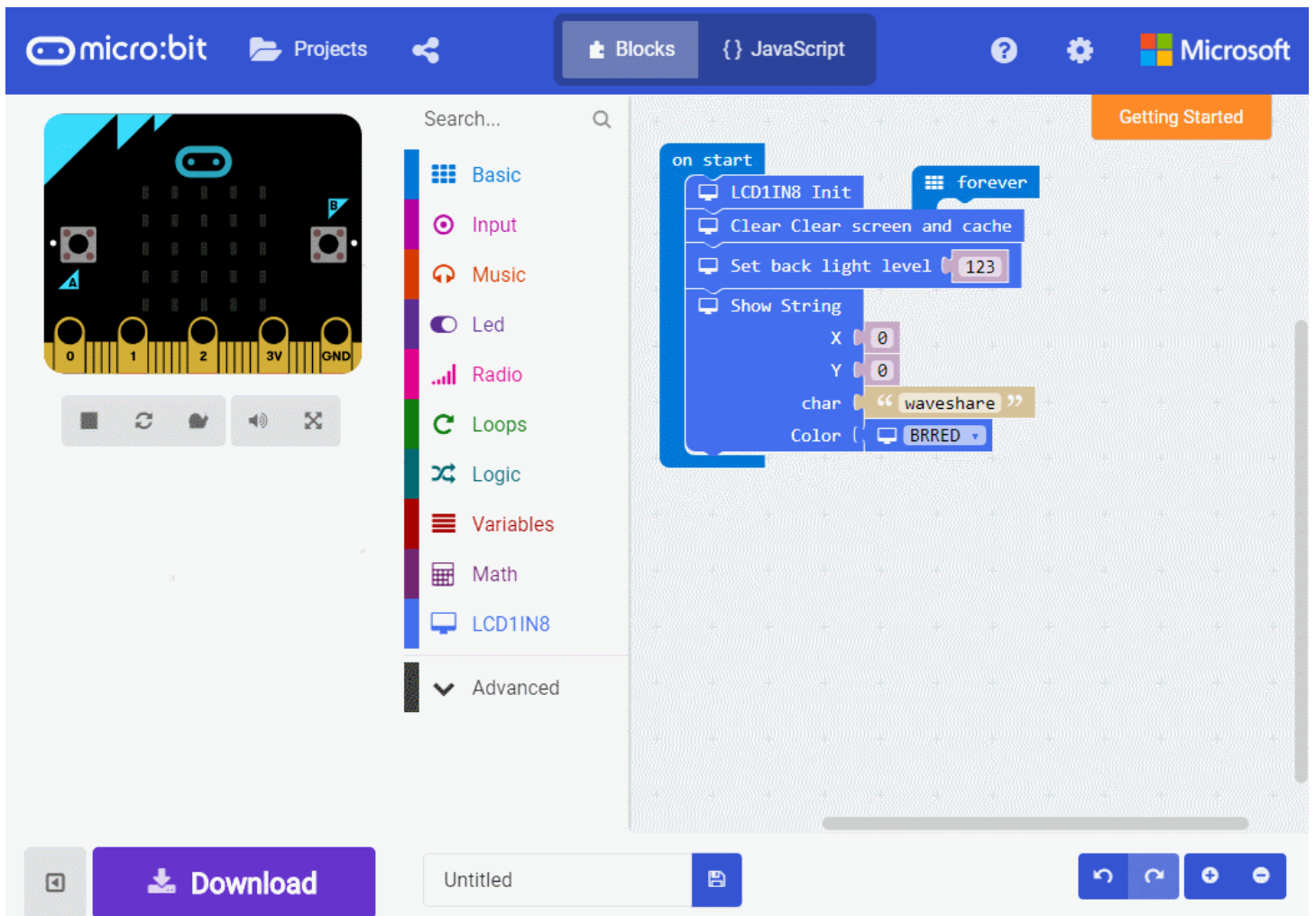
**Draw full circle**:

- Draw string

- Partial refresh

You can set display windows and refresh it on LCD instead of full refresh

Initialize LCD, set the backlight and then draw a rectangle from (30, 30) to (80, 80)

Then set the display windows block and set its position

# Resources

- [Schematic](Schematic)

**Datasheet**

- [23LC1024](23LC1024)
- [ST7735S](ST7735S)

# Software

- [makecode website](makecode website)