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Getting Started: Programming with mBlock

The following guide will introduce you how to use mBlock, and how to program Robots / Arduino Boards with mBlock.

[Download Guide \(PDF\) \(http://download.makeblock.com/mblock/docs/getting-started-with-mblock.pdf\)](http://download.makeblock.com/mblock/docs/getting-started-with-mblock.pdf)



A tour around mBlock

Open mBlock and you'll see the following interface. Feel free to experiment around.

Connect to your robots or upload firmware.

Introduce new blocks by downloading extensions.

Save or load project files.

Select which type of hardware you're using

The "Stage" to hold drawings and moving pictures (we call those pictures "Sprites")

Switch between different types of command blocks.

Arduino and robot related blocks are located here.

the "script zone", where you place your command blocks.

Drag blocks from here to the script zone.

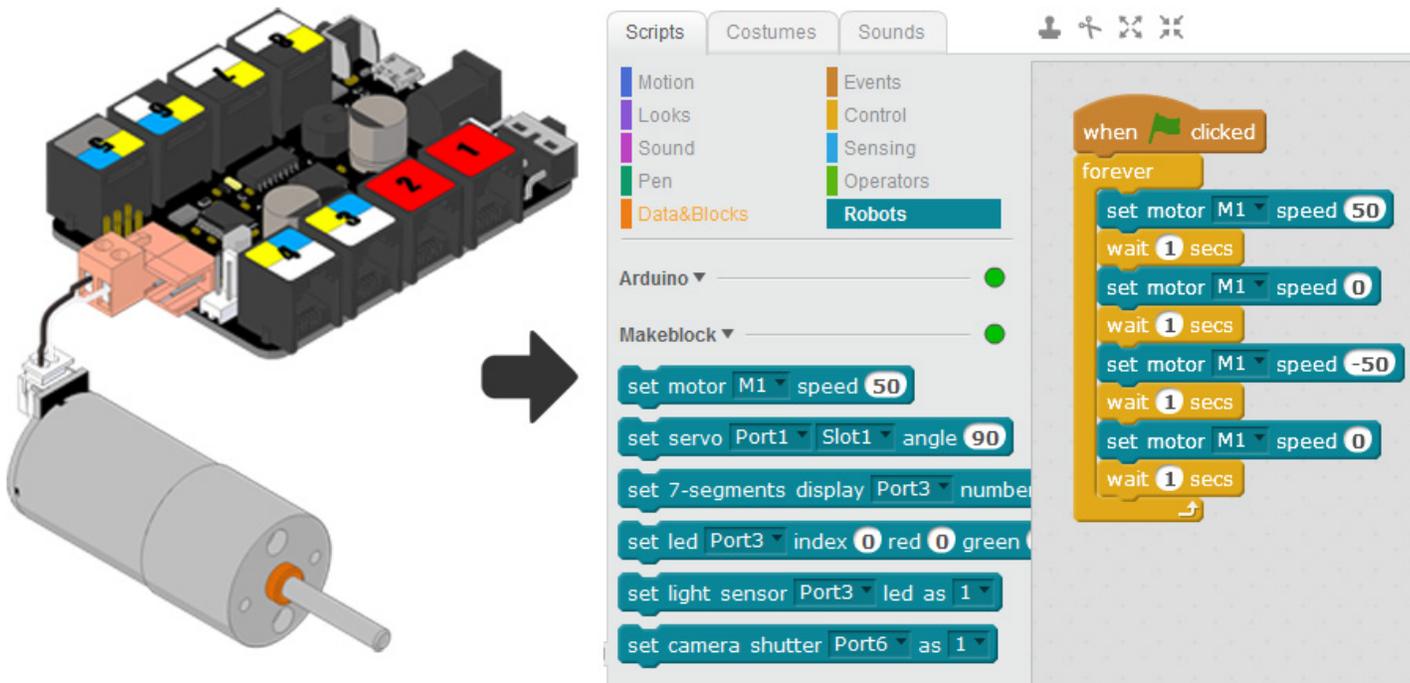
The Sprite panel. You can create new sprites here.

The screenshot shows the mBlock application window with a menu bar (File, Edit, Connect, Boards, Extensions, Language, Help) and a toolbar. The main workspace is divided into several panels: a Stage area with a panda sprite, a Sprites panel with a 'New sprite' button, a Scripts panel with various block categories (Motion, Looks, Sound, Pin, Data&Blocks, Events, Control, Sensing, Operators, Robots), and a Script zone where blocks are assembled. A 'Robots' category is selected in the Scripts panel, showing a list of Arduino-related blocks. A '2.4G Joystick pressed' block is being dragged from the Scripts panel to the Script zone. The Script zone contains a 'forever' loop with 'set digital pin 1 output as HIGH', 'wait 1 sec', and 'set digital pin 6 output as LOW' blocks.

Some Examples

Drag the module block you need from Robots Area, select the correct port/pin. Then trigger the running event, you can see it works.

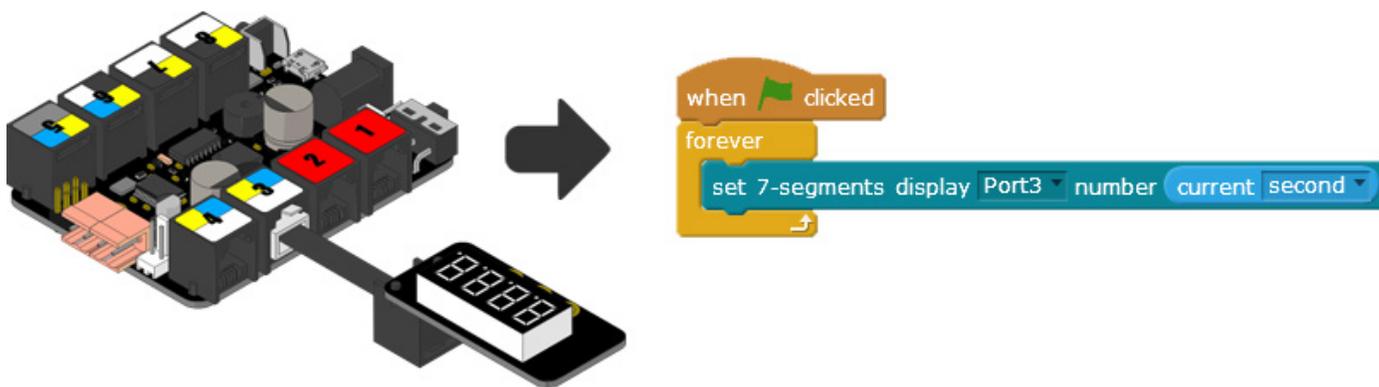
- Control DC Motor



The diagram shows a DC motor connected to the mBlock board. The motor's wires are plugged into the ports labeled 1, 2, and 3. An arrow points to the mBlock software interface. In the 'Robots' category, the 'set motor M1 speed' block is selected. The code block is as follows:

```
when green flag clicked
  forever loop
    set motor M1 speed 50
    wait 1 secs
    set motor M1 speed 0
    wait 1 secs
    set motor M1 speed -50
    wait 1 secs
    set motor M1 speed 0
    wait 1 secs
```

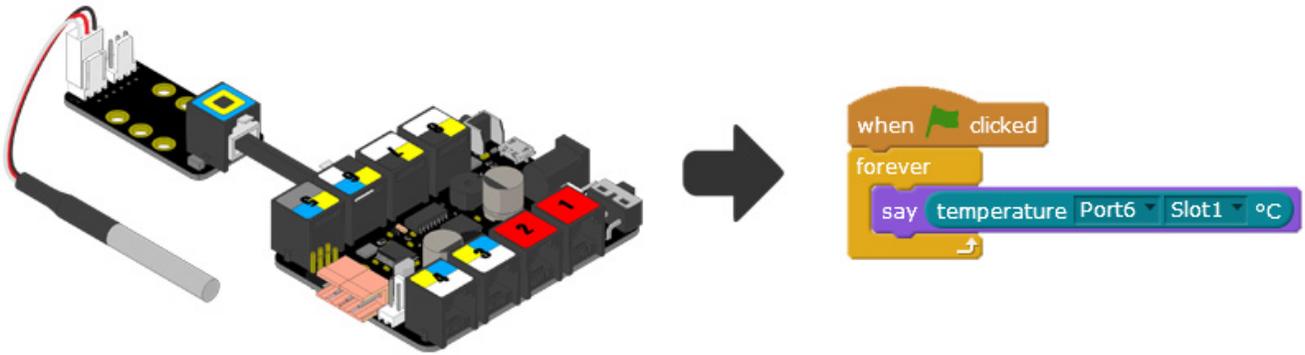
- Control Me 7-segments Display



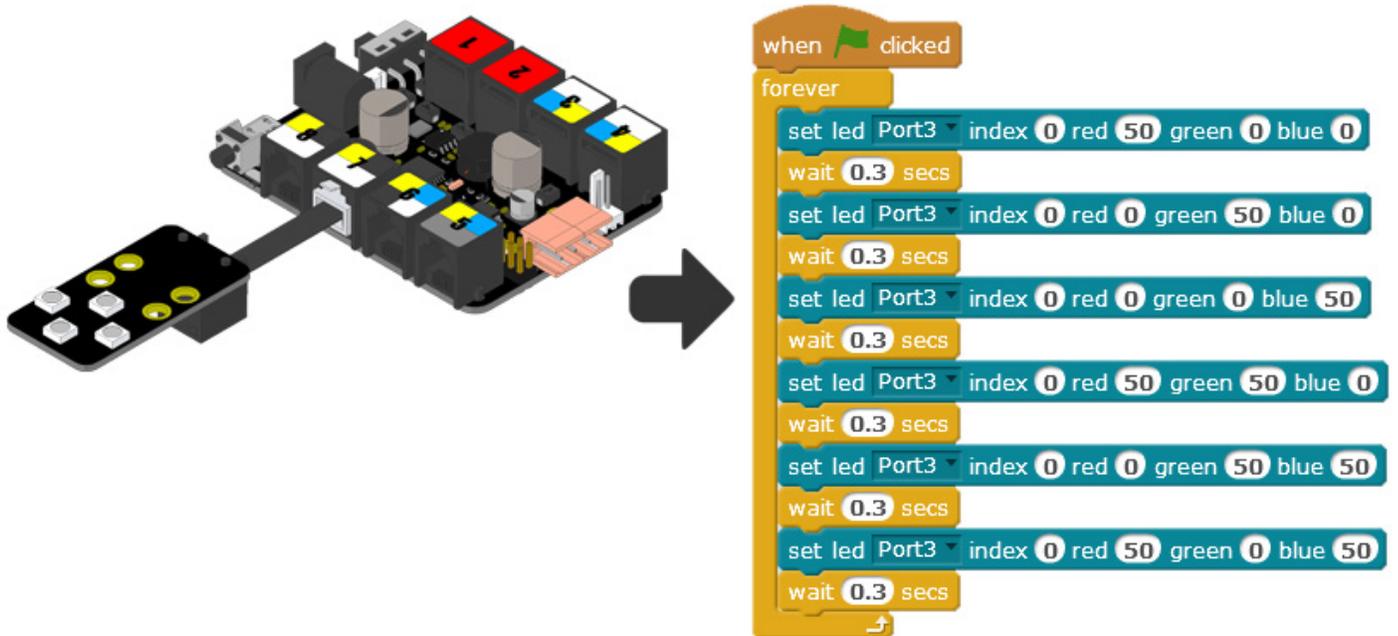
The diagram shows a 7-segment display connected to the mBlock board. The display's wires are plugged into the ports labeled 1, 2, and 3. An arrow points to the mBlock software interface. In the 'Robots' category, the 'set 7-segments display Port3 number' block is selected. The code block is as follows:

```
when green flag clicked
  forever loop
    set 7-segments display Port3 number current second
```

- Read the value of Me Temperature Sensor



- Control the Me RGB LED



mBlock Books

We have created some lessons about graphical programming and robotics to help teachers or kids get started easier. We suggest you start learning graphical logical programming with *Scratch 2.0 The Adventures of Mike*, then learn how to use Scratch2.0 to interact with mBot with the book *mBlock Kids maker rocks with robots*



mBlock Kids maker rocks with robots (<http://download.makeblock.com/mBlockKidsmakerrockswiththerobots.pdf>)

Kids maker rocks with the robots has twelve chapters with different projects. It can guide kids to enjoy fun of programming mBot in a lot of game scenes for learning graphic programming, electronics, robotics.

Resources and Going Further

(1) Arduino Firmware for mBlock: visit Github (<https://github.com/Makeblock-official/Makeblock-Firmware/blob/master/firmware/firmware.ino>)

(2) Makeblock Official Web Site: <http://www.makeblock.cc/> (<http://www.makeblock.cc/>)

(3) Makeblock Community: <http://learn.makeblock.com/> (<http://learn.makeblock.com/>)

Explore more about mBlock

Knowledge on Scratch is useful for using mBlock. If you are new to Scratch programming, you may check out one of Scratch books (<http://www.amazon.com/s/keywords=scratch>).

More Tutorials are available in the mBlock tutorial sections of mBlock Education. (<http://www.mblock.cc/edu/>)

