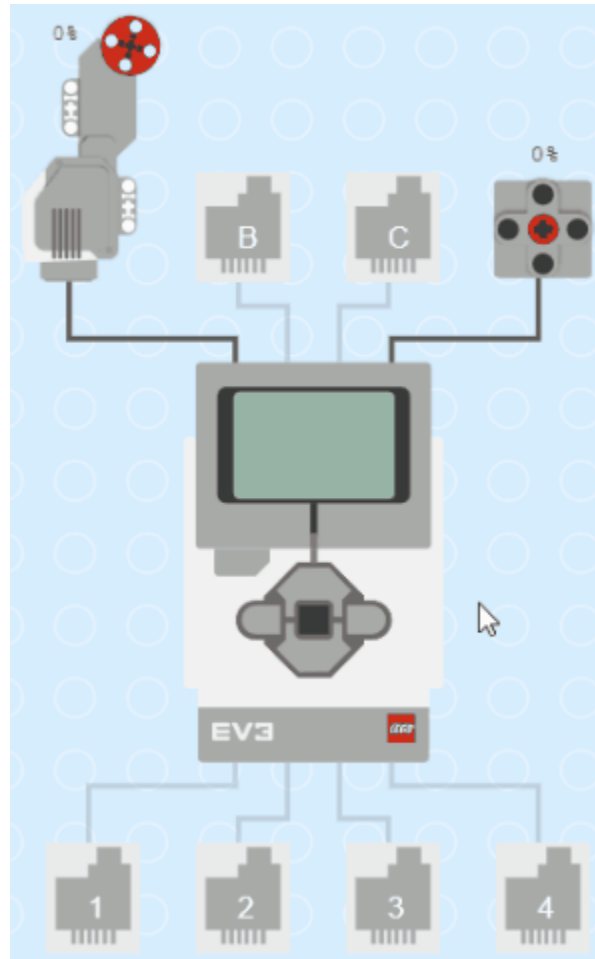


Run motors

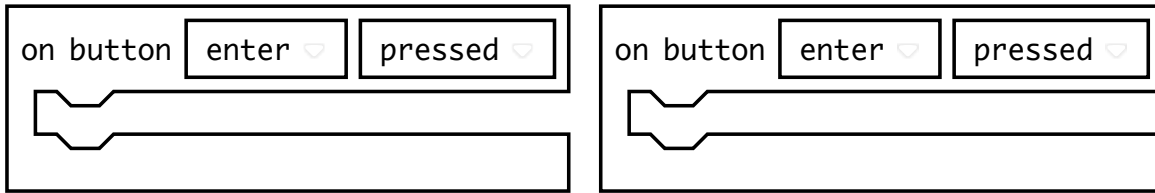
Introduction

Use the buttons to start and stop the Large Motor and Medium Motor.



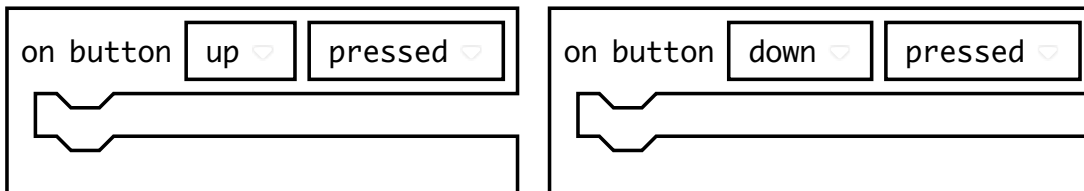
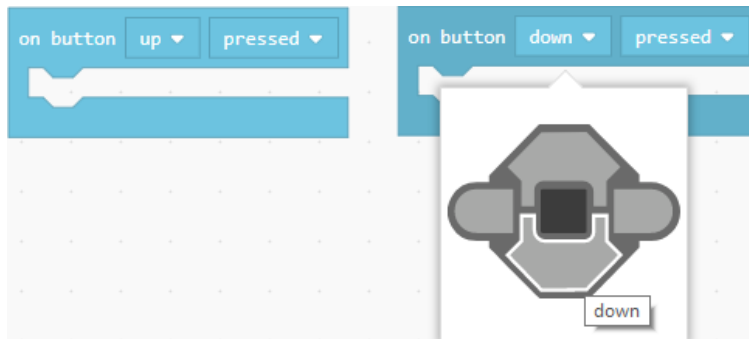
Step 1

Open the **Brick** Toolbox drawer. Drag out 2 **on button** blocks anywhere onto the Workspace.



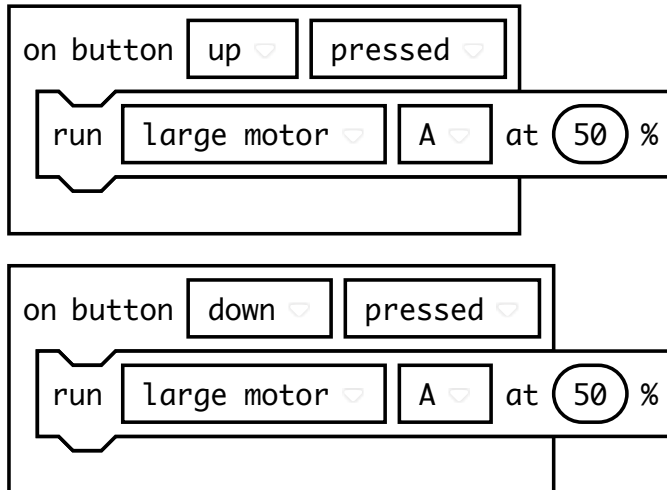
Step 2

In the `on button` blocks, use the drop-down menu to select the `up` and `down` buttons.



Step 3

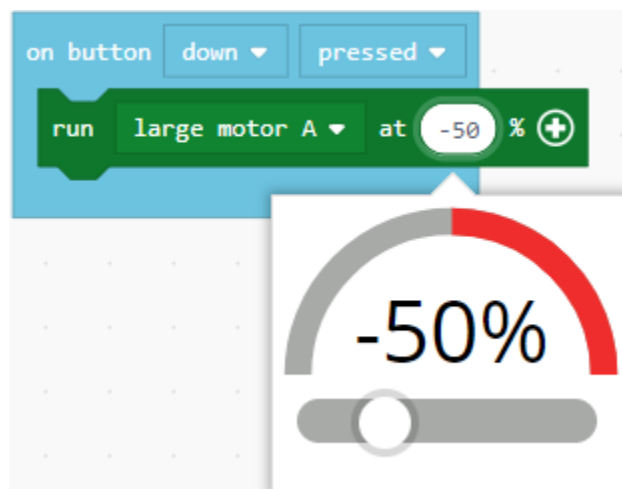
Open the `Motors` Toolbox drawer. Drag out **2** `run` blocks onto the Workspace, and drop one of them each into the `on button` blocks.

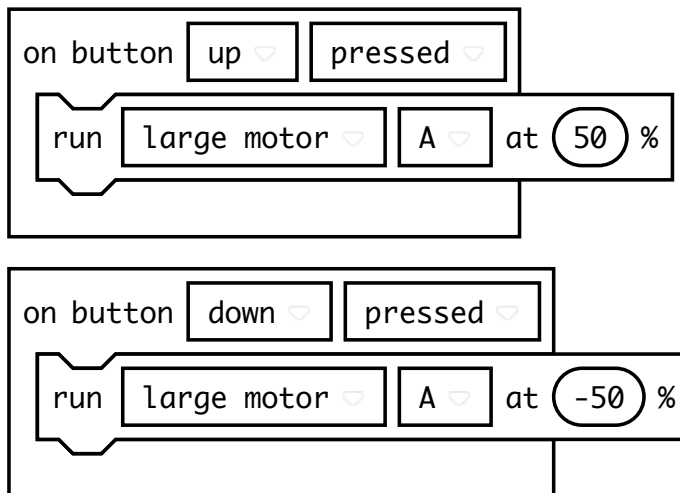


Step 4

The `run` blocks specify which type of motor to run (Large Motor or Medium Motor), and which port the motor is attached to (Ports A, B, C, or D). The default setting is to run the Large Motor attached to Port A at 50% speed.

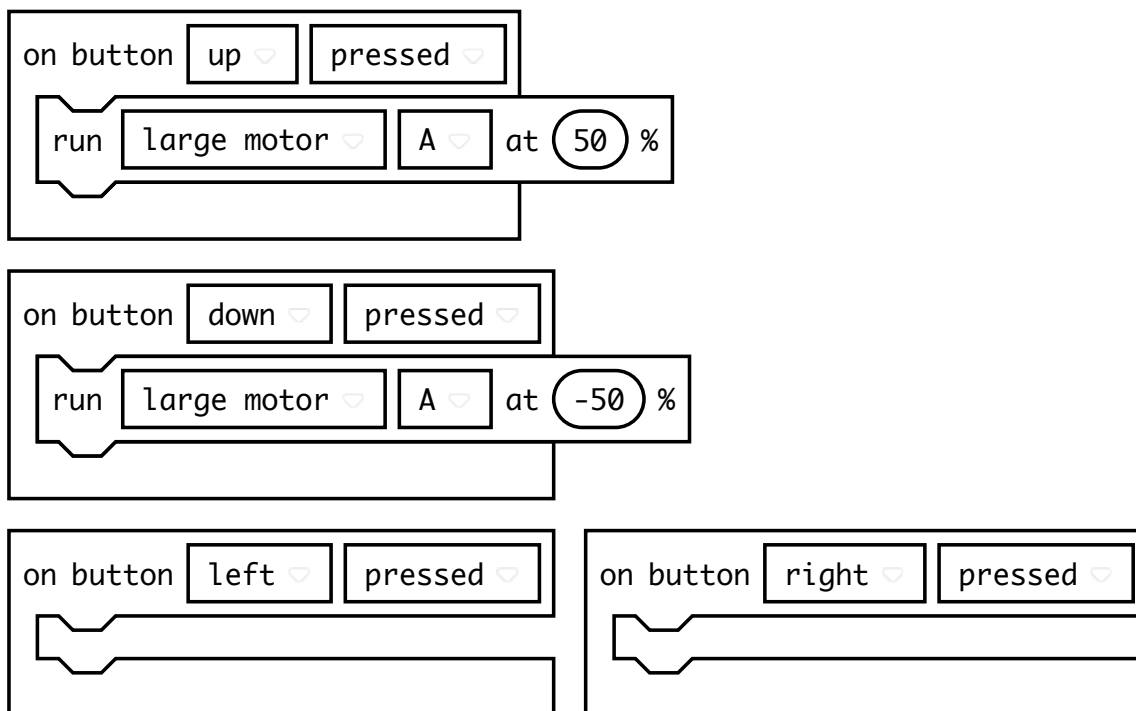
When we press the `down` button, we want our motor to run in the reverse direction. In the `run` block that is in the `on button down pressed` block, change the speed value from 50% to -50% .





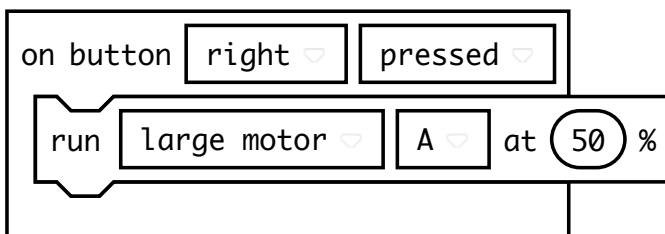
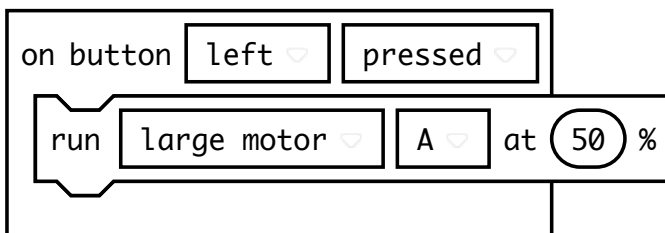
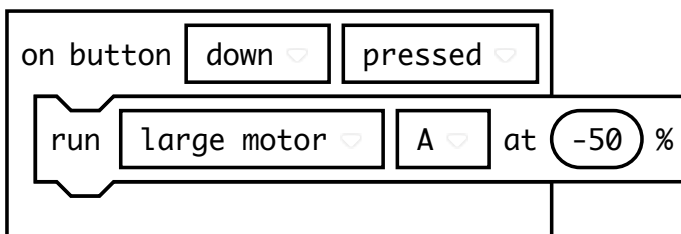
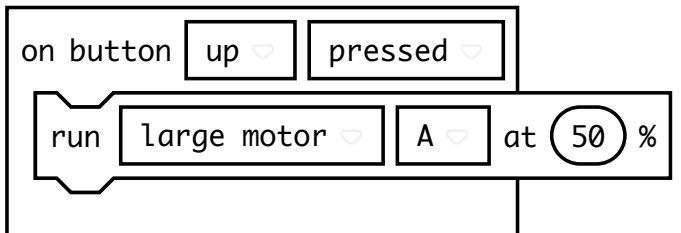
Step 5

Open the **Brick** Toolbox drawer and drag out **2** on button blocks. In the **on button** blocks, use the drop-down menu to select the **left** and **right** buttons.



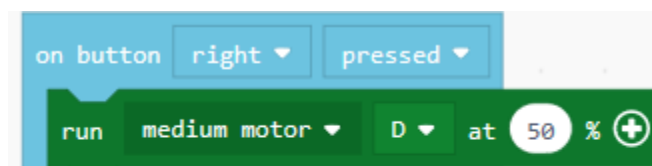
Step 6

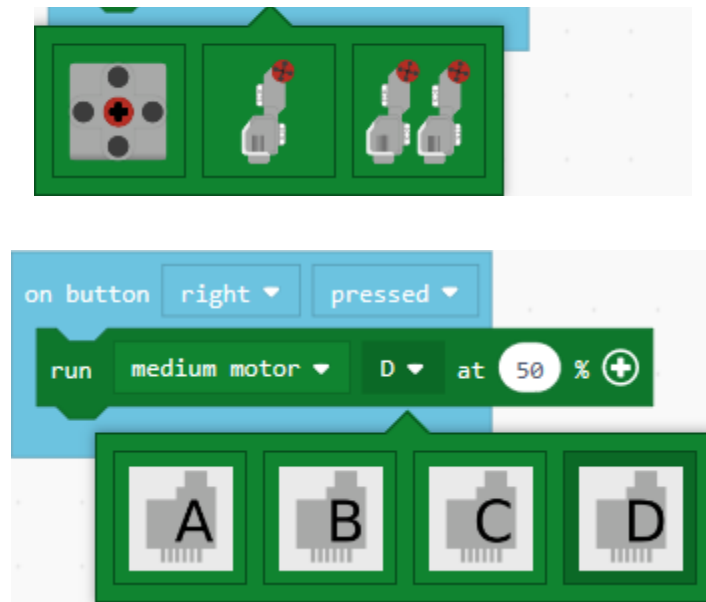
Open the **Motors** Toolbox drawer. Drag out 2 **run** blocks onto the Workspace, and drop one of them each into the **on button left** and **on button right** blocks.



Step 7

For the **run** blocks that are in the **on button left** and **on button right** blocks, use the drop-down menu to select a **medium motor** on Port **D**.





```
on button up pressed  
run large motor A at 50 %
```

```
on button down pressed  
run large motor A at -50 %
```

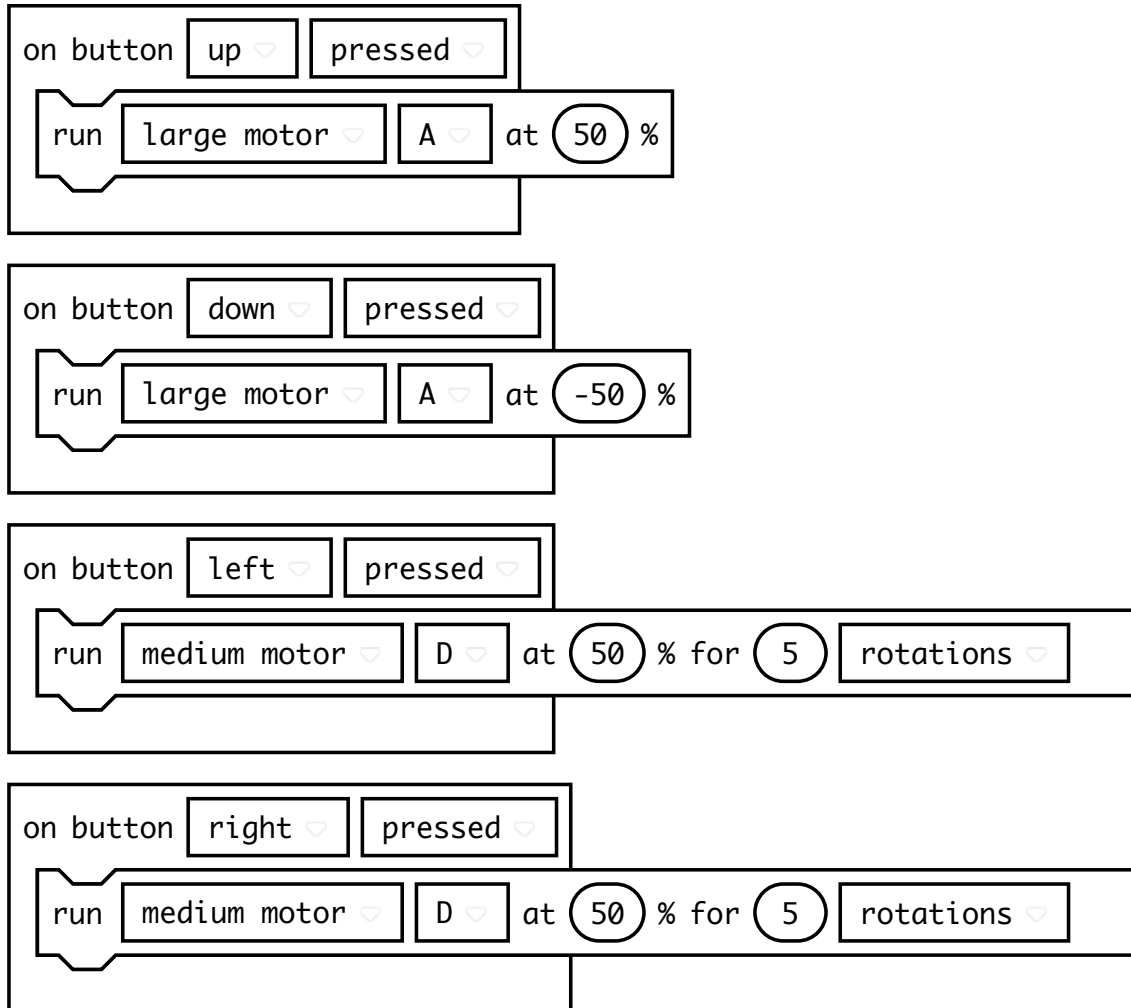
```
on button left pressed  
run medium motor D at 50 %
```

```
on button right pressed  
run medium motor D at 50 %
```

Step 8

In the `run medium motor` blocks, click on the plus icon (+) to expand the blocks.

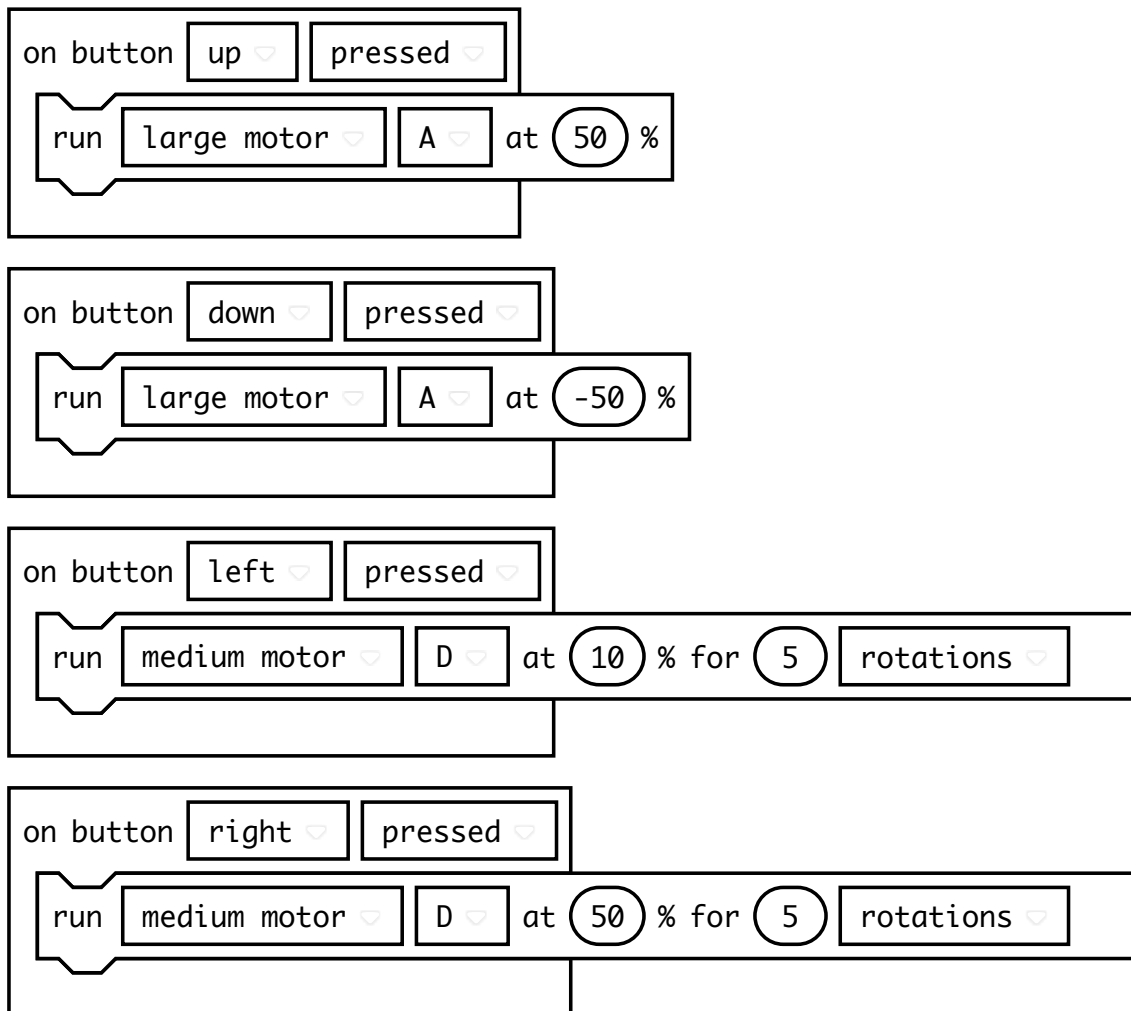
Change the number of rotations from 0 to 5 .



Step 9

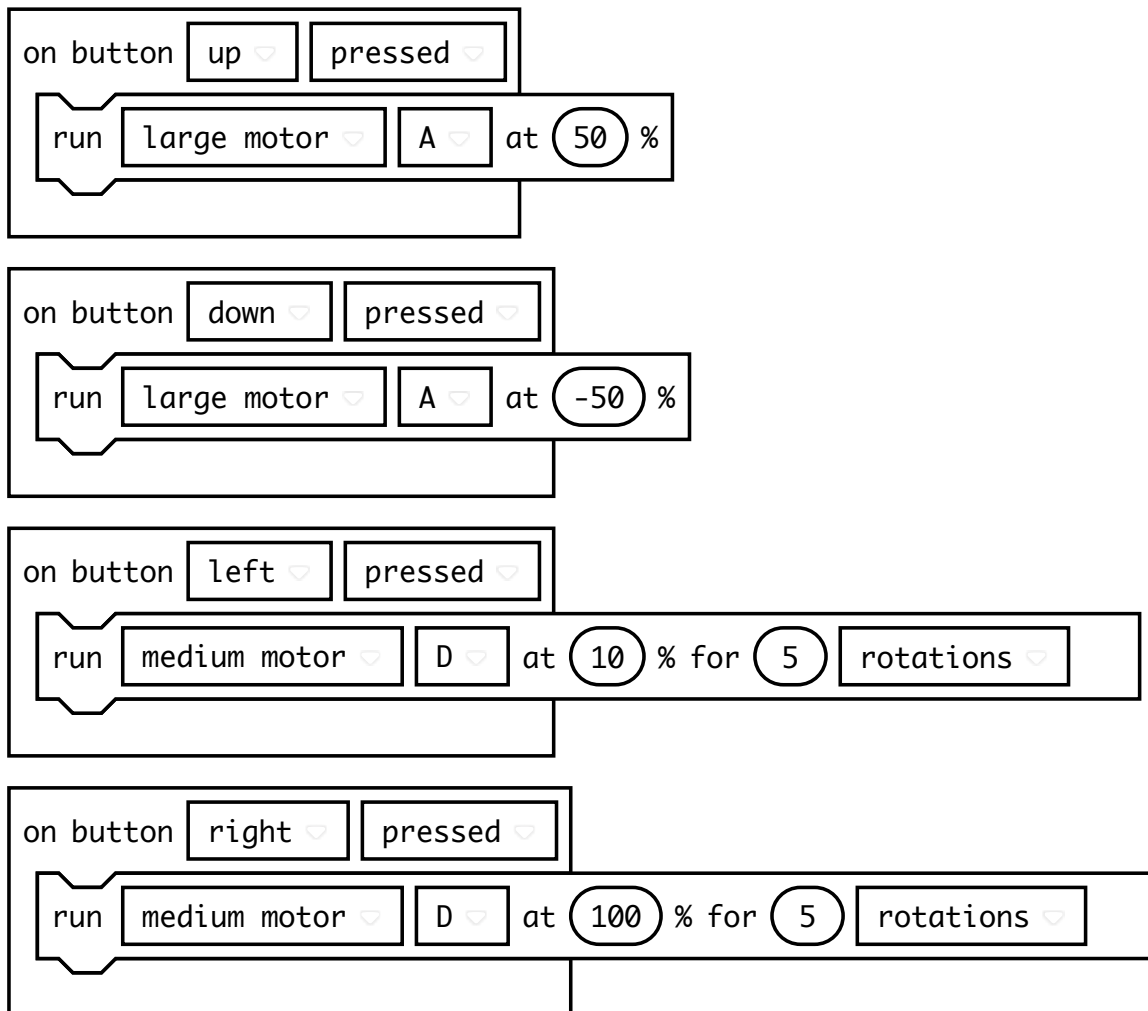
Let's also change the speed that our Medium Motor is running at. In the

`run medium motor` block that is in the `on button left` block, change the speed from 50% to 10% .



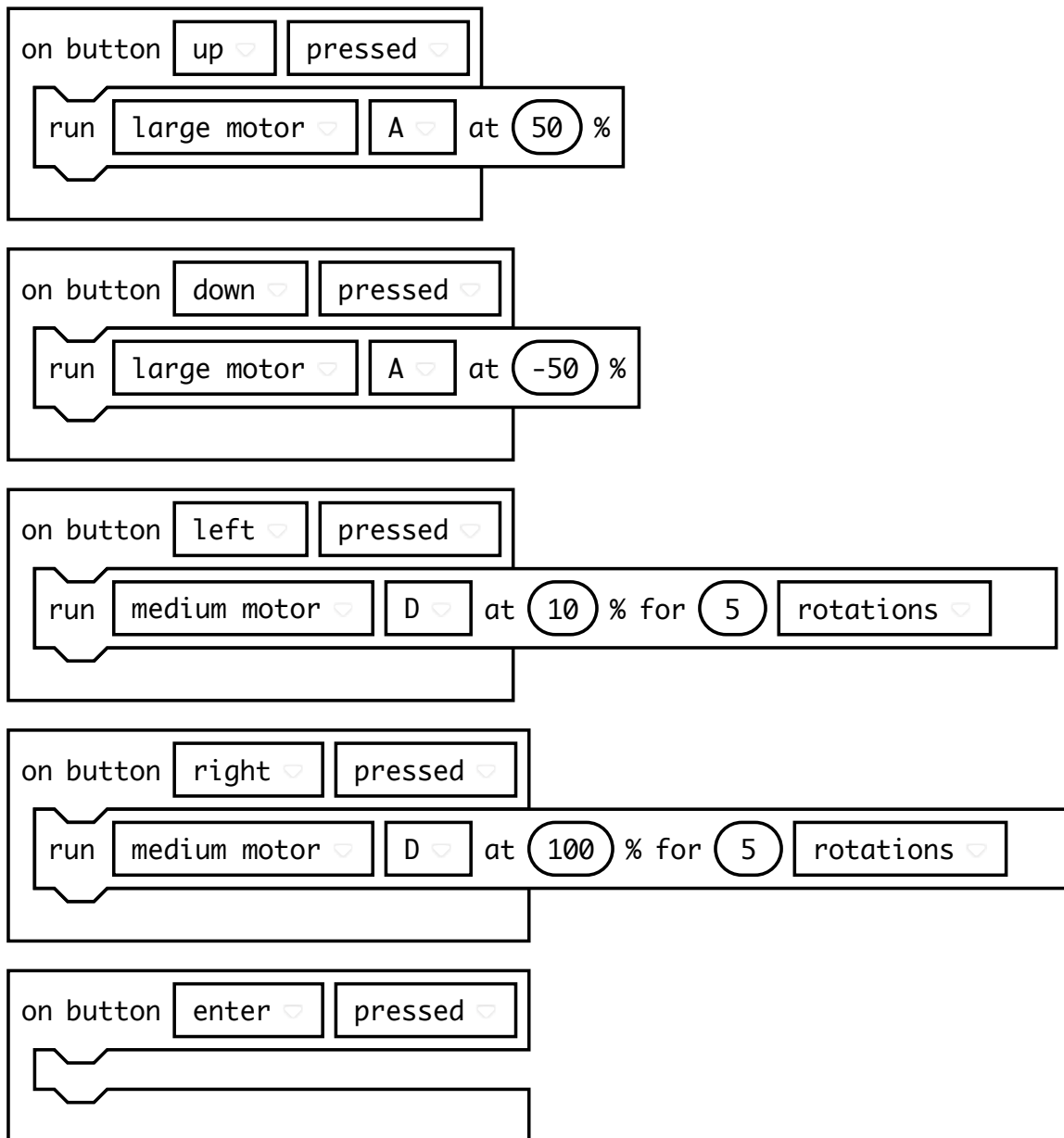
Step 10

In the `run medium motor` block that is in the `on button right` block, change the speed from 50% to 100% .



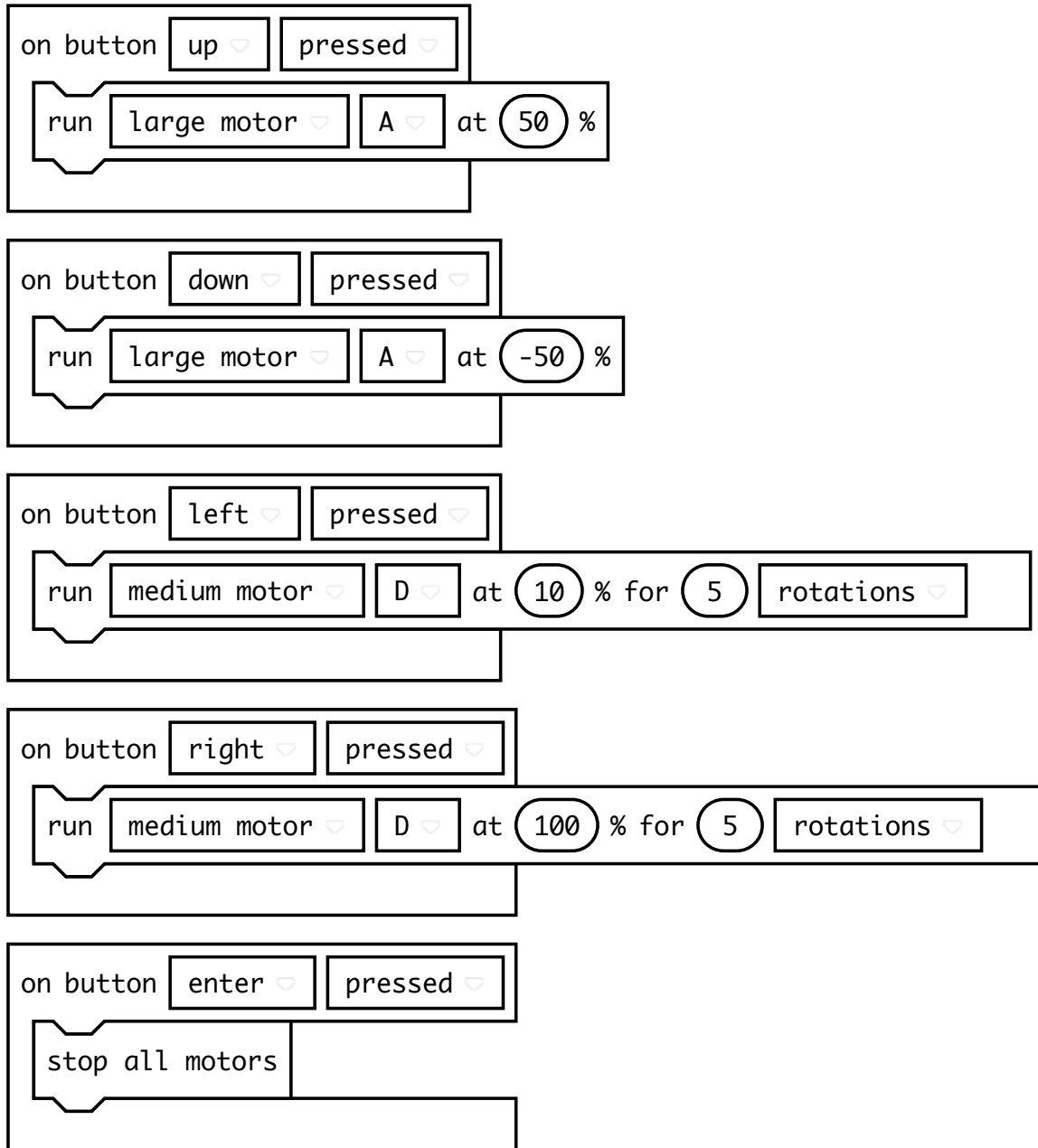
Step 11

Finally, let's add a way to stop all our motors from running. Open the **Brick** Toolbox drawer. Drag out an **on button** block onto the Workspace.



Step 12

Open the **Motors** Toolbox drawer. Drag out a **stop all motors** block onto the Workspace, and drop it into the **on button enter** block.



Step 13

Now, plug your EV3 Brick into the computer with the USB cable, and click the **Download** button at the bottom of your screen. Follow the directions to save your program to the EV3 Brick.

Attach a Large Motor to Port A, and a Medium Motor to Port D. Test your program by

pressing the different buttons to see whether the correct motors are running as expected.