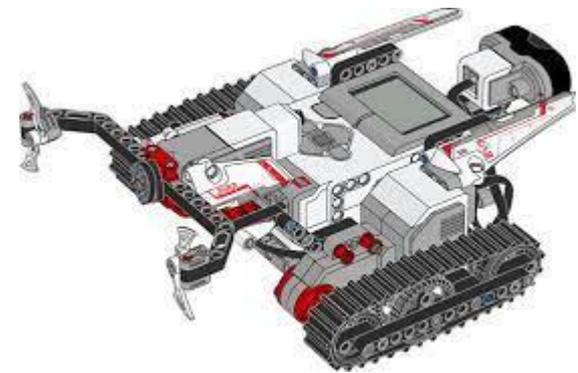


# MY BLOCK

---

LEGO MINDSTORMS EV3



# What is a My Block?

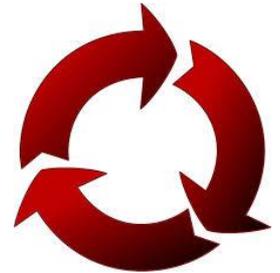
---

- A My Block is a combination of one or more blocks created by you that can be grouped into a single block.
- My Blocks are your own custom blocks.
- Once you've created A My Block, you can use it in multiple programs.
- Like any other block in EV3, My Block can have both inputs and outputs (parameters).

# When you use My Block?

---

- Whenever the robot repeats an action inside the program.
- When the code is repeated (is used) in another program
- To organize and simplify the code.



# Create a useful My Block

---

Making My Blocks with inputs and outputs can make them more useful. However, you need to be careful not make the My Block to complicated.

Look at the next My Blocks? Which ones do you think are more useful?

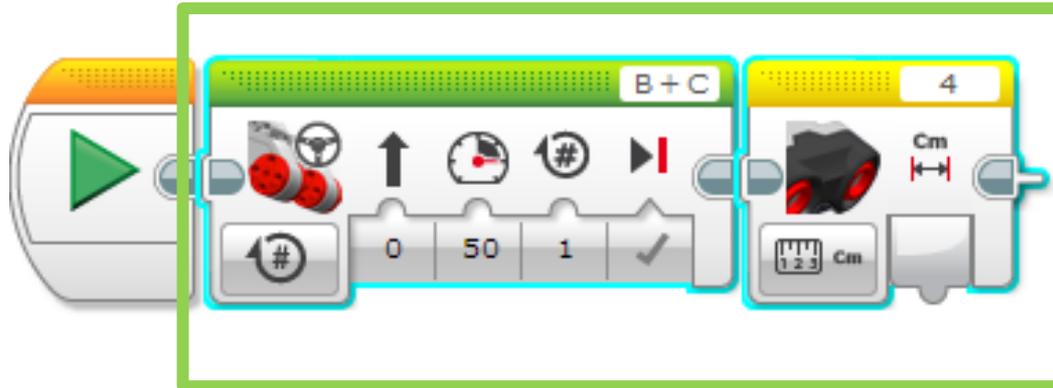
- Move5CM (Move the robot 5 cm)
- MoveCM with a centimeter and power input
- MoveCM with centimeter, power, angle, coast/break etc. inputs

# STEPS FOR CREATING A MY BLOCK

---

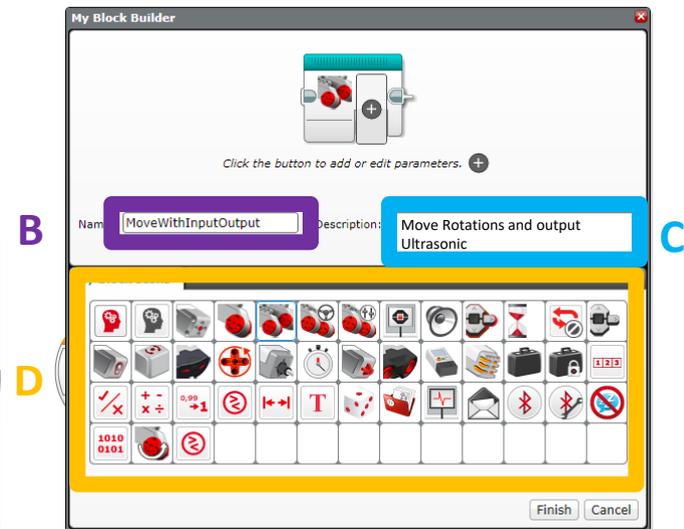
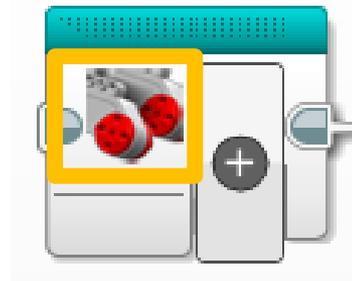
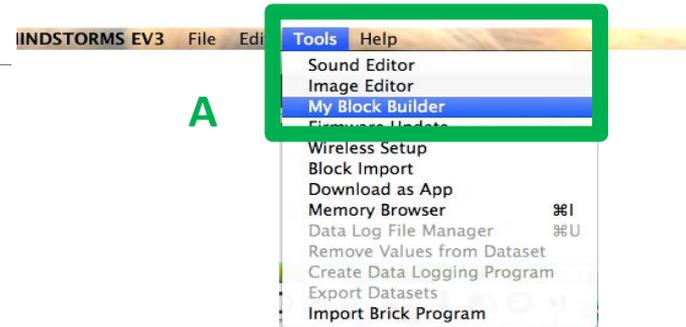
If we want to create a My Block to move the robot a desired amount of rotations at a desired power and return the ultrasonic value at the end, the steps are:

Step 1: Select the two blocks in the code that you want to turn into a My Block



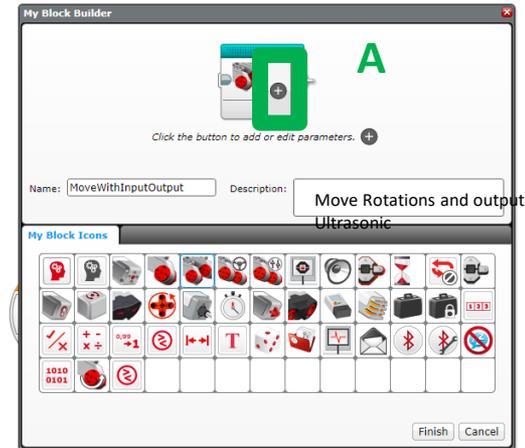
# Step 2: Launch My Block Builder

- A: Go to Tools → My Block Builder
- B: Pick a My Block Name
- C: Add a Description
- D: Select an Icon for the whole My Block



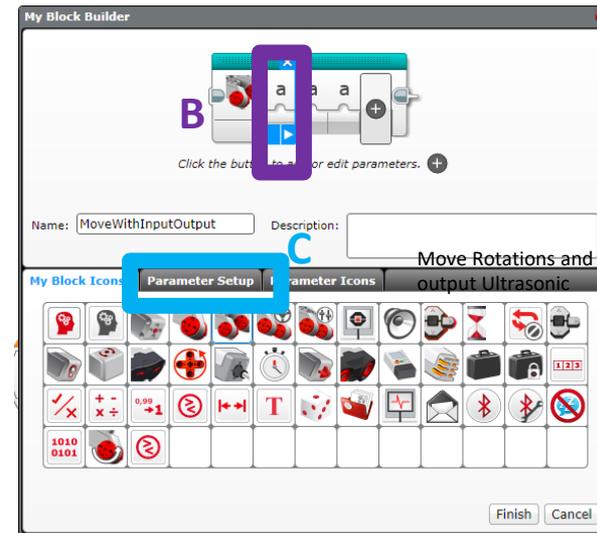
# Step 3: Add Inputs/Outputs

A. We need to add two inputs and one output so we will click the + button three times

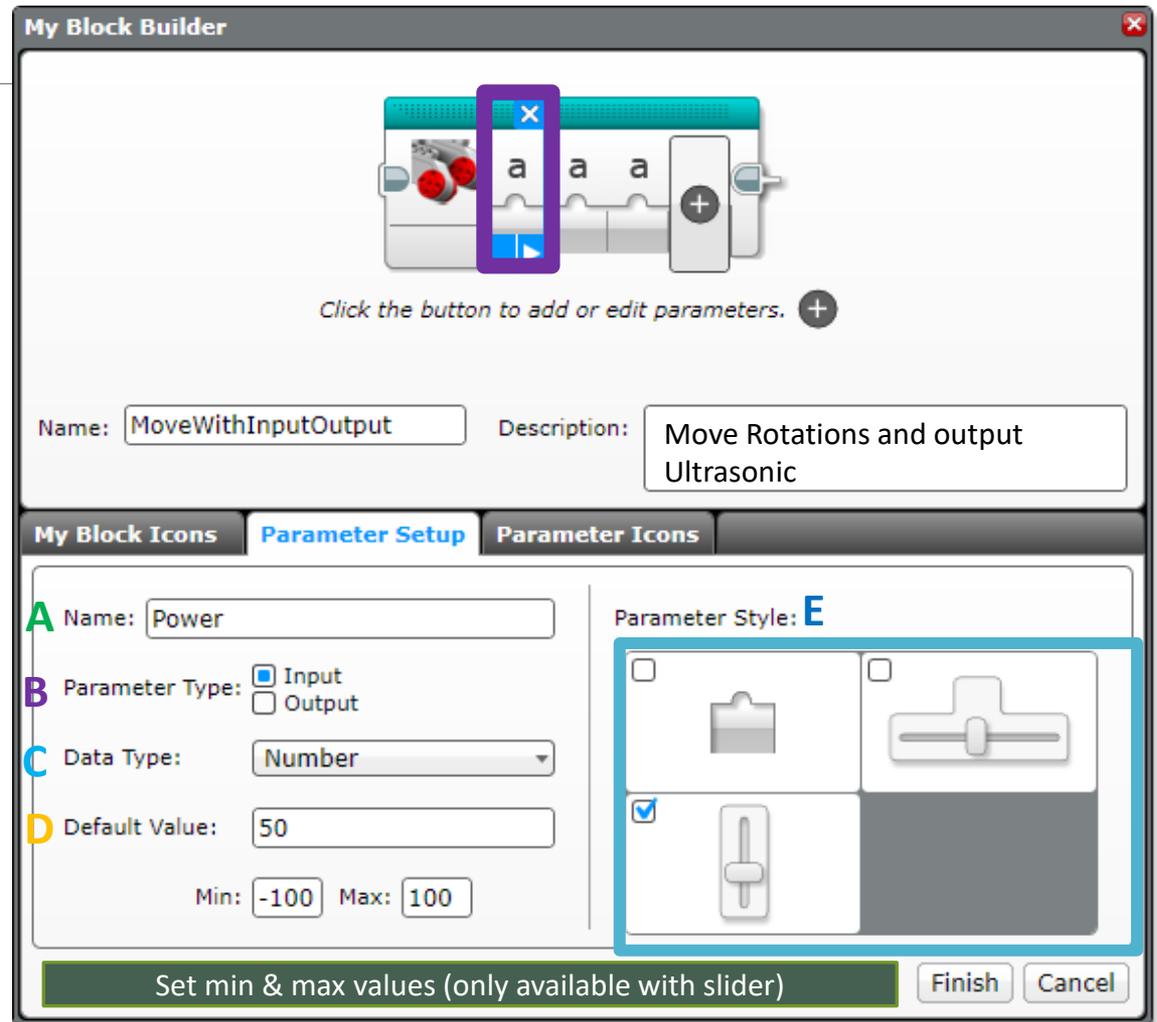


B. Go back to the first parameter

C. Go to Parameter Setup



# Step 4: Setup Parameter for Power



A. Pick a Name

B. Select Input

C. Power is a Number

D. Choose a default value

E. Choose button Style

# Step 5: Setup Parameter for Rotation

Now click on the second parameter

The screenshot shows the 'My Block Builder' window. At the top, there is a visual representation of a block with three 'a' parameters. The second 'a' parameter is highlighted with a purple box, and a purple double-headed arrow icon is overlaid on it. Below the block, there is a text prompt: 'Click the button to add or edit parameters.' with a plus sign icon. The block's name is 'MoveWithInputOutput' and its description is 'Move Rotations and output Ultrasonic'. The 'Parameter Setup' tab is active, showing the following fields:

- A** Name: Rotations
- B** Parameter Type:  Input,  Output
- C** Data Type: Number
- D** Default Value: 2

The 'Parameter Style' section is also visible, showing a grid of icons. The top-left icon, which is a button with a plus sign, is selected with a blue checkmark. The top-right icon, which is a slider, is also visible. The bottom-right icon is a dark grey square. The 'Finish' and 'Cancel' buttons are at the bottom right.

A. Pick a Name

B. Select Input

C. Rotation is a Number

D. Choose a default value

E. Choose button Style

# Step 6: Setup Parameter for Ultrasonic

Now click on the third parameter

The screenshot shows the 'My Block Builder' window. At the top, there is a visual representation of a block with three parameters labeled 'a'. A purple box highlights the third parameter, and a blue arrow points to it. Below the block, there is a text prompt: 'Click the button to add or edit parameters.' with a plus sign icon. The main area of the window is divided into three tabs: 'My Block Icons', 'Parameter Setup', and 'Parameter Icons'. The 'Parameter Setup' tab is active, showing the following fields:

- Name:
- Parameter Type:  Input  Output
- Data Type:

At the bottom right of the window, there are 'Finish' and 'Cancel' buttons.

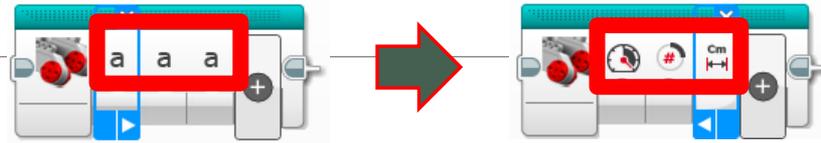
A. Pick a Name

B. Select Output

C. Ultrasonic output is a Number

# Step 7: Setup Parameter Icons

In this step, we will change the icons for the parameters from “a” to an image of your choice.

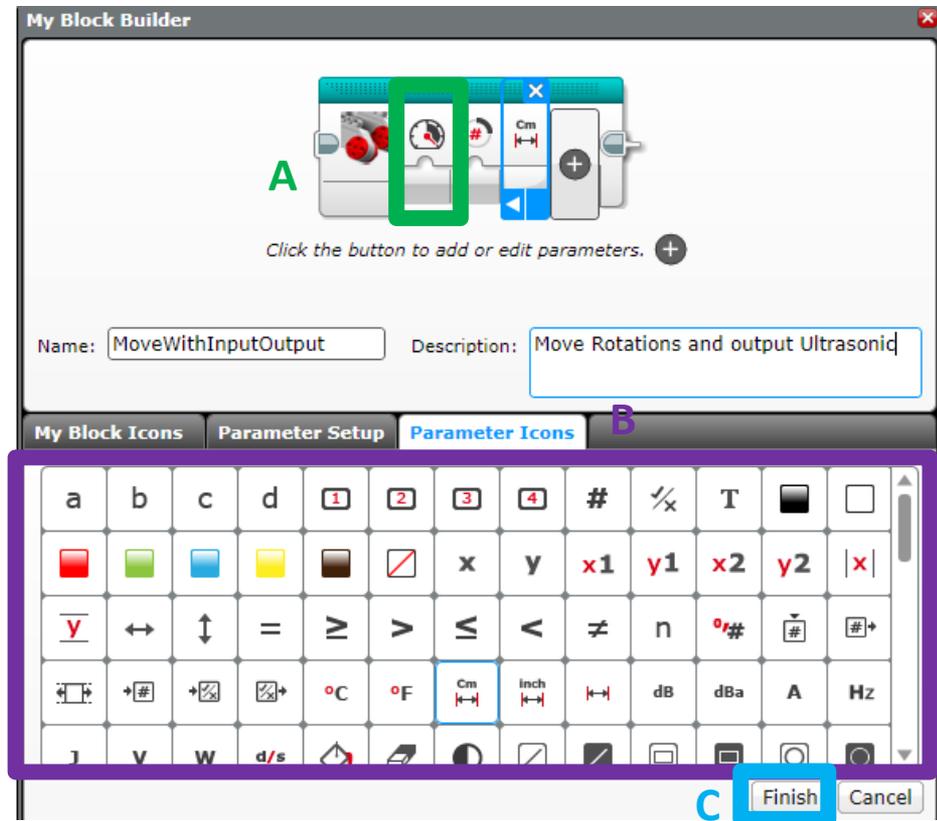


A. Click on a parameter

B. Click on the tab Parameter Icons if not already on this tab, and choose an icon

C. Repeat steps A and B for each parameter

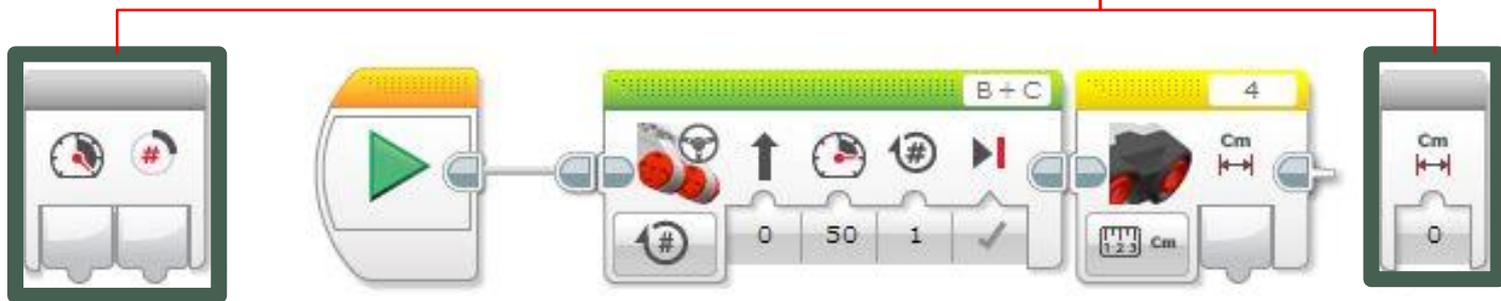
D. Press Finish when you are done.



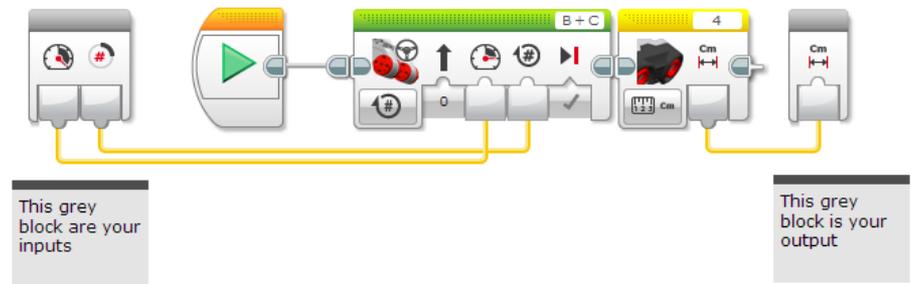
# Step 8: Add Data Wires

- A. When you click Finish (on previous slide) you will see this.

These grey blocks are our inputs/outputs (parameters) that were set up automatically by the My Block Builder

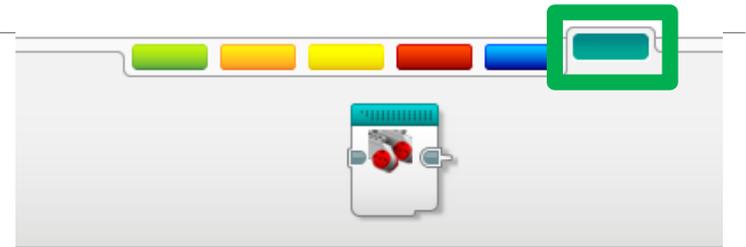


- B. Wire up the My Block by dragging a data wire from each parameter to its corresponding slot on the move steering block and sensor block.



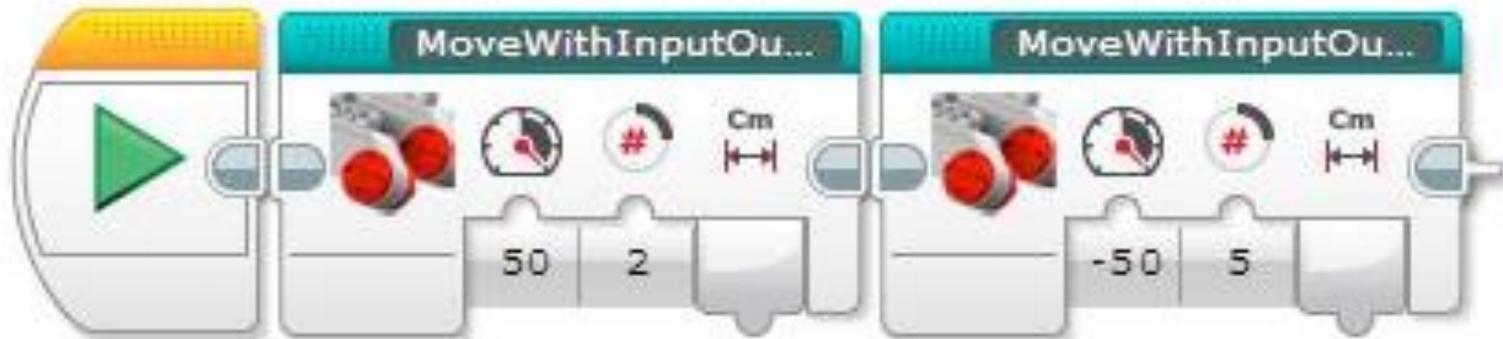
# Where is the My Block?

- A. Your My Block will appear in the turquoise tab. You can now use this block in any program.



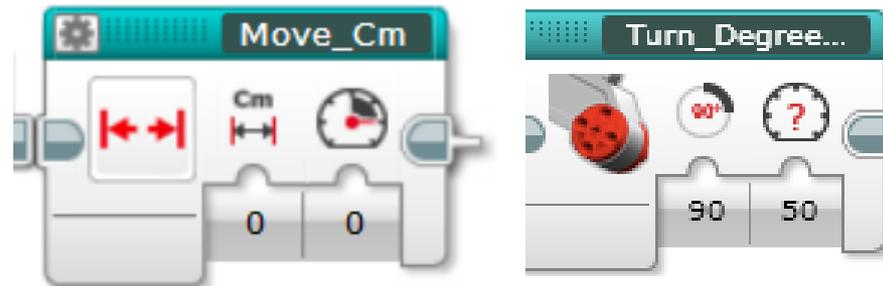
- B. Below, the same My Block is used twice. Once to move forward 2 rotations and then backwards 5 rotations.

Note: The same My Block can be used with different input values.



# Challenge

---



Create 2 My Blocks:

- Move\_Cm makes the robot move the number of cm we want
- Turn\_Dg makes the robot turn the number of degrees that we enter

# MOVE\_CM MY BLOCK

---

**Step 1:** Determine how many motor rotations make your robot to move 1 cm

**Step 2:** Add a Math Block to convert rotations to centimeters

**Step 3:** Create a **Move\_CM** My Block with 2 inputs (cm and power)