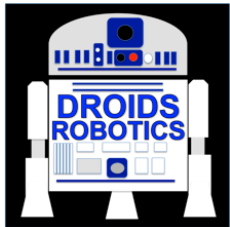




Intermediate Lesson: Intermediate Menu System



By Droids Robotics

Lesson Objectives

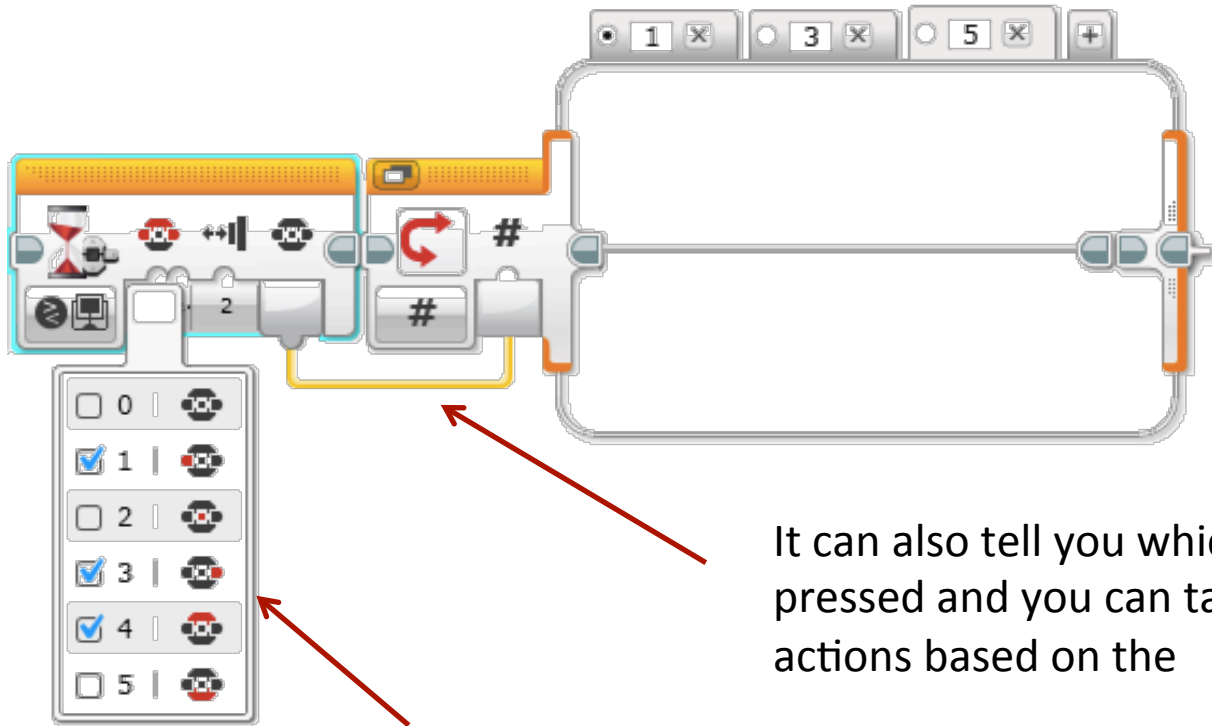
- 1) Learn how to create a menu that lets you select between actions
- 2) Learn how to use your brick buttons as sensors

Why a Menu

- A menu is an organized way to easily perform actions based on which button you press
- You will need to know how to use the buttons on the brick as “sensors” and you will need to use display blocks to make a useful screen menu
- In the image, the actions are 4 movements – go forward, backward, left and right



New Tool: Using the Button ID



It can also tell you which button was pressed and you can take different actions based on the

Wait for button press blocks will halt the program until one of the chosen buttons is pressed

Steps/Pseudocode

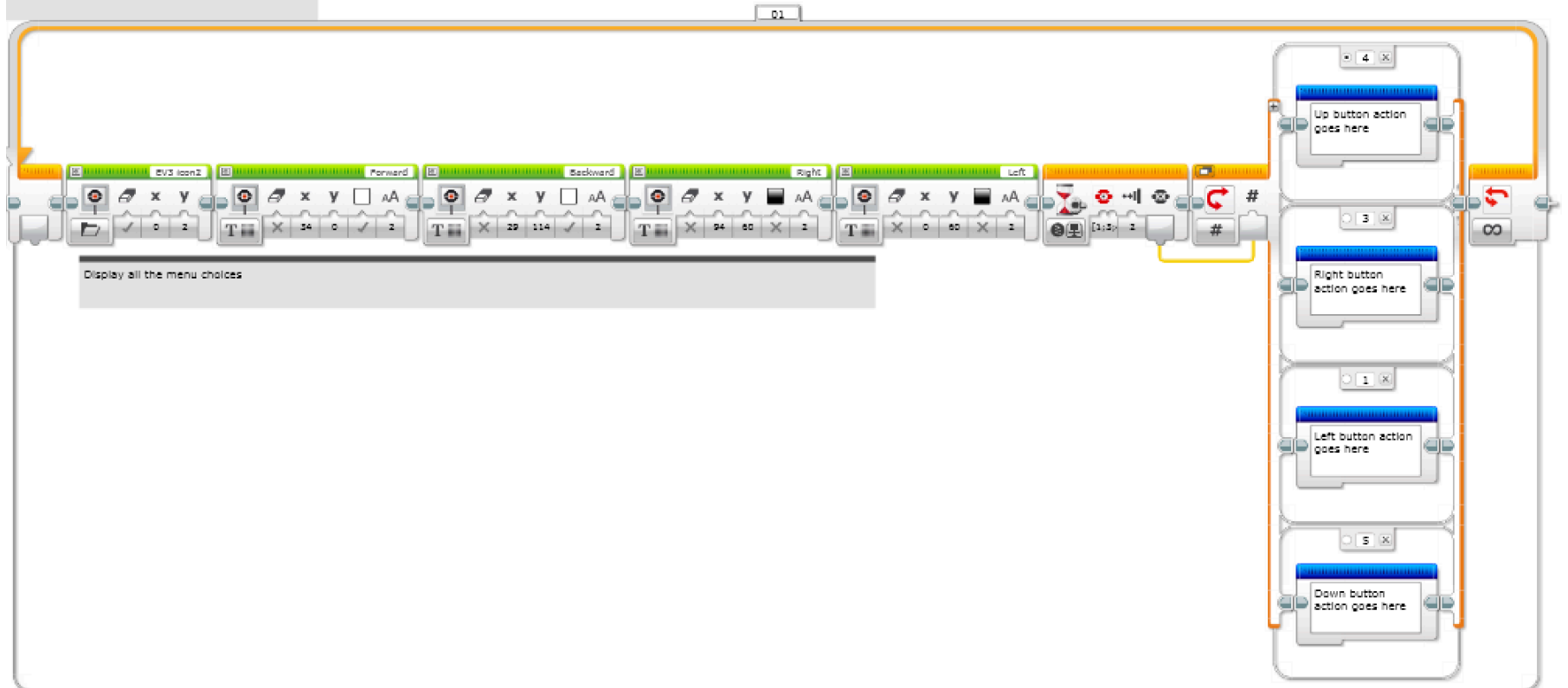
1. Display the actions on the screen so that the user knows which button performs which actions
2. Wait for the user to press a button
3. Based on the button press, run the code for the appropriate action
4. Go back to 1

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- **Challenge:** Based on the above pseudocode, try to make a menu system that lets you perform 4 actions of your choice based on the button pressed

Step 1: Create an "Empty" Menu System

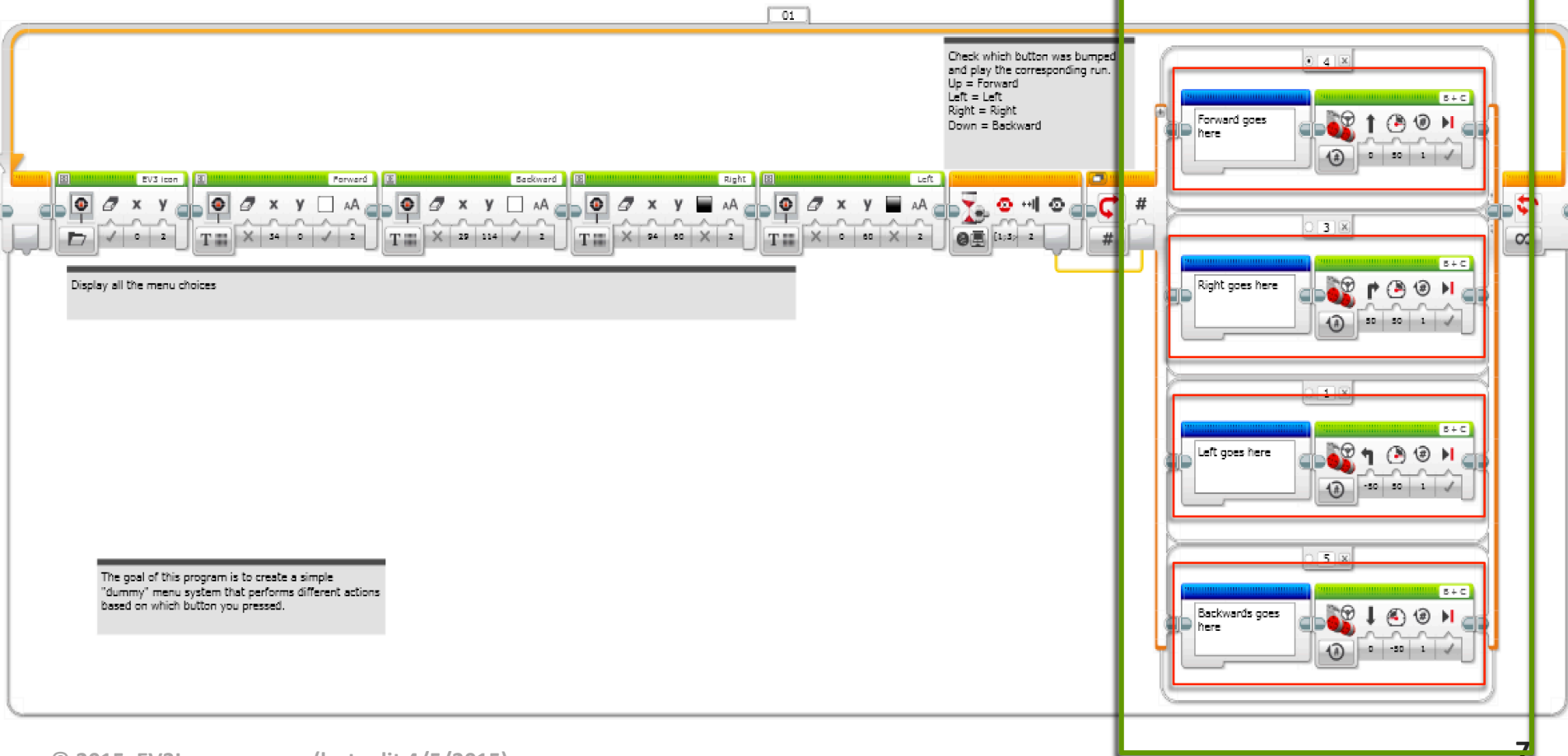
Create a menu system without any code put in

The goal of this program is to create a simple "dummy" menu system that performs different actions based on which button you pressed.



Step 2: Add Actions

Add actions to each switch option.



The image shows a Scratch script for an EV3 menu system. The script starts with a 'Display all the menu choices' block. It then branches into four parallel paths based on button presses: 'Forward', 'Backward', 'Right', and 'Left'. Each path contains a 'Say' block with a message and a 'Wait' block. The 'Forward' path has a 'Say' block with 'Forward goes here' and a 'Wait' block with a duration of 50. The 'Backward' path has a 'Say' block with 'Backwards goes here' and a 'Wait' block with a duration of -50. The 'Right' path has a 'Say' block with 'Right goes here' and a 'Wait' block with a duration of 50. The 'Left' path has a 'Say' block with 'Left goes here' and a 'Wait' block with a duration of -50. A comment block explains the logic: 'Check which button was bumped and play the corresponding run. Up = Forward, Left = Left, Right = Right, Down = Backward'. A goal box at the bottom left states: 'The goal of this program is to create a simple "dummy" menu system that performs different actions based on which button you pressed.'

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Check which button was bumped and play the corresponding run.
Up = Forward
Left = Left
Right = Right
Down = Backward

Display all the menu choices

Forward goes here

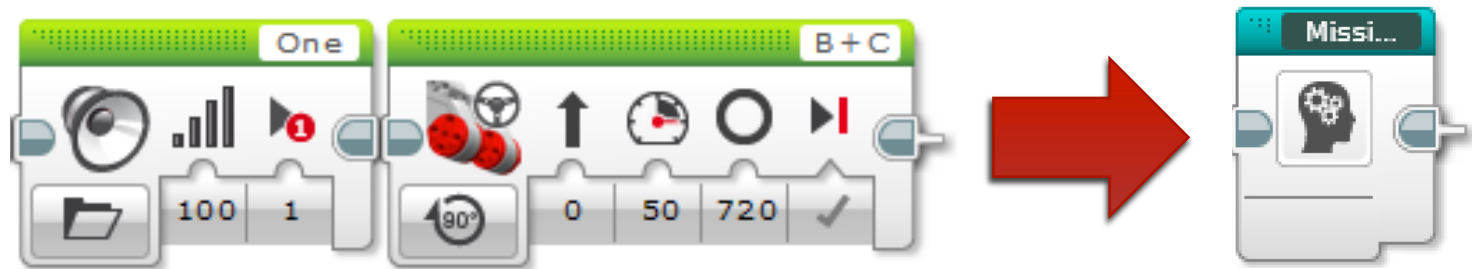
Right goes here

Left goes here

Backwards goes here

The goal of this program is to create a simple "dummy" menu system that performs different actions based on which button you pressed.

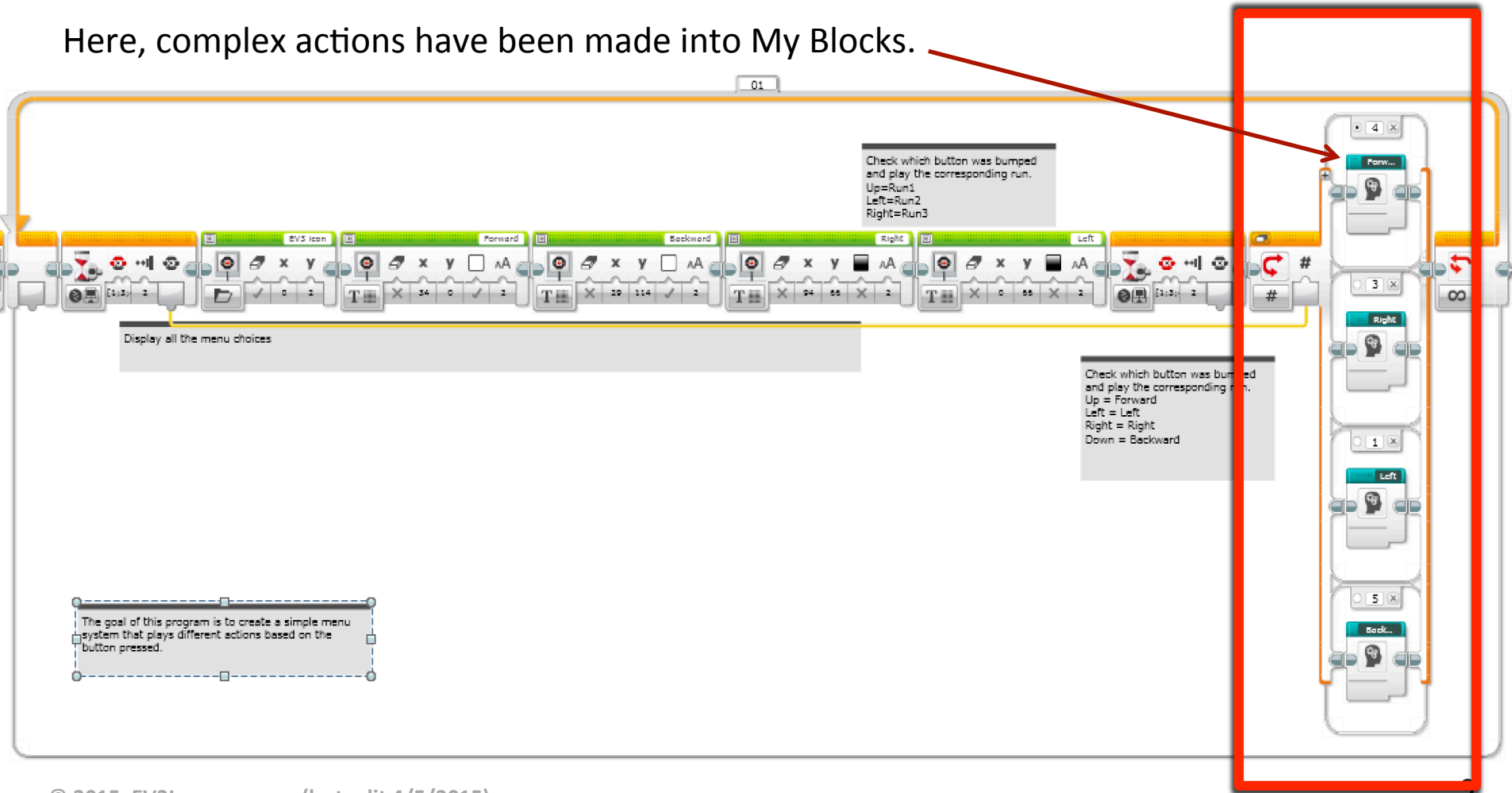
Step 3a: Convert Actions into My Blocks



- You need to convert long set of actions into its own My Block
- If you don't know how to make a My Block, see the Intermediate lesson on My Blocks

Step 3b: Add Actions

Here, complex actions have been made into My Blocks.



Next Steps with Mission Sequencers

- The ideas in this lesson can be adapted to help you build a mission sequencer for First Lego League. Sequencers are useful because they:
 - Allow you to skip missions if you are short of time
 - Allow you to repeat failed missions
 - Allow you access missions quickly (find them easily)

CREDITS

- This tutorial was created by Sanjay Seshan and Arvind Seshan from Droids Robotics.
- More lessons are available at www.ev3lessons.com
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