

# Software - LEGO Powered Up App

## GBC 53 Marble Music Machine – 42146 Alternate Build

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Open the LEGO Powered Up app on your smart device.  
Complete the steps in the correct order by following the numbers.



First click on the gear icon to go to settings (1).



1

Play

Create



1 minute ago  
GBC 45



1 minute ago  
GBC 41



Click on the “Default Palette Level” button (1) and select on “Advanced” (2).  
Once selected, go back via arrow icon (3).



# Settings

Auto-Connect	<input checked="" type="checkbox"/>
Never time out	<input checked="" type="checkbox"/>
Default Palette Level <b>1</b>	<b>2</b> ADVANCED
Delete All Projects	>



**3**

Language

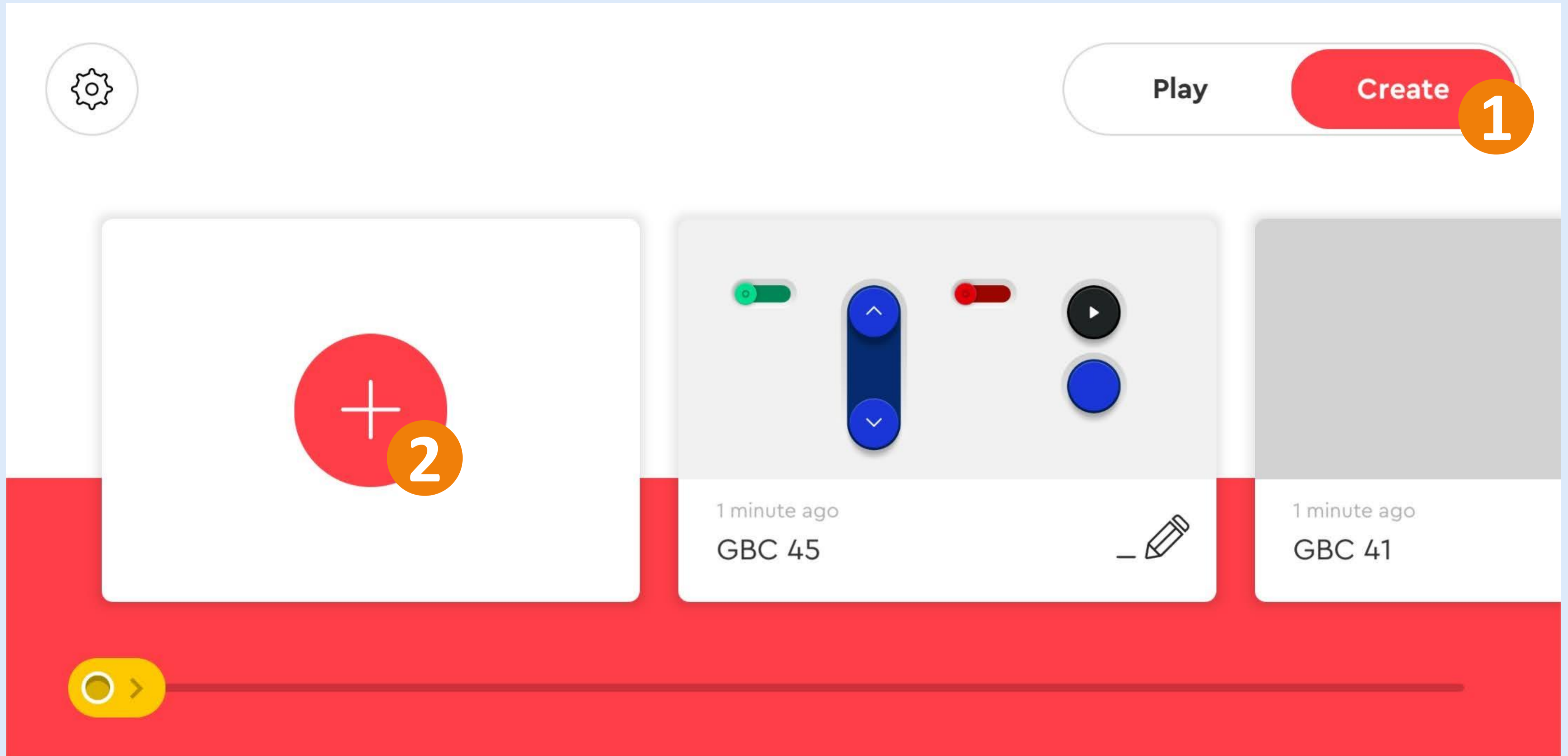
**Settings**

About

Help

3.7.0

Click on the "Create" button (1) and tap on the + sign (2).



Enter a name for your project.

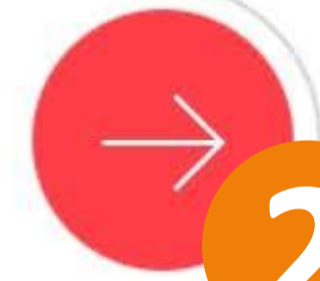


01 — 03

NAME YOUR PROJECT

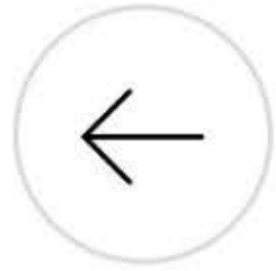


1



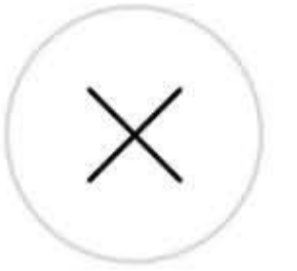
2

Select the controller type.

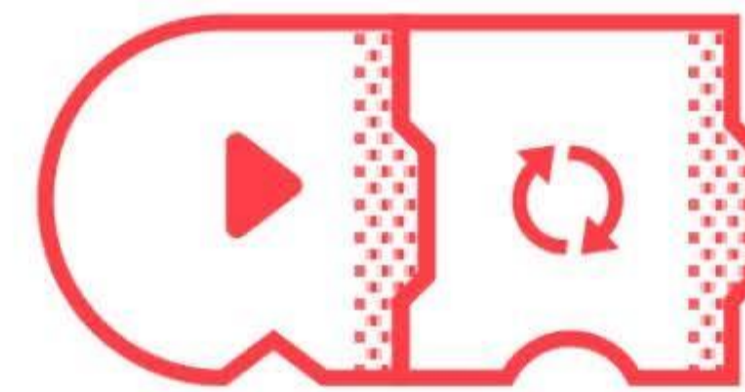


02 — 03

CHOOSE PROJECT TYPE

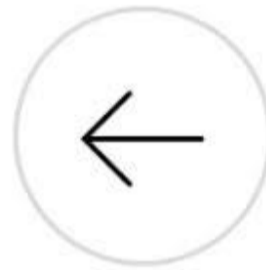


Controller



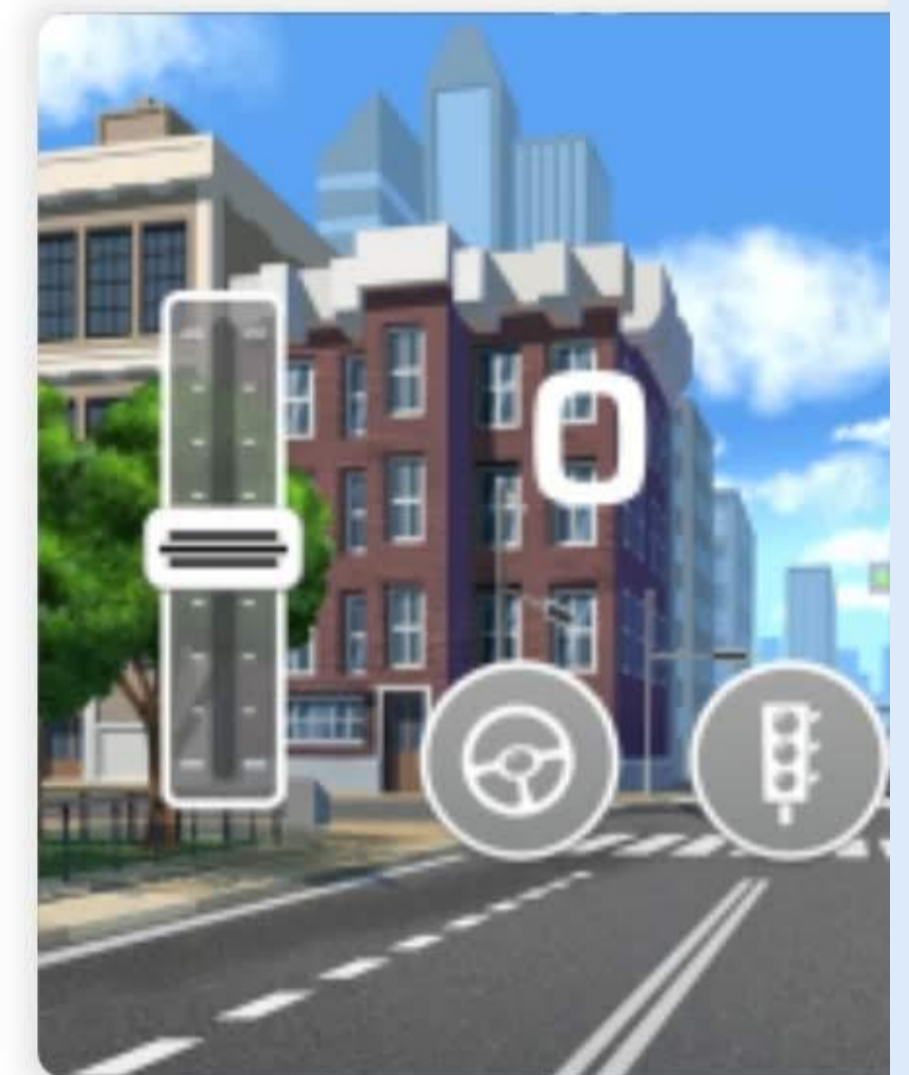
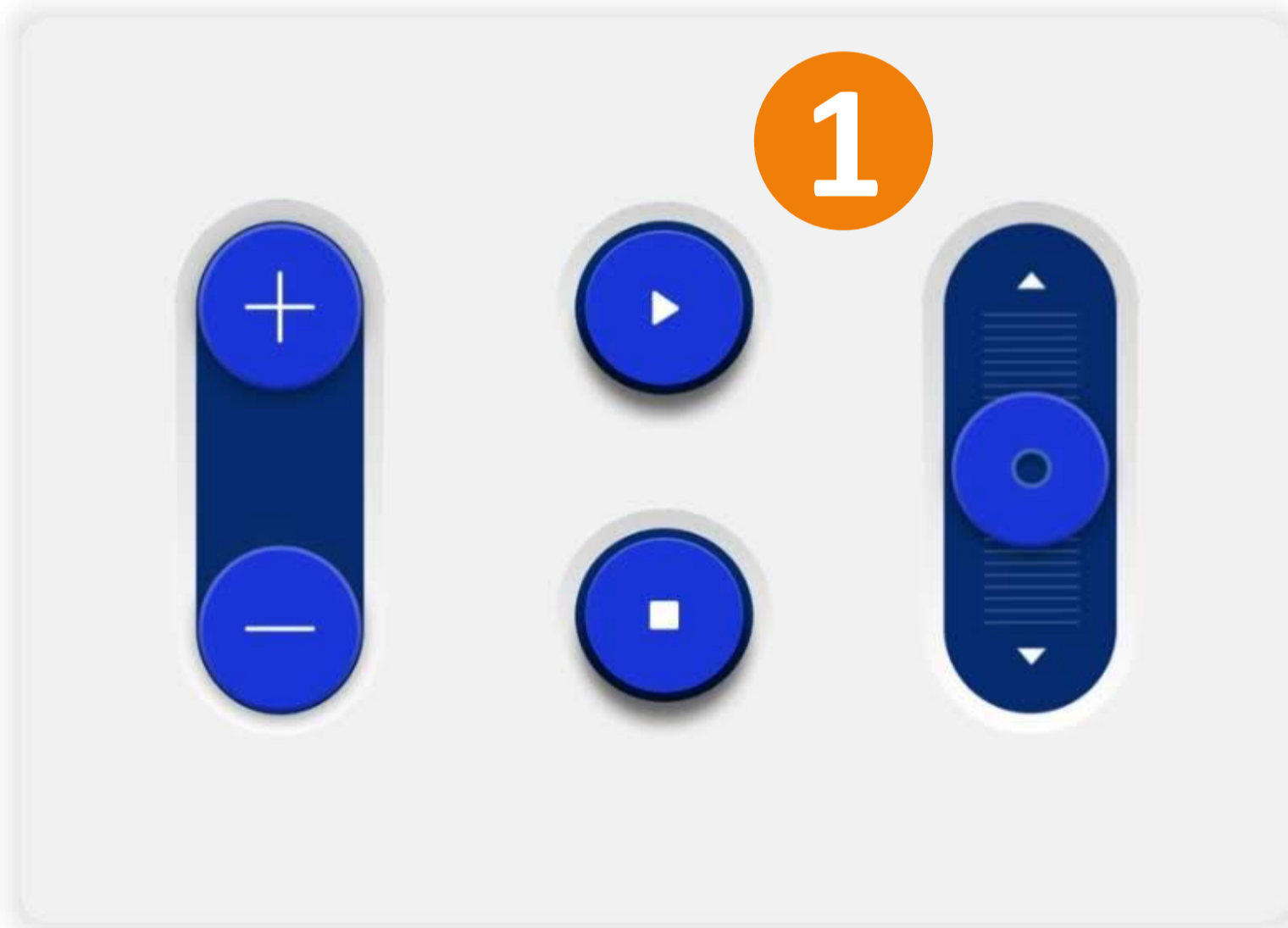
Coding

Select the correct controller interface.



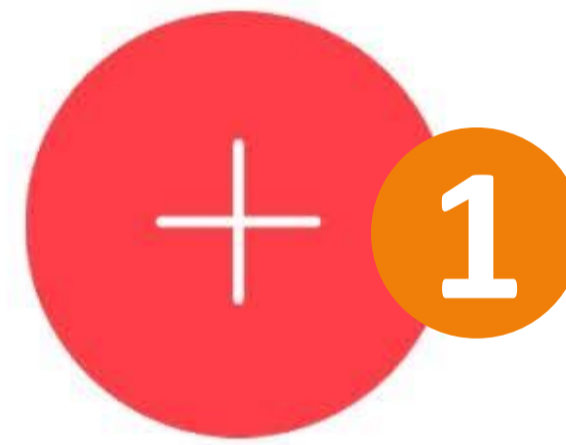
03 — 03

CHOOSE CONTROLLER





Click on the + sign to add your first widgets/buttons.



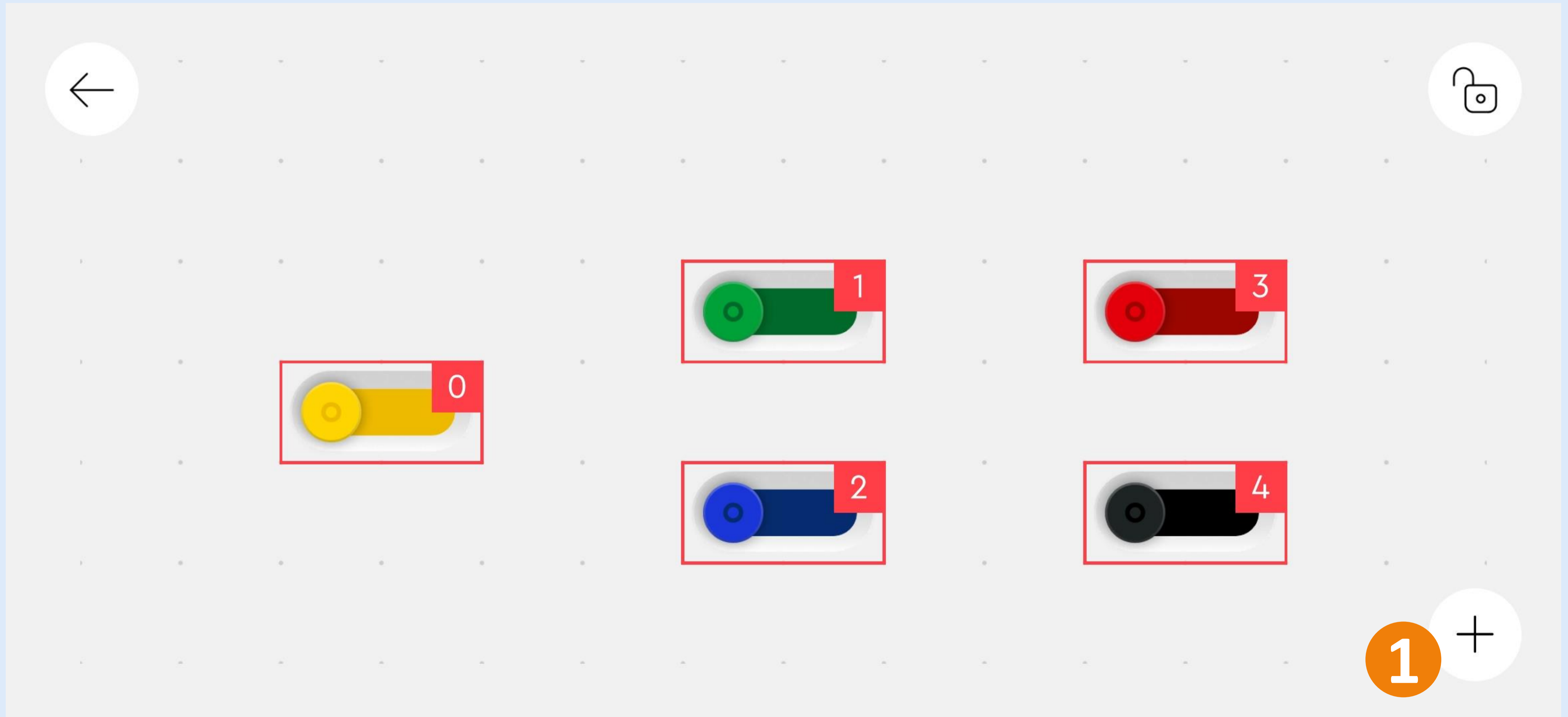
Add your first widget

Add the following colored buttons (1). You can select more buttons simultaneously. Scroll up and down to find all the buttons. Click “Add Widgets” to proceed (2).



The screenshot displays a user interface for selecting widgets. At the top left is a close button (X). The main area contains a grid of 10 toggle buttons. The first four buttons (yellow, green, blue, and red) are highlighted with red boxes and a '1' in an orange circle. The 'ADD WIDGETS' button at the bottom is highlighted with a red box and a '2' in an orange circle. A sidebar on the right contains icons for play, add, gauge, and paintbrush.

Rearrange the 5 buttons as shown below. Click the + sign (1) and add all the other buttons in the correct color. Scroll up and down to find all the buttons. You can select more buttons simultaneously in the add widget screen.

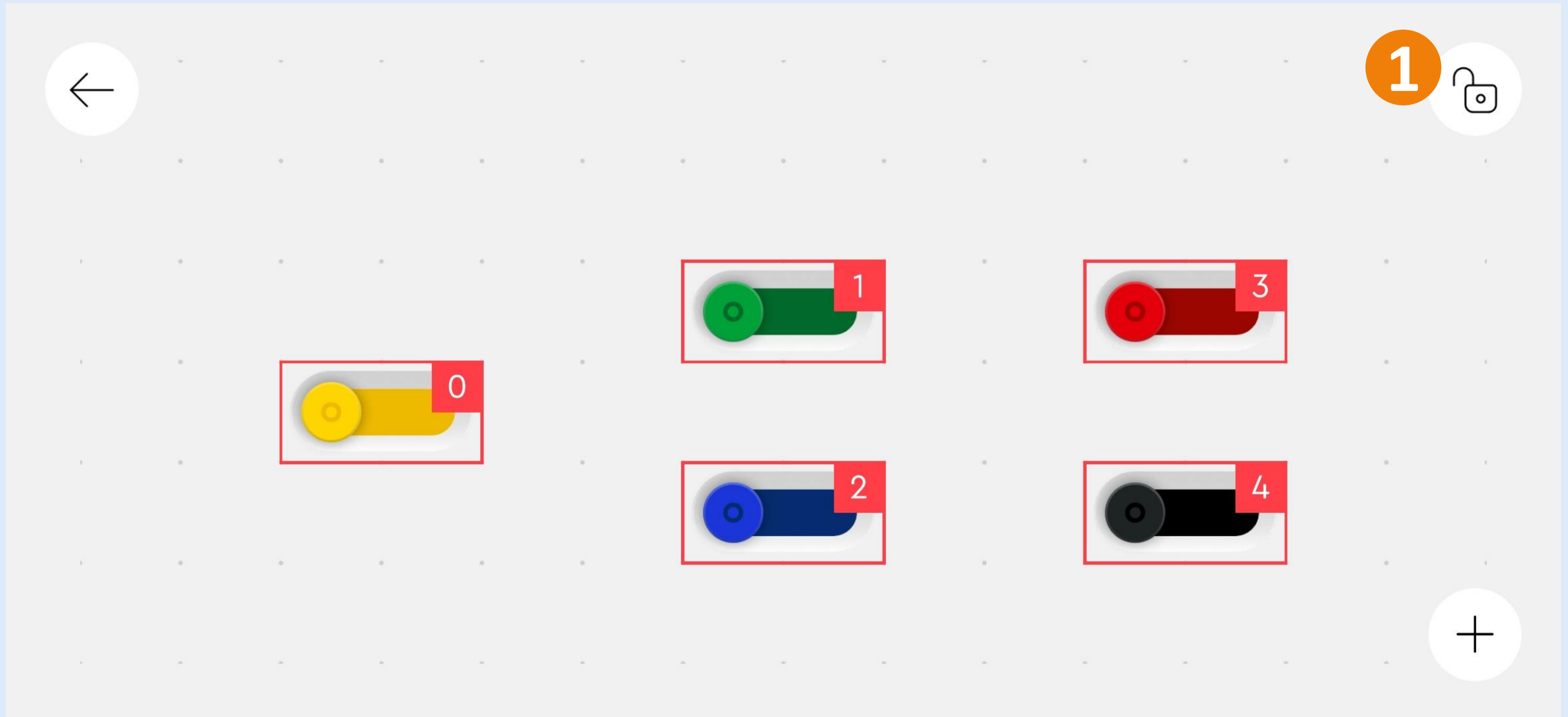


Click on each button (1) and change the address (2) as shown below in the red square (3).  
See previous step for all the correct addresses.

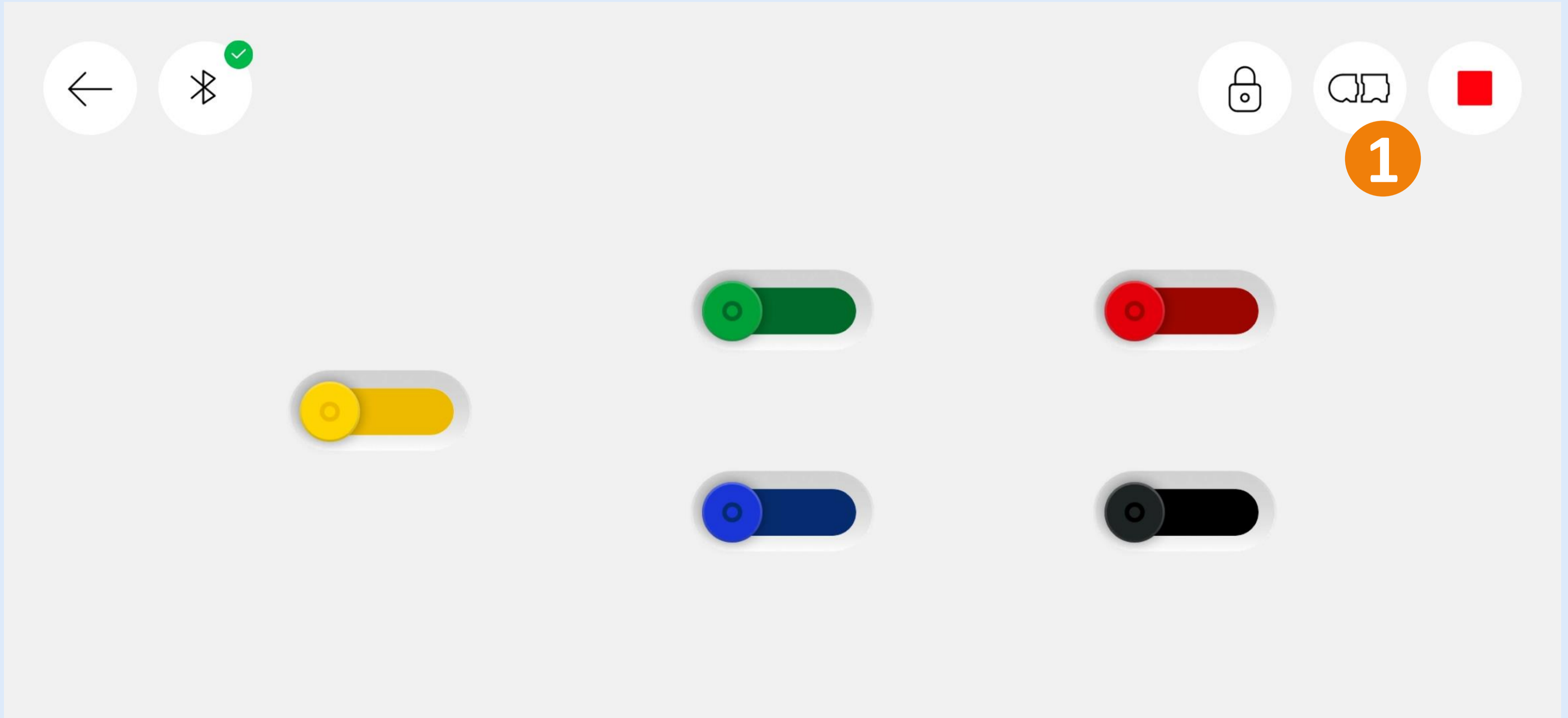


The image shows a mobile application interface. On the left, a control panel features a green slider button with a white circle in the center, highlighted by a red square (3). A white circle with the number '1' is positioned over the slider, and another white circle with the number '3' is positioned over the red square. Below the slider is a dark blue vertical bar with a white circle containing a right-pointing arrow. On the right, a settings menu is displayed. It has a top bar with a text icon (Aa) and a close icon (X). Below this is a 'COLOR' section with seven circular color swatches: green, blue, red, purple, pink, olive, and teal. The first green swatch is highlighted with a white border. Below the color section is an 'ADDRESS' section with seven circular buttons labeled '0' through '6'. The '1' button is highlighted with a white border, and a white circle with the number '2' is positioned over it.

Double check all the addresses in the red squares!  
Click on the lock icon to confirm and lock the buttons (1).



You should now see this interface. Click on the code icon to proceed (1).



This is the code interface which should still be blank by now. In the next steps we are going to build this step by step in the order shown below. You can zoom in and out on the code interface by pinching your fingers.



The image displays a sequence of five numbered screenshots (1-5) illustrating the step-by-step construction of a Scratch code block for a game. The interface includes navigation arrows, a Bluetooth icon, a game controller icon, a play button, and a bottom toolbar with various Scratch blocks like 'say for 2 secs', 'say for 2 secs', 'say for 2 secs', 'say for 2 secs', 'say for 2 secs', 'say for 2 secs', 'say for 2 secs', 'say for 2 secs', 'say for 2 secs', 'say for 2 secs', and 'say for 2 secs'.

This code is for the Vertical Conveyor Lift. You can find all the blocks in the library of the same color (0). Drag them into the project one by one on the code interface. Start from the left and work from the outside in. So first get the yellow start block (1) followed by a loop block (2). Inside this loop block you have to place a toggle block (3) which are triggered by button 0 (4). Then add the motor blocks (5) and set the correct speed (6). Add the hub/port block and make sure to select Hub 1 and output A for both motors (7).



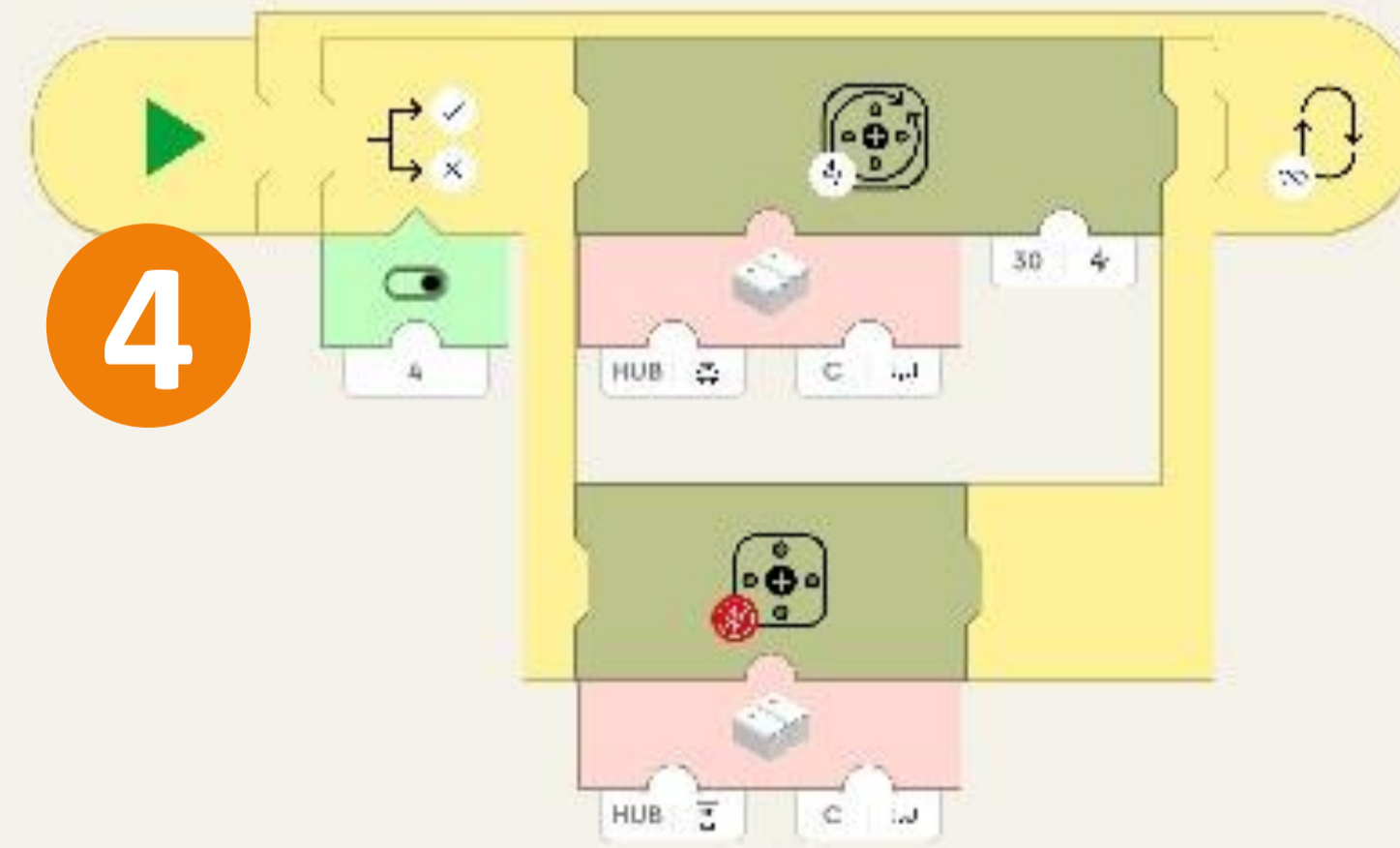
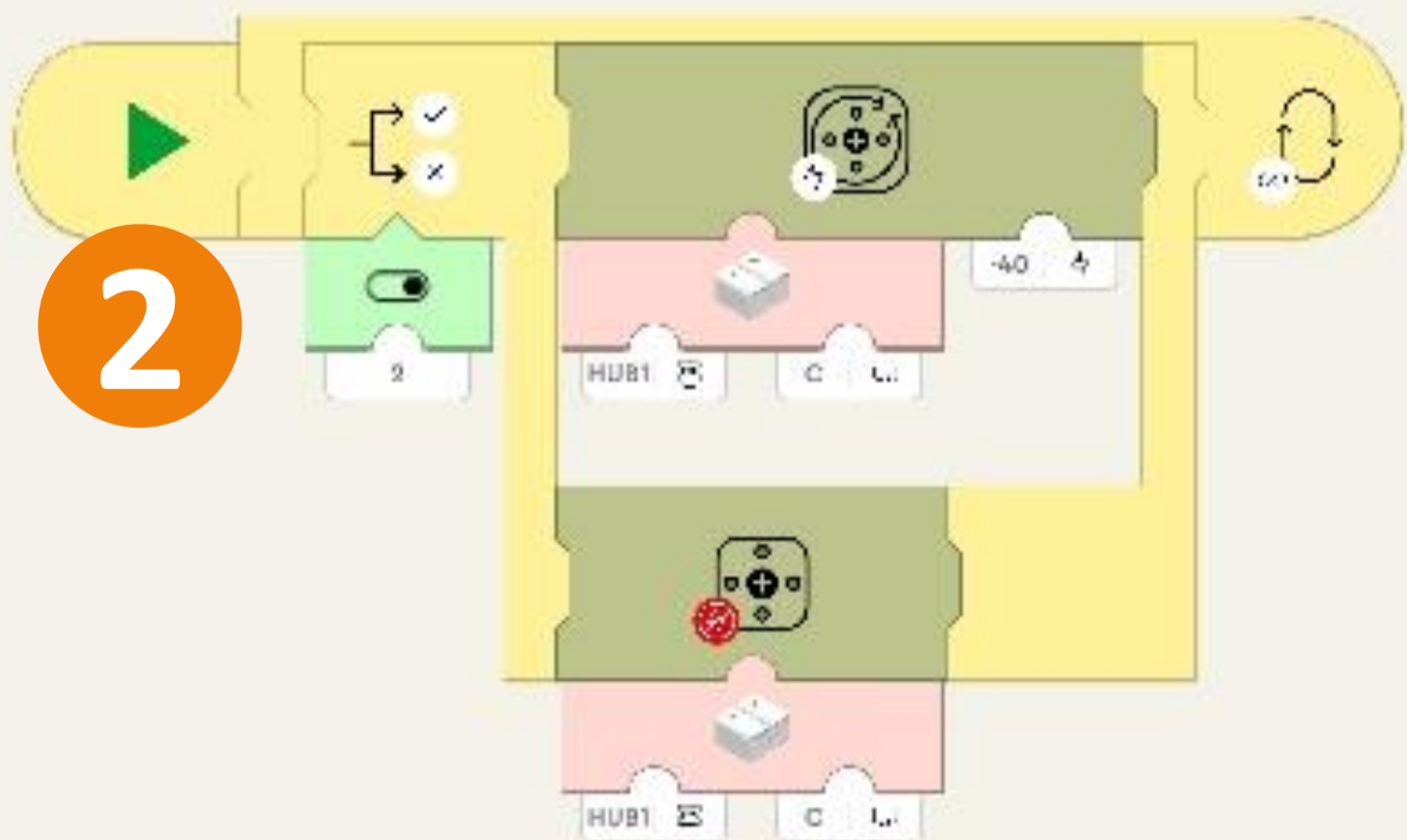
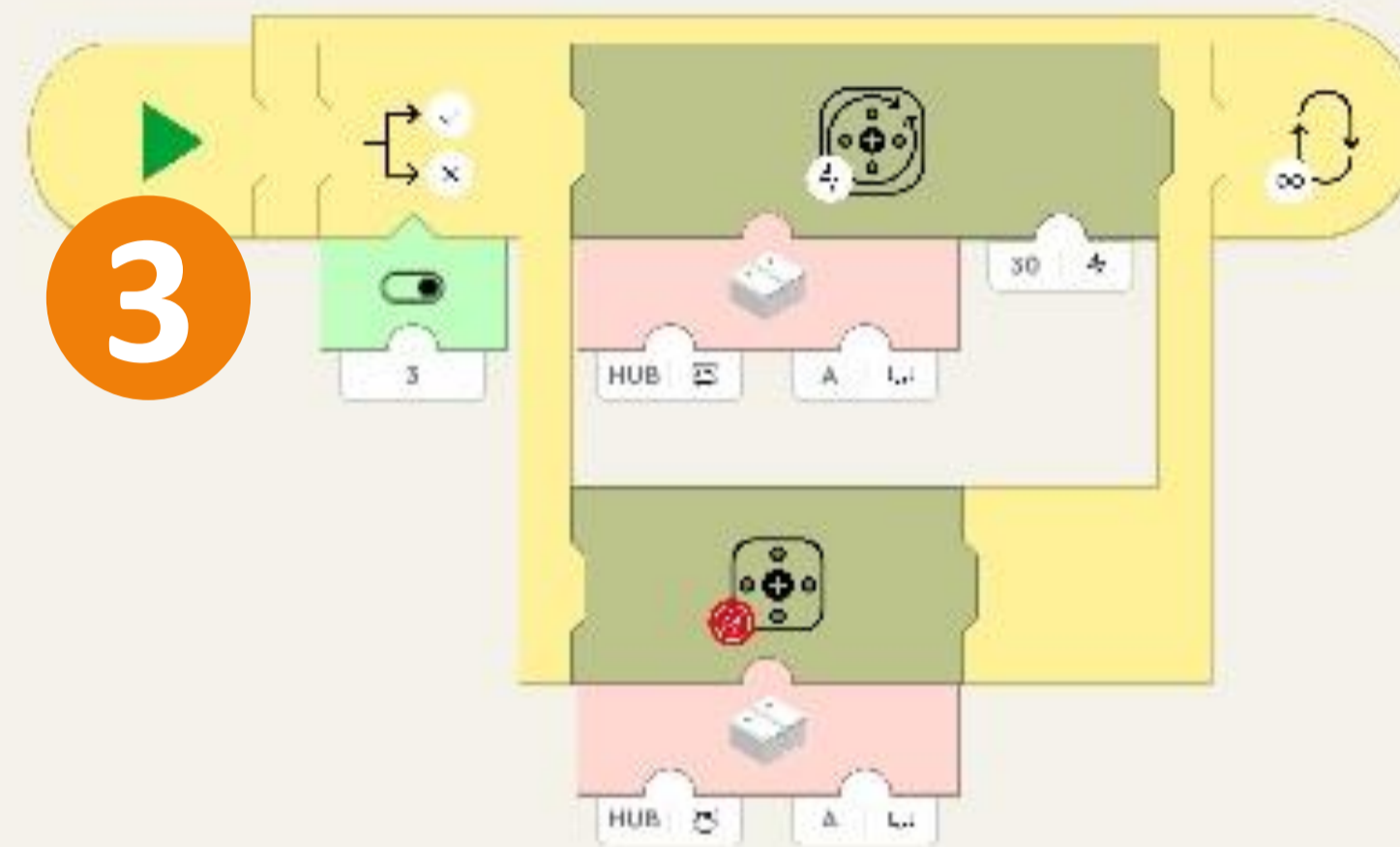
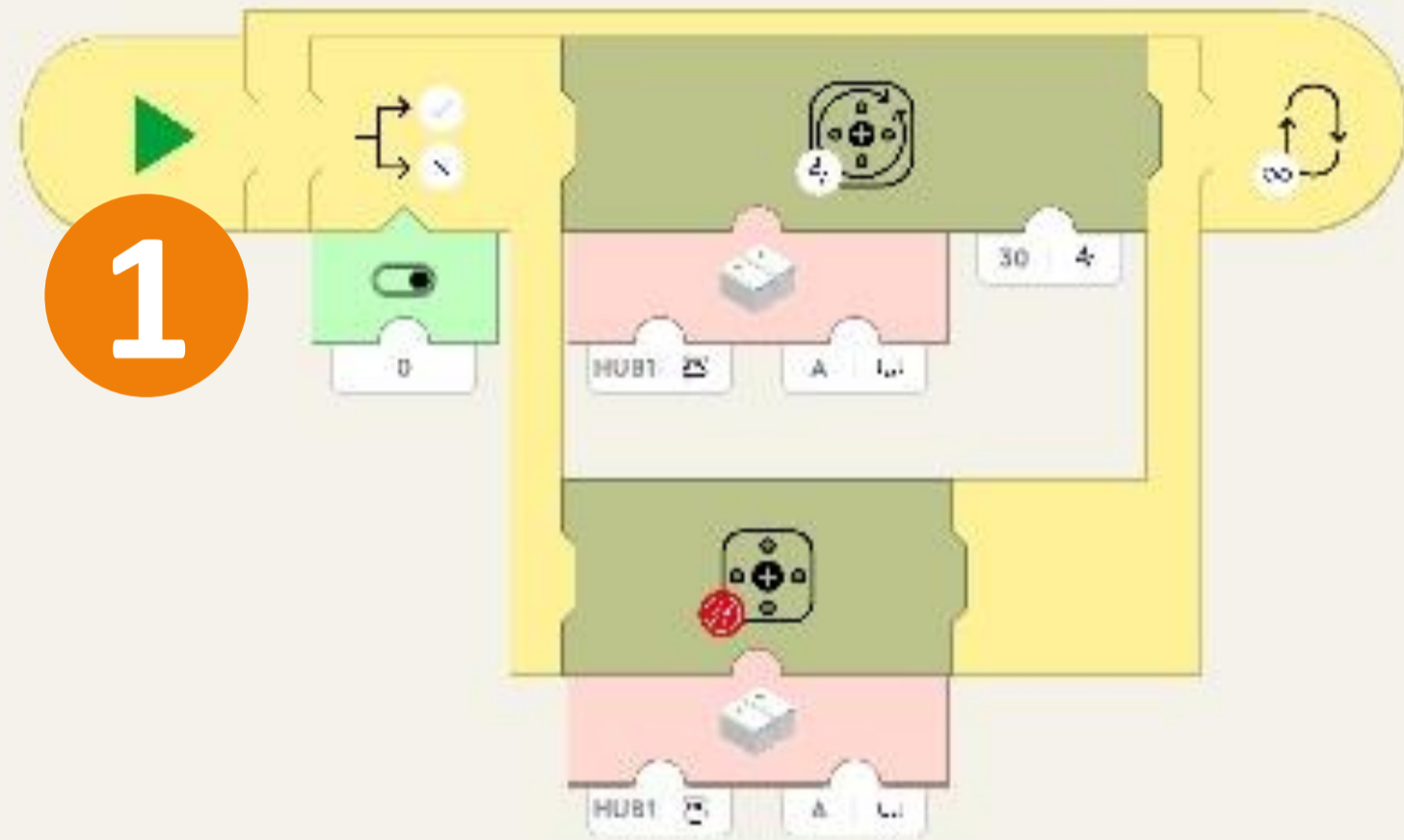


We need this same code structure 3 more times for the Programming Wheel, the Ball Table Pusher and the Ball Table Shaker. To make life easy we are going to copy the current code. First click on the 3 dots “Settings” icon (1). Then click on the “Copy” icon (2). Then click on the block you want to copy (3). You will notice that it will copy everything that is inside the selected block. Great! Repeat this until you have the same code structure 4 times!



The screenshot shows a programming environment with a central workspace containing a yellow code block. Inside this block, there is a green flag block, a green loop block, a green loop block with a lightning bolt icon, a pink USB block labeled 'HUB1', and another green loop block with a lightning bolt icon. A yellow 'Copy' icon (2) is highlighted, and a 'Settings' icon (3 dots) (1) is also highlighted. A bottom toolbar contains various icons. Below the workspace, a row of code blocks shows the copied structure being added to the script area.

If you have copied it 4 times you should see something like this.  
We will now go over the small changes between all of them



This code is for the Programming Wheel. Make sure that all the settings are correct. We have highlighted the important differences (1) (2). Use HUB1 port C (3)



This code is for the Ball Table Pusher. Make sure that all the settings are correct. We have highlighted the important differences (1) (2). Use HUB2 port A (3)



The screenshot displays a Scratch code editor interface. At the top, there are navigation buttons (back, forward) and a Bluetooth icon with a green checkmark. The main workspace shows a Scratch sprite with a custom code block. The code block contains a loop with the following blocks: 'set motor power to 30', 'wait 4', and 'rotate 1 degrees'. Three orange circles with the number '1', '2', and '3' highlight specific parts of the code: '1' highlights a 'set motor power to 3' block, '2' highlights the 'wait 4' block, and '3' highlights the 'HUB' and 'A' ports in the motor power block. The bottom toolbar shows various Scratch blocks like 'say', 'wait', 'rotate', and 'set motor power'.

This code is for the Ball Table Shaker. Make sure that all the settings are correct. We have highlighted the important differences (1) (2). Use HUB2 port C (3)



The screenshot displays a Scratch code editor with the following elements:

- Event:** 'when green flag clicked' (highlighted with a '1').
- Block 1:** 'set motor 1 to 4' (highlighted with a '1').
- Block 2:** 'set motor 2 to 30' (highlighted with a '2').
- Block 3:** 'set motor 3 to C' (highlighted with a '3').
- Block 4:** 'set motor 4 to 4'.
- Block 5:** 'set motor 5 to 4'.
- Block 6:** 'set motor 6 to 4'.
- Block 7:** 'set motor 7 to 4'.
- Block 8:** 'set motor 8 to 4'.
- Block 9:** 'set motor 9 to 4'.
- Block 10:** 'set motor 10 to 4'.
- Block 11:** 'set motor 11 to 4'.
- Block 12:** 'set motor 12 to 4'.
- Block 13:** 'set motor 13 to 4'.
- Block 14:** 'set motor 14 to 4'.
- Block 15:** 'set motor 15 to 4'.
- Block 16:** 'set motor 16 to 4'.
- Block 17:** 'set motor 17 to 4'.
- Block 18:** 'set motor 18 to 4'.
- Block 19:** 'set motor 19 to 4'.
- Block 20:** 'set motor 20 to 4'.

This code is for the Ball Divider. Get another yellow start block (1) followed by a loop block (2). Inside this loop block you have to place a toggle block (3) which are triggered by button 1 (4). Then add the motor blocks (5) and set the correct speed and time (6). Make sure to select Hub 1 and output D for both motors (7). Finally add 4 wait blocks between the motor blocks and set them to 2 seconds (8). By changing the wait times in the motor & wait blocks you can alter the behavior of the Ball Divider.



The screenshot displays the LEGO Mindstorms software interface with a code sequence for a Ball Divider. The code is composed of several blocks connected in a sequence:

- Block 1:** A yellow start block.
- Block 2:** A yellow loop block.
- Block 3:** A toggle block (green) triggered by button 1 (4).
- Block 4:** A motor block (5) with speed and time settings (6).
- Block 5:** A second motor block (5) with speed and time settings (6).
- Block 6:** A wait block (8) set to 2 seconds.
- Block 7:** A second wait block (8) set to 2 seconds.
- Block 8:** A third motor block (5) with speed and time settings (6).
- Block 9:** A fourth motor block (5) with speed and time settings (6).
- Block 10:** A fifth wait block (8) set to 2 seconds.
- Block 11:** A sixth wait block (8) set to 2 seconds.
- Block 12:** A yellow end block.

The interface includes navigation buttons at the top (back, stop, play, game controller) and a block palette at the bottom. The code sequence is highlighted with orange circles and numbers 1 through 8, corresponding to the instructions in the text.

The end result should look like this. You should have 5 individual starting blocks followed by code.



The screenshot displays a block-based programming environment. At the top, there are navigation icons: a back arrow, a Bluetooth symbol with a green checkmark, a game controller icon, and a play button. The main workspace contains five yellow starting blocks, each with a green play button and a small icon. Below these is a long yellow code block containing a sequence of blocks: a green play button, a 'say' block, a 'wait' block, a 'say' block, a 'wait' block, a 'say' block, a 'wait' block, a 'say' block, a 'wait' block, a 'say' block, a 'wait' block, and a 'say' block. At the bottom, there is a toolbar with various icons for actions like play, stop, delete, and undo. Below the toolbar is a row of yellow blocks, including a green play button, a green play button with a checkmark, a green play button with an 'x' and checkmark, a speaker icon, a speaker icon with a checkmark, an hourglass icon, an hourglass icon with a checkmark, a circular arrow icon with a checkmark, a circular arrow icon with an infinity symbol, and a 'say' block.

Now we have to set the LEGO Powered Up hubs in the correct order. Click on the Bluetooth Icon and turn both hubs on (1). The left hub (With 3 motors connected to it) should be the top one. If this is not the case you have to drag them via the hamburger menu on the right (2). You can optionally rename them clicking on the pencil icon (3). Close the Bluetooth menu if all is exactly like shown below (4).



## Connect



01



Technic Hub 1



02



Technic Hub 2



3

2



You are all set! Switch to the controller interface to control the machine (1).  
Feel free to explore the code and add your own functionality.  
We can't wait to see all your cool inventions!



The image displays a block-based programming interface for a LEGO Mindstorms robot. The workspace shows a yellow robot with a green flag and a blue '1' icon. The code area contains several 'when green flag clicked' blocks followed by 'say' blocks and 'wait' blocks. A toolbar at the bottom shows various block types like 'say', 'wait', and 'repeat'.

The yellow toggle switch (1) powers the Vertical Conveyor Lift. The green toggle switch (2) powers the Ball Divider. The blue toggle switch (3) powers the Programming Wheel. The red toggle switch (4) powers the Ball Table Pusher. The black toggle switch (5) powers the Ball Table Shaker.

Have fun!

