

Software - LEGO Powered Up App

GBC 51 Gravel Works – 42131 Alternate Build



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).



3

Language

Settings

About

Help

3.7.0

Settings

Auto-Connect



Never time out



Default Palette Level

1

2

ADVANCED

Delete All Projects



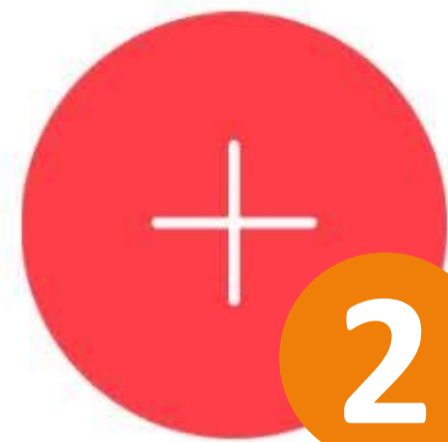
Click on the "Create" button (1) and tap on the + sign (2).



Play

Create

1



2

1 minute ago
GBC 45



1 minute ago
GBC 41



Enter a name for your project.



01 — 03

NAME YOUR PROJECT

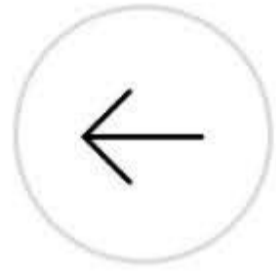


1



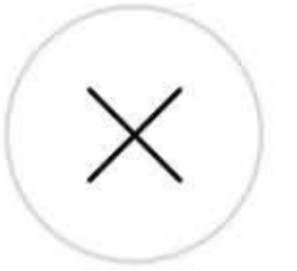
2

Select the controller type.

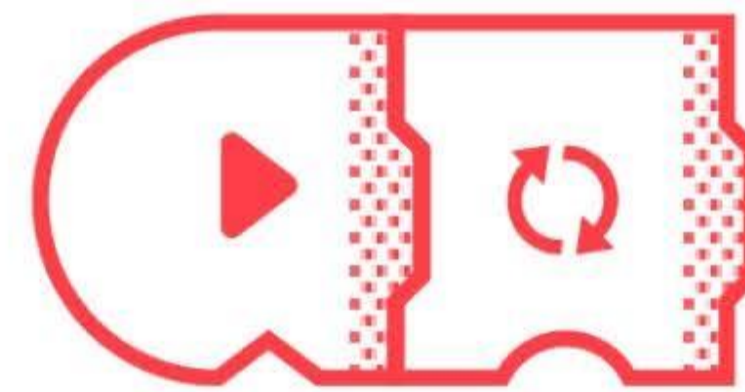


02 — 03

CHOOSE PROJECT TYPE

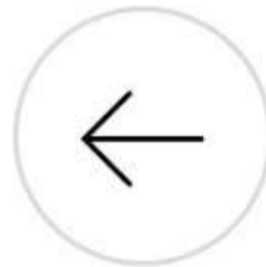


Controller



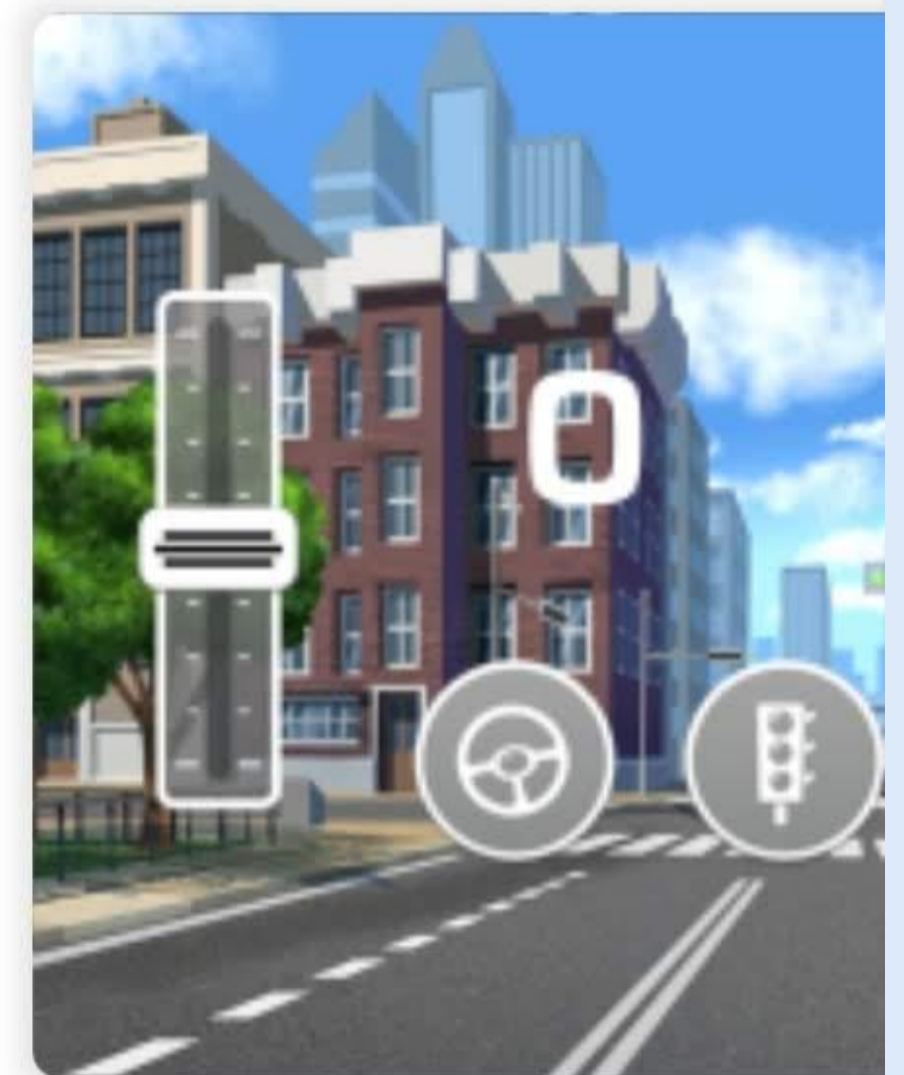
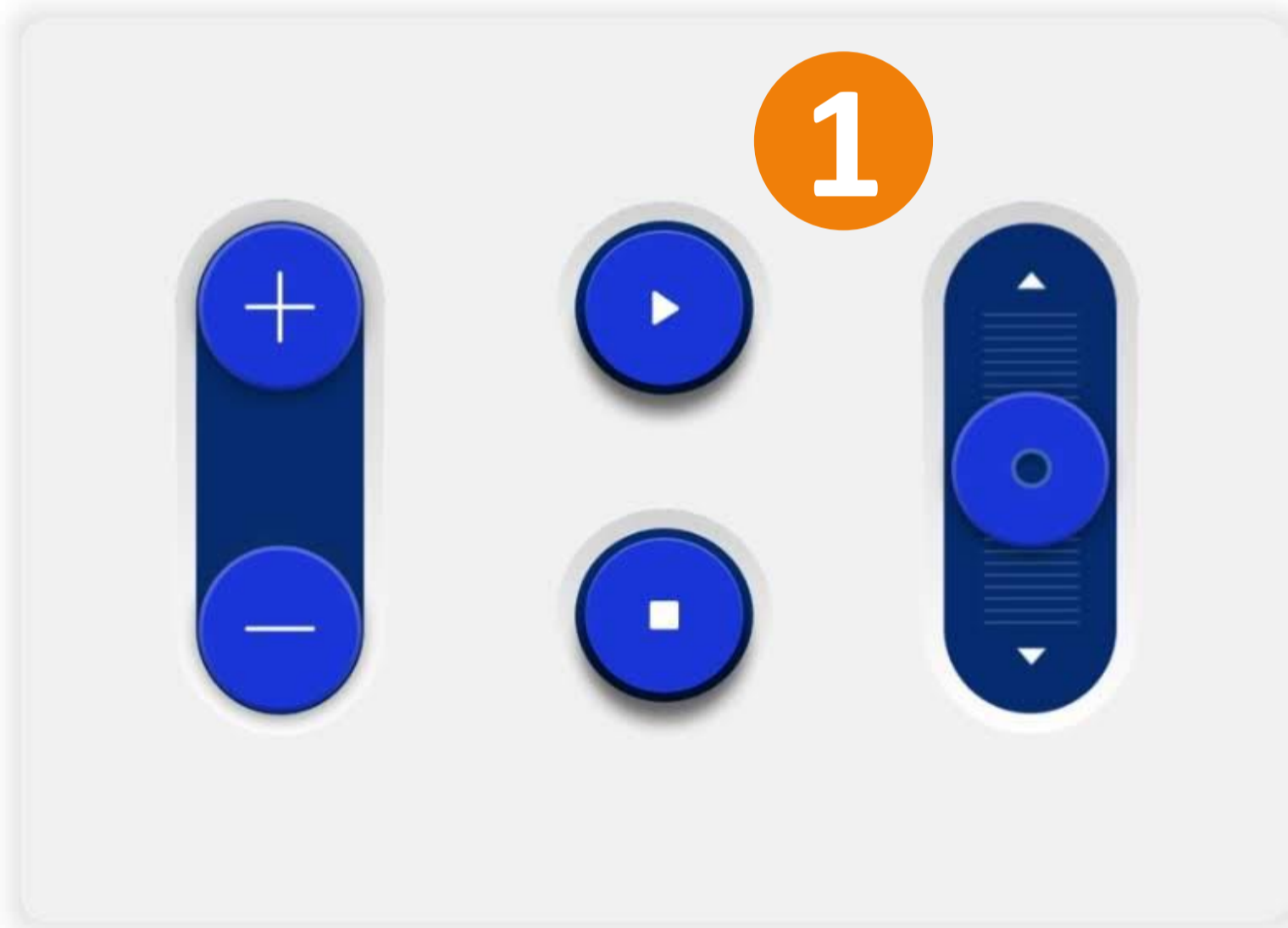
Coding

Select the correct controller interface.



03 — 03

CHOOSE CONTROLLER



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



Add your first widget

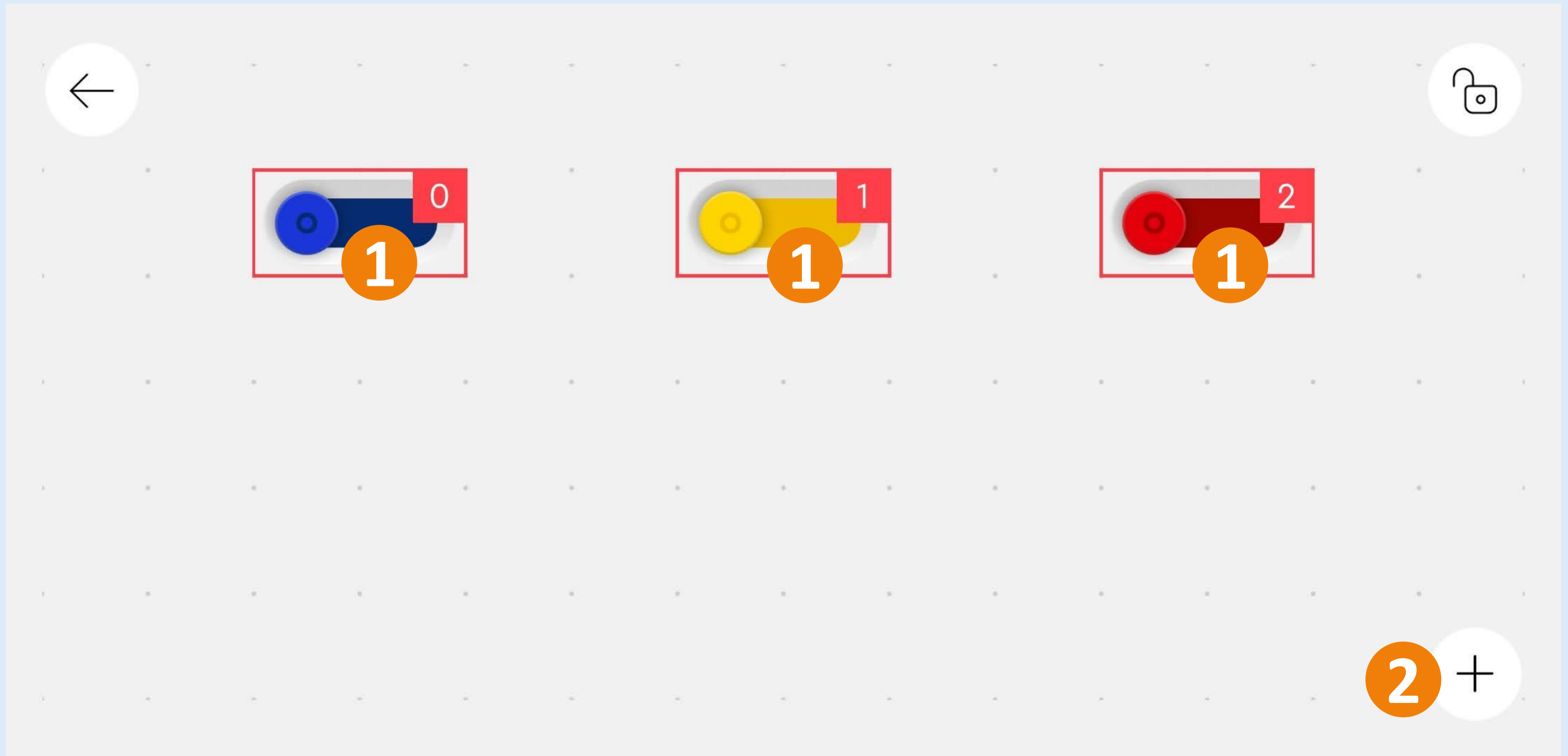
Add the following colored buttons (1) (2) (3). You can select more buttons simultaneously. Scroll up and down to find all the buttons. Click “Add Widgets” to proceed (4).



The screenshot shows a user interface for selecting widgets. On the left, there is a close button (an 'X' in a circle). The main area displays a grid of toggle switches in various colors: yellow, green, blue, red, purple, pink, olive, teal, and grey. Three of these switches are highlighted with red boxes and numbered callouts: a yellow switch (2), a blue switch (1), and a red switch (3). At the bottom center, there is a white button labeled "ADD WIDGETS" with a red checkmark icon and a numbered callout (4). On the right side, there is a vertical sidebar with four icons: a play button, a plus sign, a gauge, and a paintbrush.

Rearrange the 3 buttons as shown below (1). You can click the + sign (2) 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.

Don't pay attention yet to the icons inside the buttons. We will add these later.

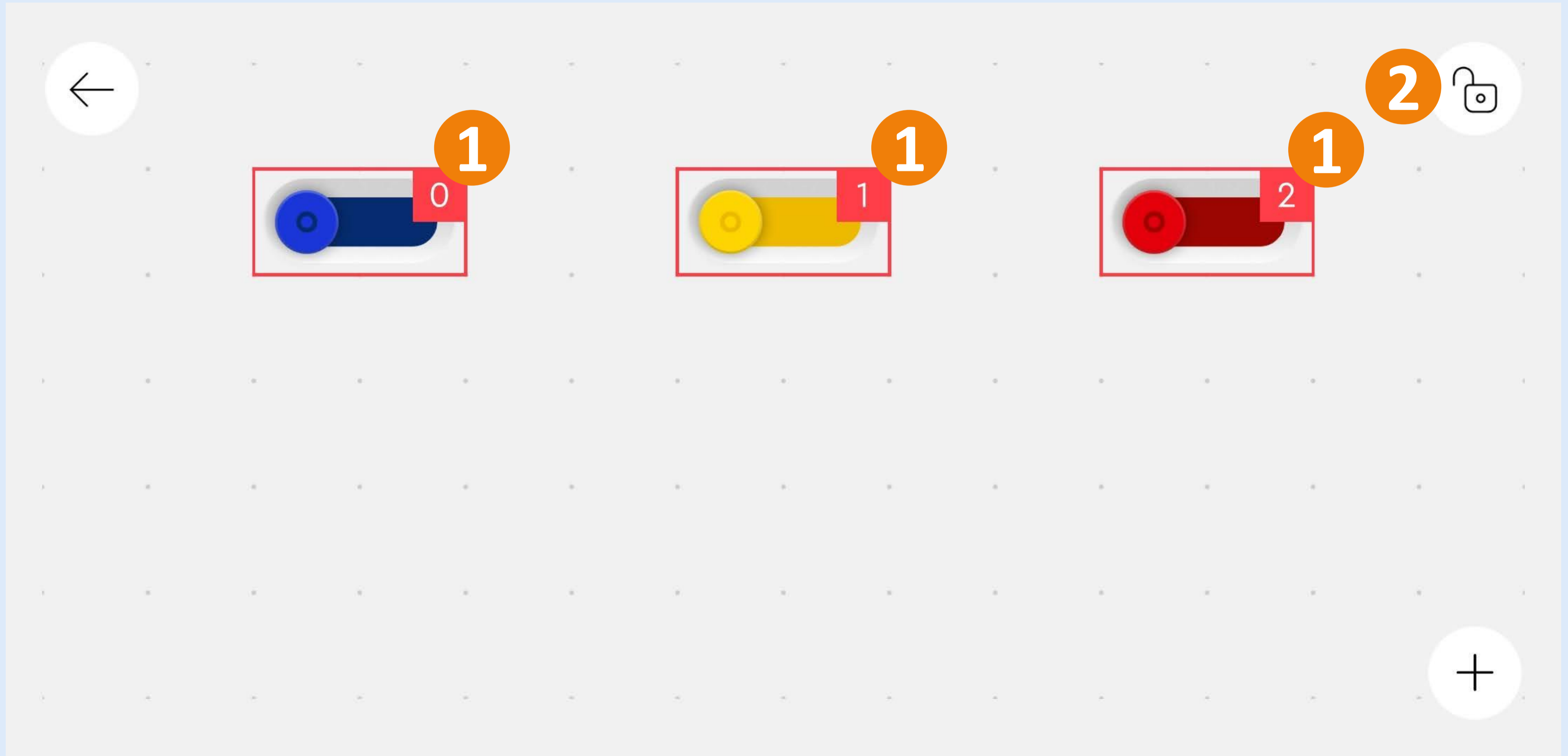


Click on each button (1) and change the address (2) as shown below in the red square (3).
See previous step for all the correct addresses.

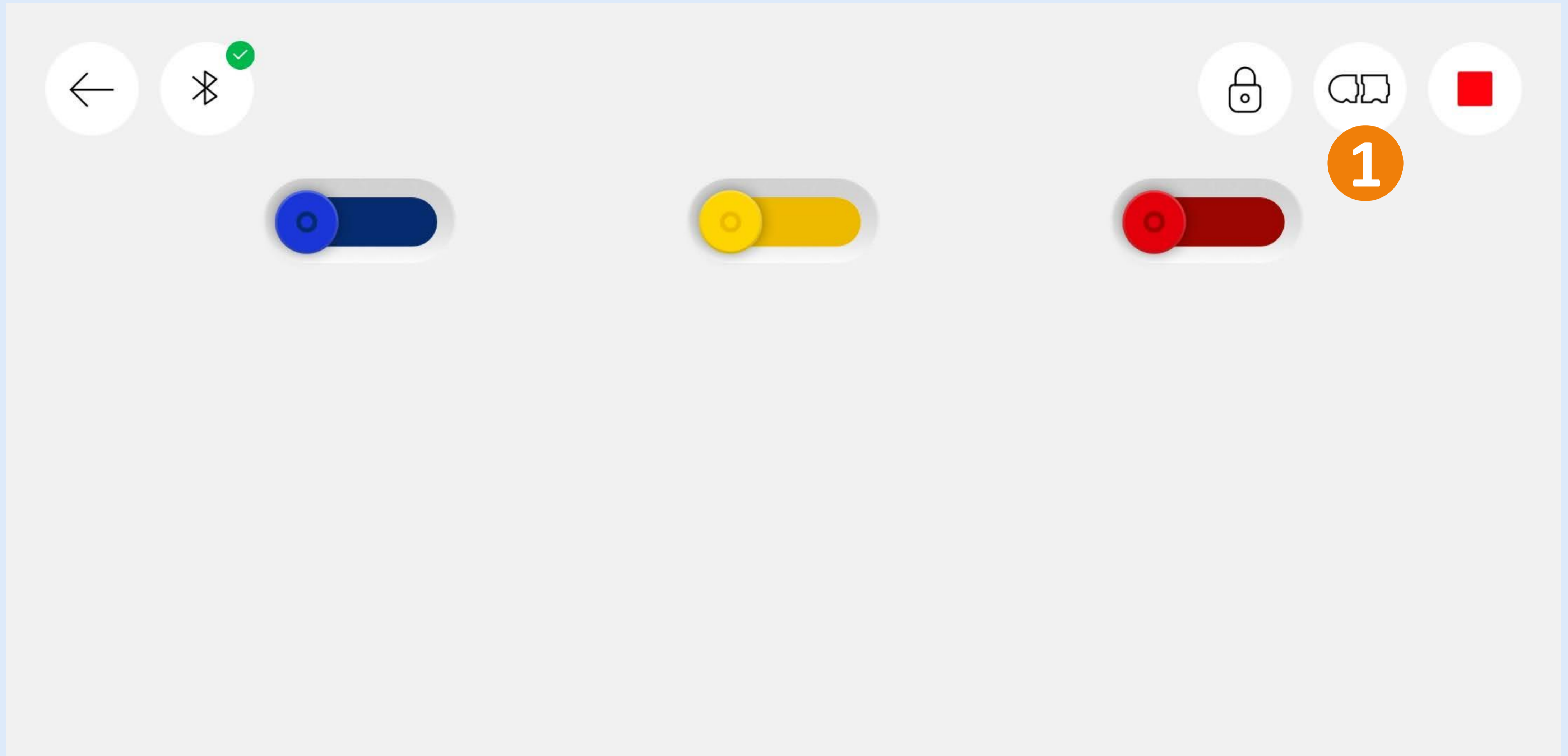


The image shows a mobile application interface. On the left, a dark grey control panel features a blue button with a white '0' (labeled '1'), a red button with a white '0' (labeled '3'), and a green button (partially visible). A red square highlights the blue and red buttons. On the right, a settings menu is open, showing a 'COLOR' section with seven color swatches (blue, red, purple, pink, olive, green, grey) and an 'ADDRESS' section with seven circular buttons labeled '0' through '6'. The '0' button is highlighted with a white border and labeled '2'.

Double check all the addresses in the red squares (1)!
Click on the lock icon to confirm and lock the buttons (2).



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.

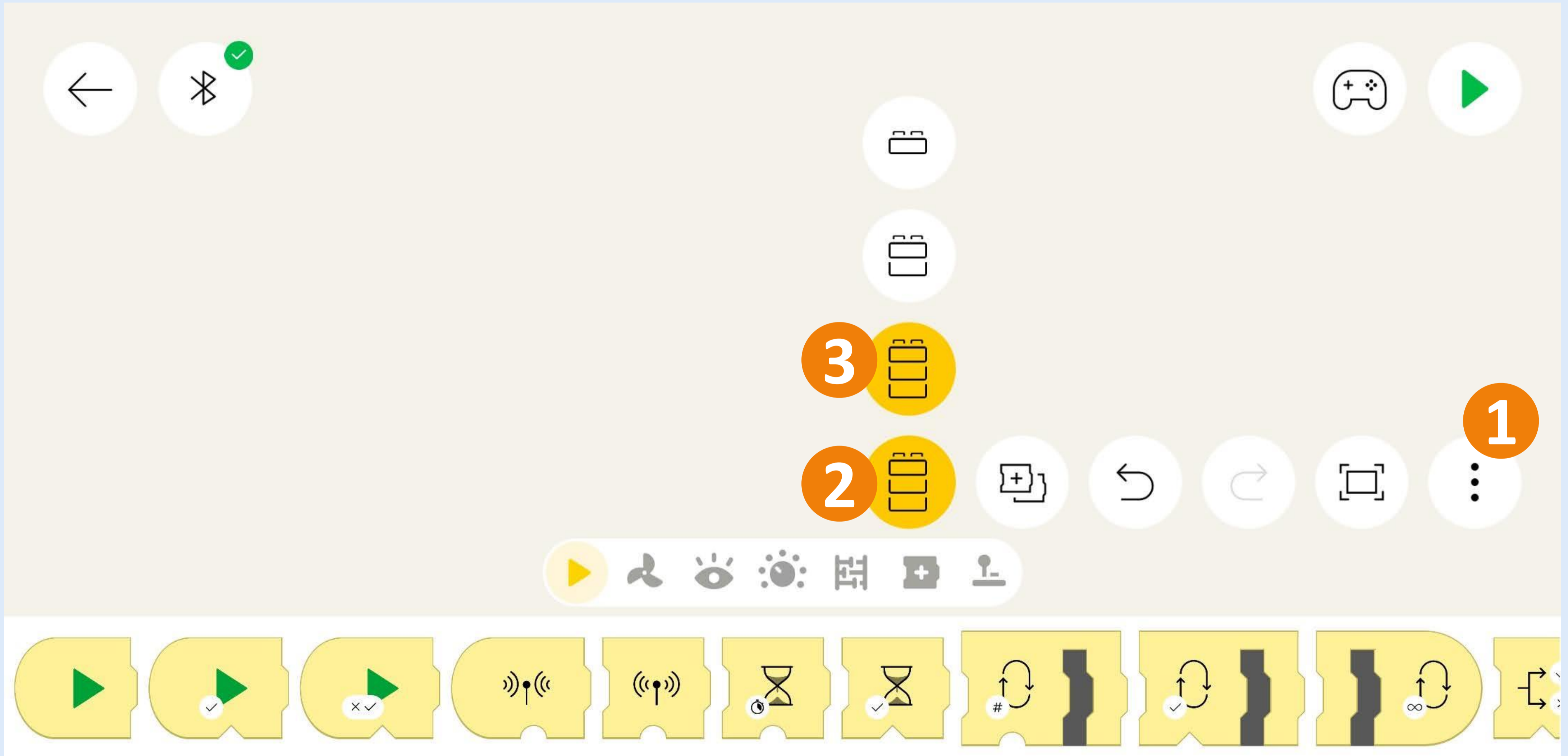


The image displays a Scratch code editor interface with three numbered steps illustrating the construction of a script:

- Step 1:** A 'when green flag clicked' block is connected to a 'say C for 100 sec' block.
- Step 2:** A 'when green flag clicked' block is connected to a 'say D for -100 sec' block.
- Step 3:** A 'when green flag clicked' block is connected to two 'say B for 100 sec' and 'say B for -100 sec' blocks.

The interface includes a toolbar at the bottom with various Scratch blocks and a menu icon on the right.

Before we start let us first double check if the Default Palette Level is set correctly. Click on the 3 dots (1) and select the 3 brick icon (2) (3).

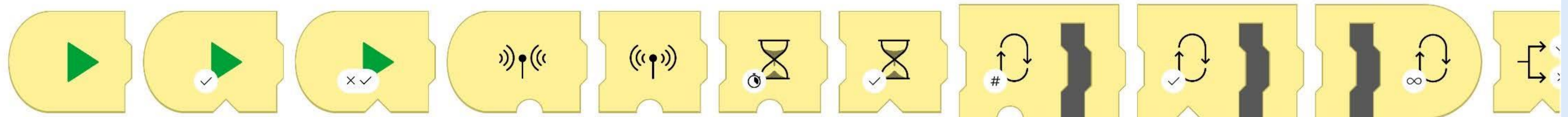
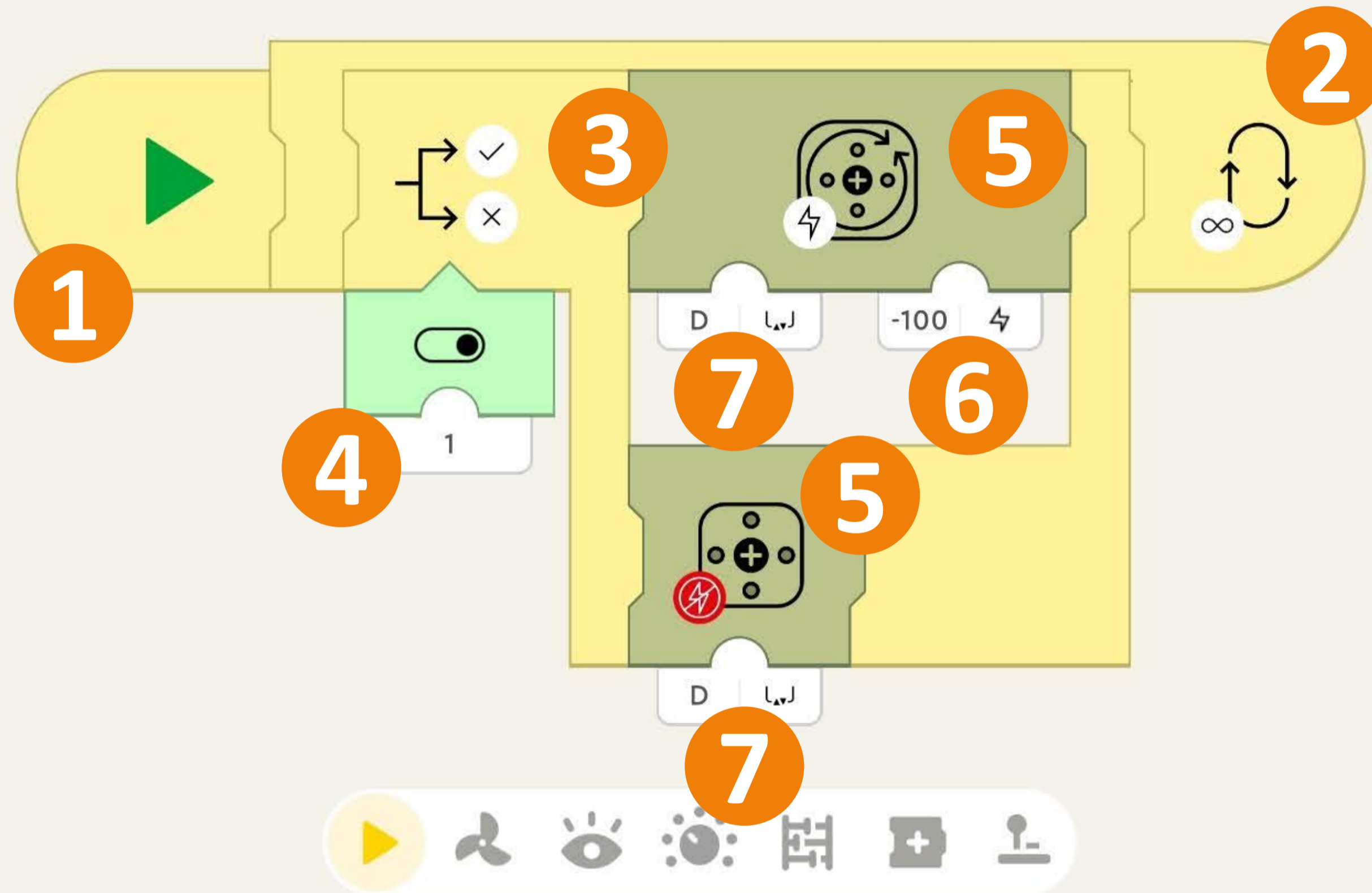


This code is for the Wave Machine Module. You can find all the blocks in the library of the same color (0). Drag them into the project one by one on the code interface. Start from the left and work from the outside in. So first get the yellow start block (1) followed by a loop block (2). Inside this 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). Make sure to select output C for both motors (7).



The screenshot shows a block-based programming environment. The main workspace contains a sequence of blocks: a yellow start block (1), a yellow loop block (2), a green toggle block (3) triggered by button 0 (4), and two green motor blocks (5) connected to output C (7) with a speed of 100 (6). The interface includes navigation icons (back, home, play, stop, refresh) and a block library at the bottom.

This code is for the Dual Conveyor Module. 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 (6). Make sure to select output D for both motors (7). You can change the speed of the motor by changing the -100 value. It is important that the motor is negative set to -100 and not 100 as this determines the motor direction!



This code is for the Vertical Lift Platform. 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 with address 2 (4). Then add 2 motor blocks (5) and set the correct speed and time (6). Make sure to select output B for both motors (7).



The screenshot shows a block-based programming environment. The code sequence is as follows:

- 1**: Yellow start block with a green play button.
- 2**: Yellow loop block with an infinity symbol and a refresh icon.
- 3**: Green toggle block with a switch icon and a checkmark.
- 4**: White block with a button icon and the number '2'.
- 5**: Two motor blocks with gear icons.
- 6**: Two speed and time blocks with values 100, 8 and -100, 12.
- 7**: Two output blocks with 'B' and a motor icon.

The interface includes navigation buttons (back, forward, home, search, etc.) and a toolbar at the bottom with various block icons.

Due to gravity, weight and friction we have set the time to travel up to 12 seconds (2) and for down 8 seconds (1). If the Vertical Lift Platform doesn't reach its top completely you can adjust the timing settings (1) (2).



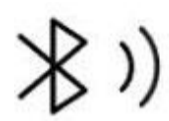
The screenshot displays the LEGO Mindstorms software interface for configuring a motor block. The motor block is set to 'B' and 'L'. The 'up' direction is configured with a power of 100 and a time of 8 seconds, marked with a red circle '1'. The 'down' direction is configured with a power of -100 and a time of 12 seconds, marked with a red circle '2'. A green toggle switch is set to '2'. The interface includes navigation buttons (back, forward, play, stop), a toolbar with various icons, and a bottom palette of available blocks.

The end result should look like this. You should have 3 individual starting blocks followed by code.



The image displays a Scratch script editor with three parallel loops and a sequence of code blocks. The top row features three parallel loops, each starting with a green flag clicked block, followed by a when green flag clicked block (labeled 0, 1, and 2), and then a loop block. The first loop contains a 'C' block with a value of 100. The second loop contains a 'D' block with a value of -100. The third loop contains a 'B' block with a value of 100, followed by a '8' block, a 'B' block with a value of -100, and a '12' block. The bottom row shows a sequence of code blocks: three green flag clicked blocks (the second with a checkmark, the third with 'x' and a checkmark), two 'send message' blocks, two 'wait' blocks (the second with a checkmark), two 'wait' blocks, two 'repeat' blocks (the second with a checkmark), and two 'repeat' blocks with an infinity symbol.

Now we have to setup the LEGO Powered Up hubs. Click on the Bluetooth Icon and turn the hub on (1). You can optionally rename them clicking on the pencil icon (2). Close the Bluetooth menu if all is exactly like shown below (3).



1

Connect

3



Technic Hub

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 blue toggle switch (1) powers the Wave Machine Module. The yellow toggle switch (2) powers the Dual Conveyor Module. The red toggle switch (3) activates the auto mode for the Vertical Lift Platform.

