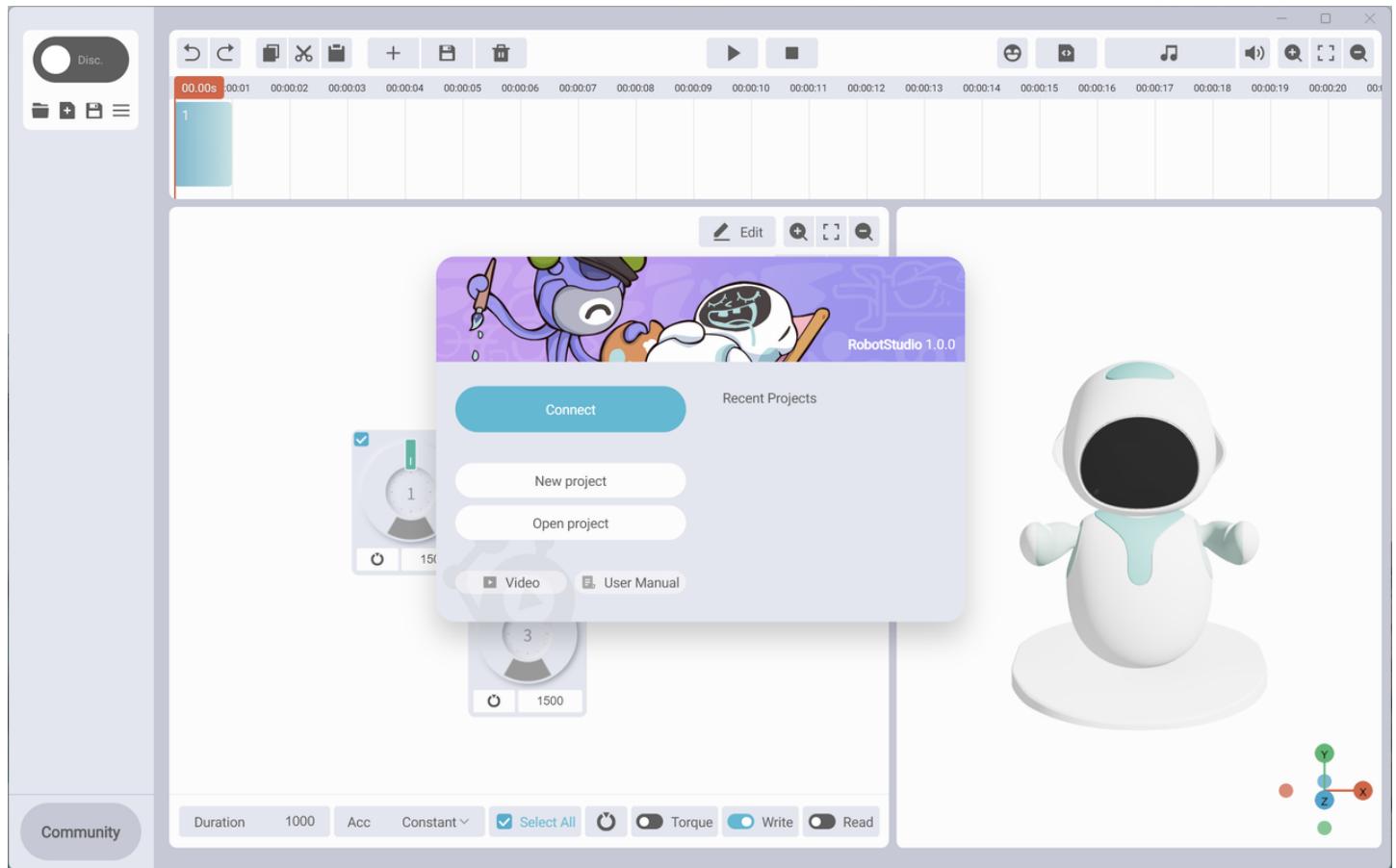


# RobotStudio User Manual (Support Eilik)



## 1. Introduction

Welcome to RobotStudio, a motion and animation editing software designed specifically for Eilik.

- Supported Operating Systems: Windows 10 and above
- Supported Languages: Simplified Chinese, English

## 2. Software Installation and Uninstallation

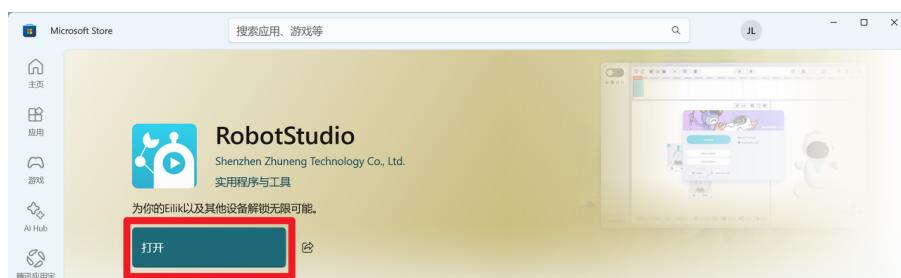
### 2.1 Windows Installation Steps

#### 2.1.1 Install from the APP store (Recommend)

Step 1: Visit <https://energizelab.com/downloads/robotstudio>, find RobotStudio Software, and click "Download."

The screenshot shows a web browser window for 'RobotStudio' on the 'energizelab.com/downloads/robotstudio' page. The top navigation bar includes links for Eilik, Panxer, Servo, Store, DIY Station, Downloads, Support, and Community. A search icon and a 'Store' button are also present. The main content area features a banner for 'AVAILABLE NOW' at '\$59.9' with a 'Special Thanks Offer'. On the left, there's a sidebar with categories: Consumer (Eilik, Panxer, Eilik), Servo (Servo, ServoStudio), and a Windows tab. In the center, there's a section for 'RobotStudio Software' with a blue icon, a brief description, and supported operating systems (Windows 10 or later). A red box highlights the 'Download' button.

Step 2: After being redirected to the App Store, click "Get" to automatically complete the download and installation.

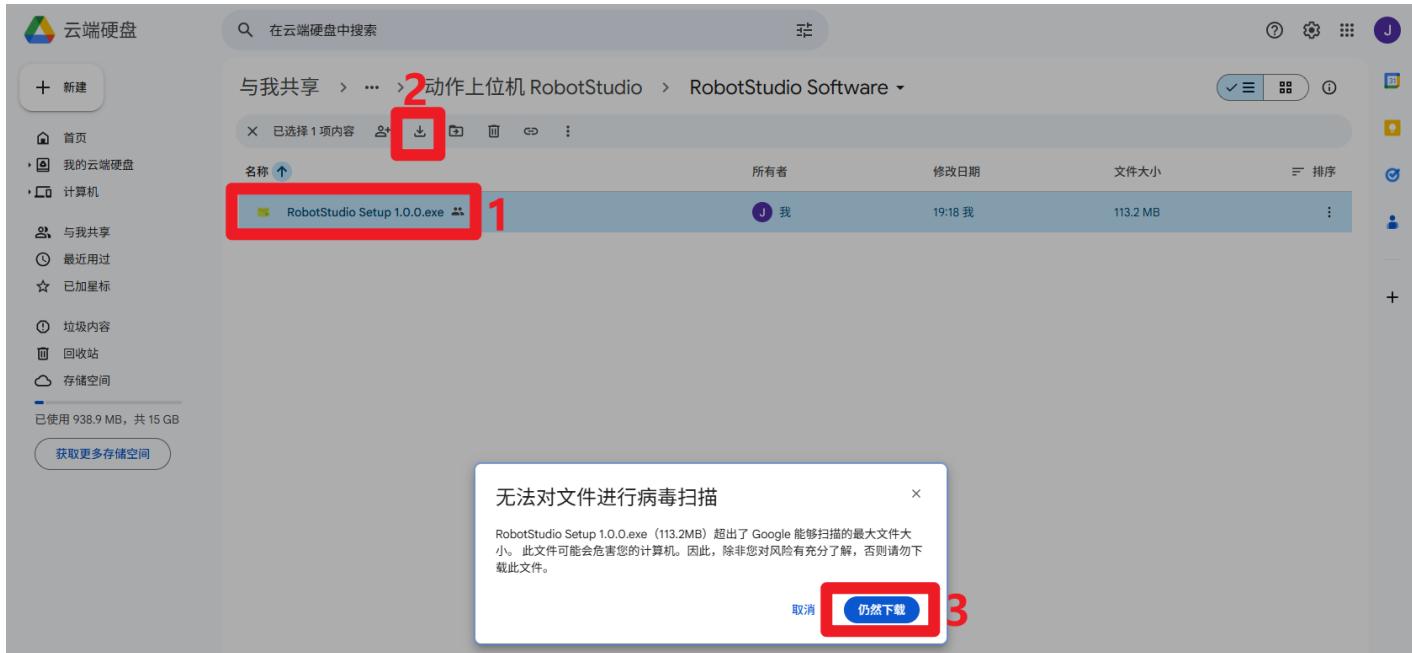


## 2.1.2 Install from Google Drive

Step 1: Visit <https://energizelab.com/downloads/robotstudio>, find RobotStudio Software, and click "Download."

This screenshot is identical to the one above, showing the RobotStudio download page on the Energize Lab website. However, it includes a note at the bottom of the central content area stating: 'There is a copy of RobotStudio software on Google Drive. Supported Operating Systems: Windows 10 or later.' This indicates that the software can also be downloaded from Google Drive.

Step 2: After being redirected to Google Drive, select the installation package and click "Download." If a risk warning pops up, click "Download Anyway."



Step 3: After the download is complete, run the installation package as an administrator.

## 2.2 Windows Uninstallation Steps

Step 1: Search for and open "Settings" in the search bar.



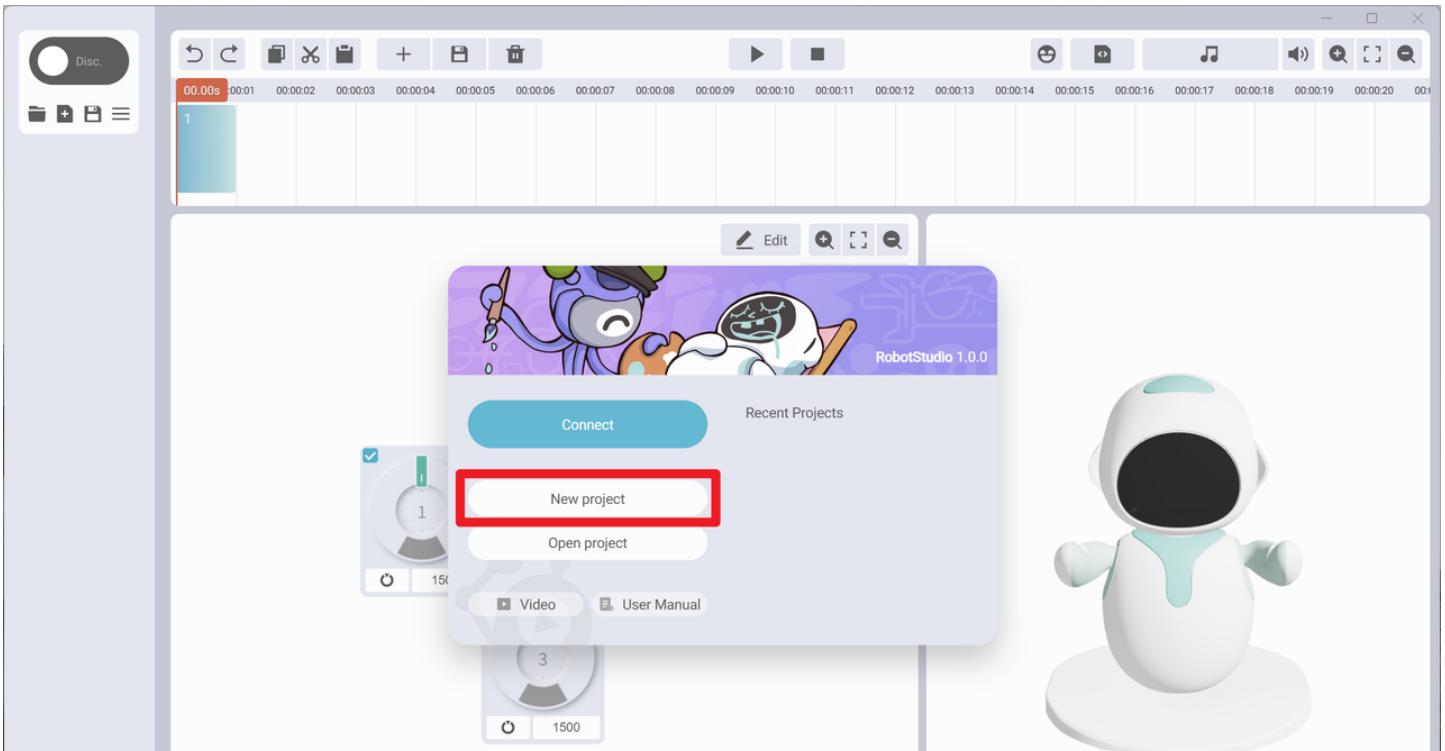
Step 2: Select "App," and click on "Installed app", find the software, click on "...", choose "Uninstall," click "Uninstall," and then click "Confirm" to complete the uninstallation.



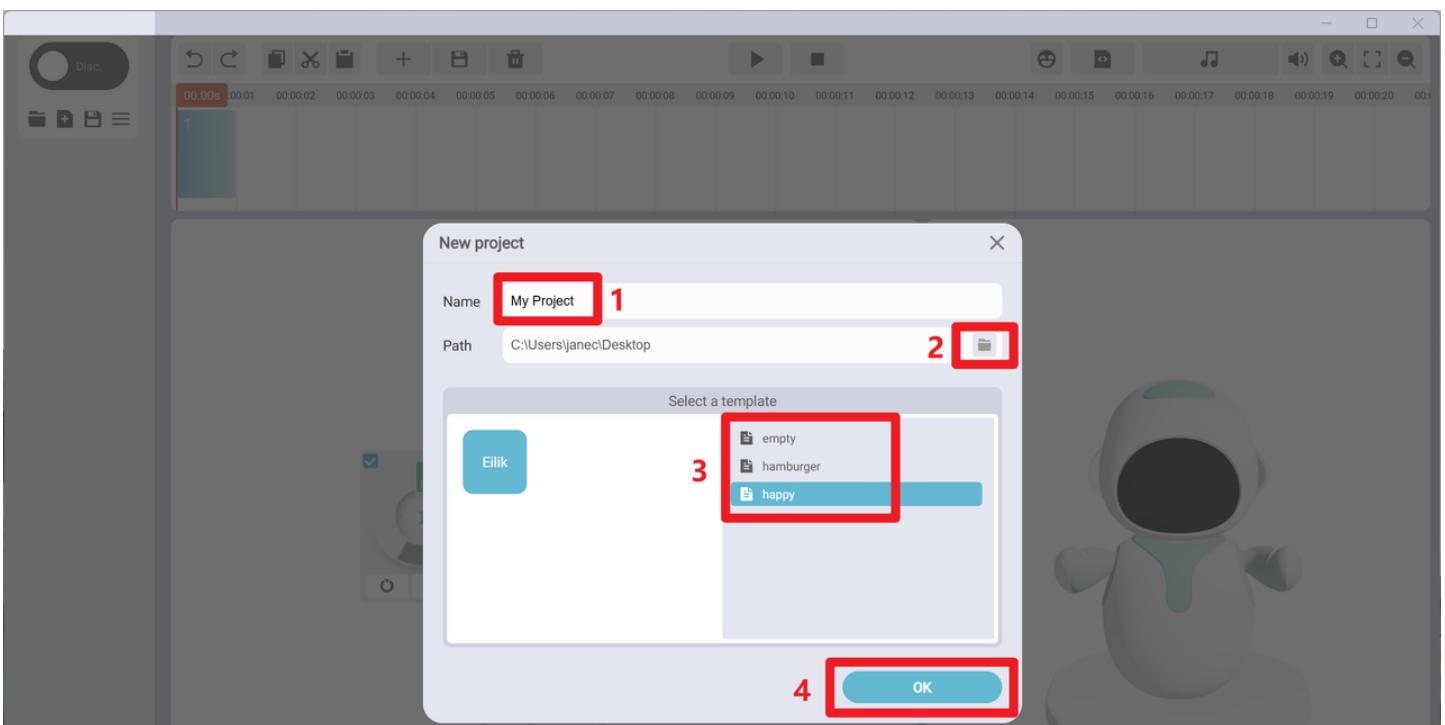
## 3. Quick Start

### 3.1 How to Simulate?

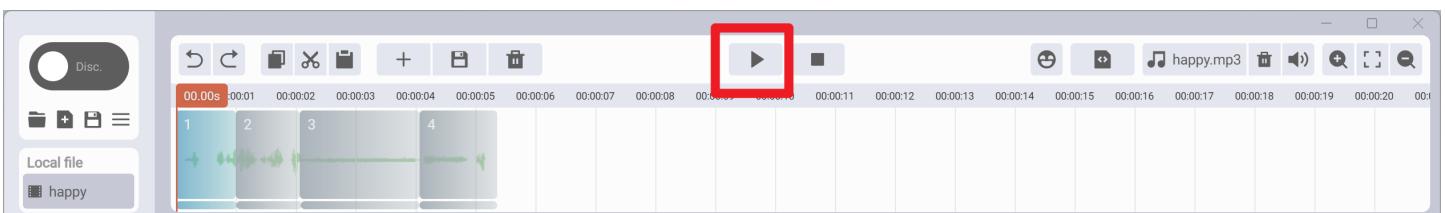
Step 1: Open the software and select "New Project."



Step 2: Enter a project name, select a save path, choose a sample file, and confirm to create.



Step 3: Click “Play” to experience the simulation feature.

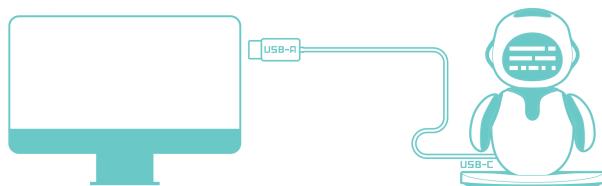


## 3.2 How to Control Eilik's Motion

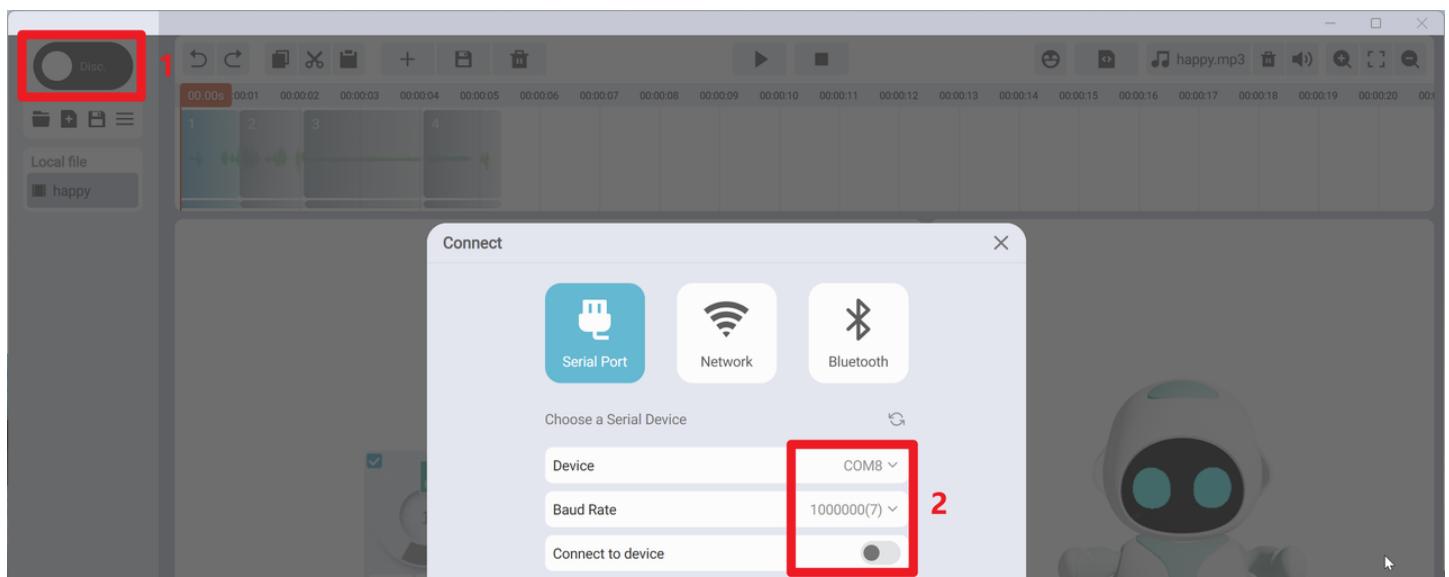
Step 1: Update your Eilik to RFV 13.0 using Eilik Software.

The screenshot shows the Energize Lab website with a banner for the Eilik robot. The banner features the text "AVAILABLE NOW" in large green letters, a price of "\$59.9", and a call to action "Adopt yours today!". Below the banner, there's a navigation menu with links to Store, Servo, DIY Station, Downloads, Support, and Community. A search icon and user profile icon are also present. On the left, there's a sidebar for "Consumer" products with "Eilik" selected. In the center, there's a red-bordered box containing the "Eilik Software" logo and text: "Update the firmware and other necessary programs of Eilik. Supported Windows System: Windows 8.1 or later".

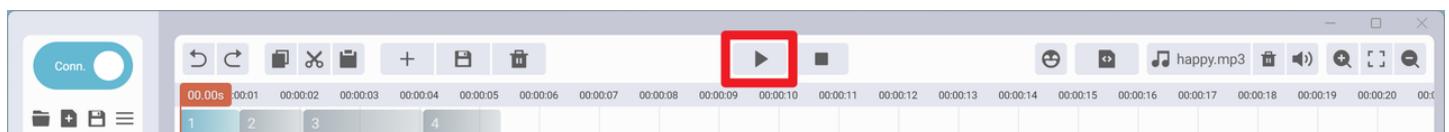
Step 2: Connect Eilik to your PC via a USB cable.



Step 3: Click “Connect Device,” select the correct serial port and baud rate, then click “Connect.”



Step 4: Click “Play” to experience the motion control feature.

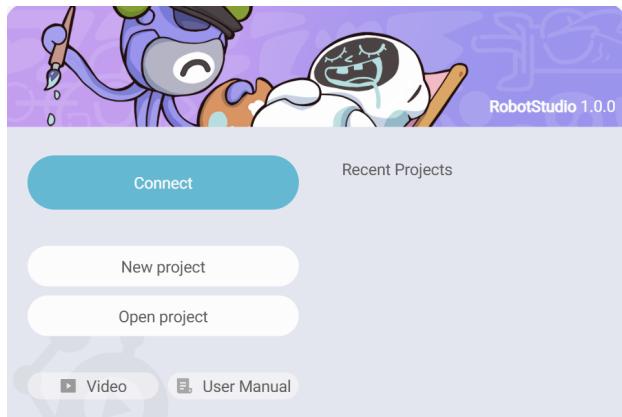


## 4. User Interface

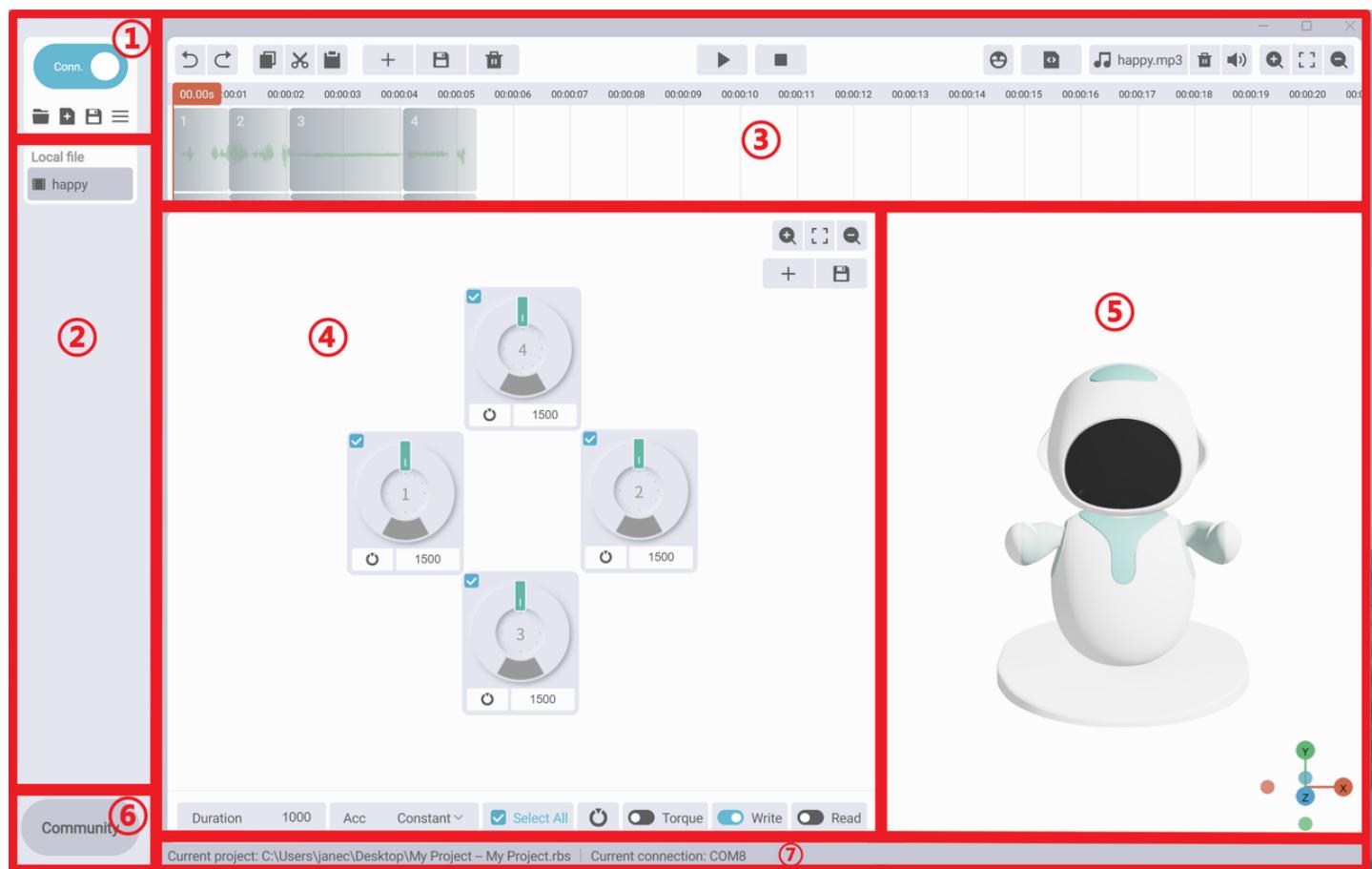
### 4.1 Startup Screen

When RobotStudio starts, a startup screen appears in the center of the window, offering options to connect devices, create a new project, or open an existing project, along with tutorial videos.

and the user manual. You can click anywhere outside the startup screen within the RobotStudio window to dismiss it and display the default window layout.



## 4.2 Interface layout

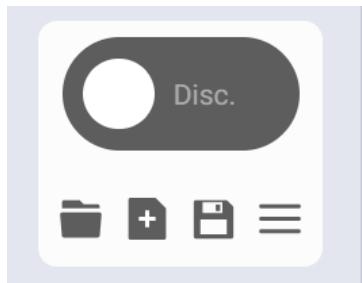


No.	Area	Function
①	Menu	Provides options for device connection, project management, language selection, shortcut key list, and software information.
②	File Area	Displays opened local project files and supports right-click menu operations.
③	Timeline	Includes frame operations, script editing, music settings, and playback control. Shows frame data, spectrum, and progress bar.

④	Editing Area	Displays the motion editing interface by default. Click the "Animation" button to switch to the animation editing page.
	Motion	Displays servo rotation dials, supporting both single and batch control.
	Animation	Displays the animation canvas. You can select a sample or create your own design.
⑤	Model Area	Displays the selected model, changing with actions and animation frames.
⑥	Community	Click the Community button to open the community window, where you can like and edit works, or access your personal center, etc.
⑦	Status Bar	Displays status prompts, including file and connection information, and error notifications.

## 5. Function Introduction and Operation Methods

### 5.1 Menu



#### 5.1.1 Device Connection

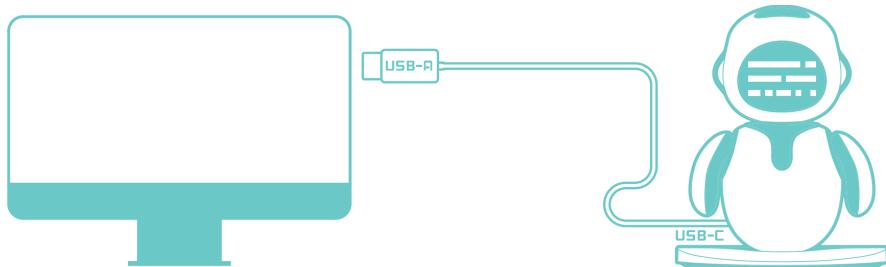
Tip: You can also use the simulation feature to experience robot motion and animation editing without connecting to external devices.

**Note:** Currently, Eilik only supports serial port connections.

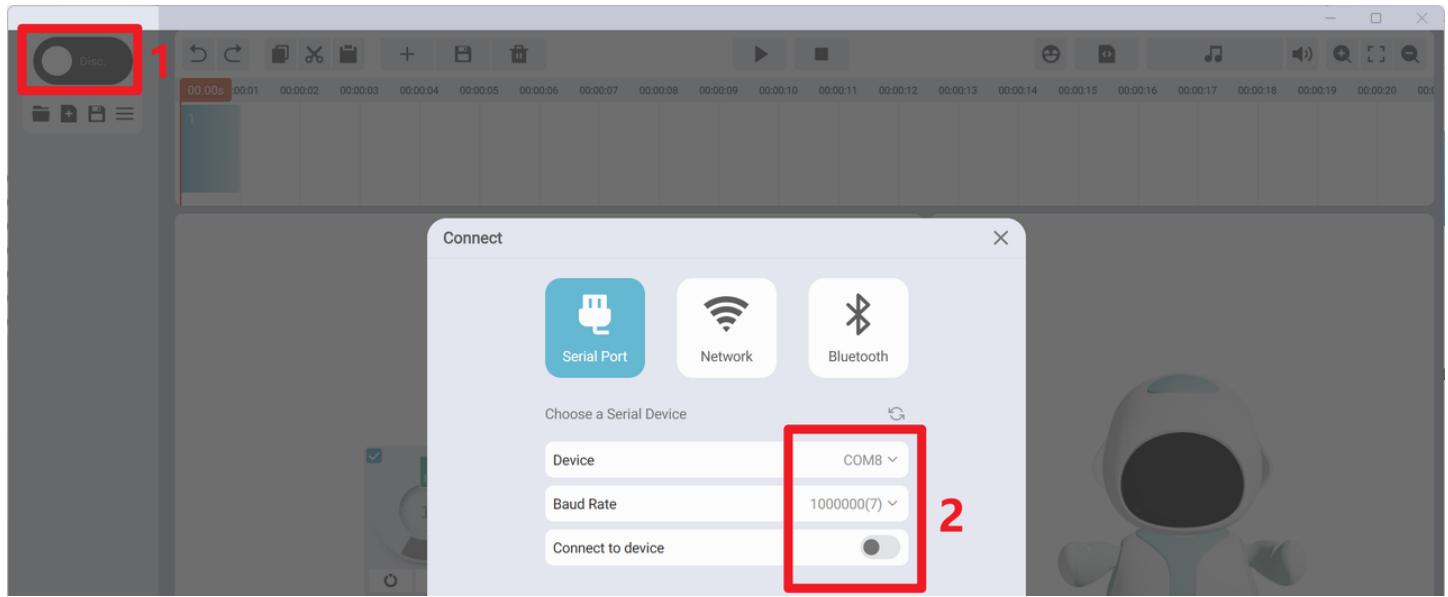
#### Steps for Serial Port Connection:

Step 1: Ensure Eilik is updated to RFV 13.0 or above.

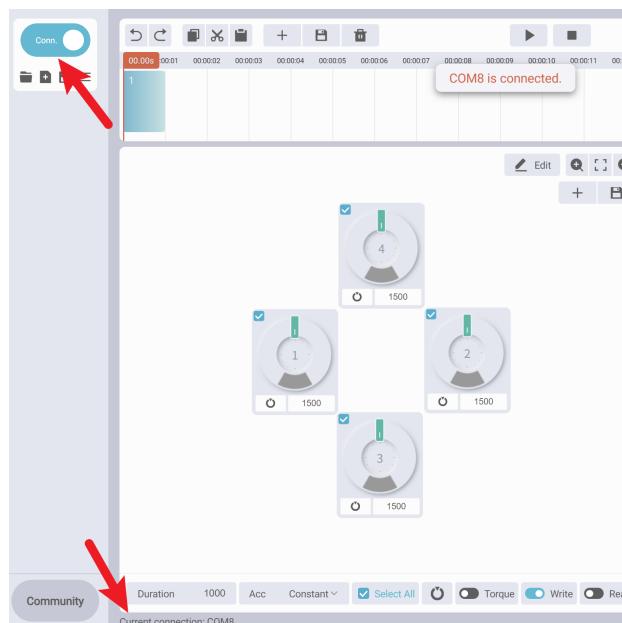
Step 2: Connect Eilik to your PC using a USB cable.



Step 3: Click “Connect Device,” select the current device’s serial port and baud rate, and then click “Connect.”



Once connected successfully, the status bar will display the current device connection information.



### 5.1.2 Create a New Project

**Project Folder** is used to save the current project's .rbs layout files, .glb model files, .json motion files, and .mp3 audio files.

**Create a New Project** **Ctrl+N** to load the selected project template.

**Steps for New Project creation:**

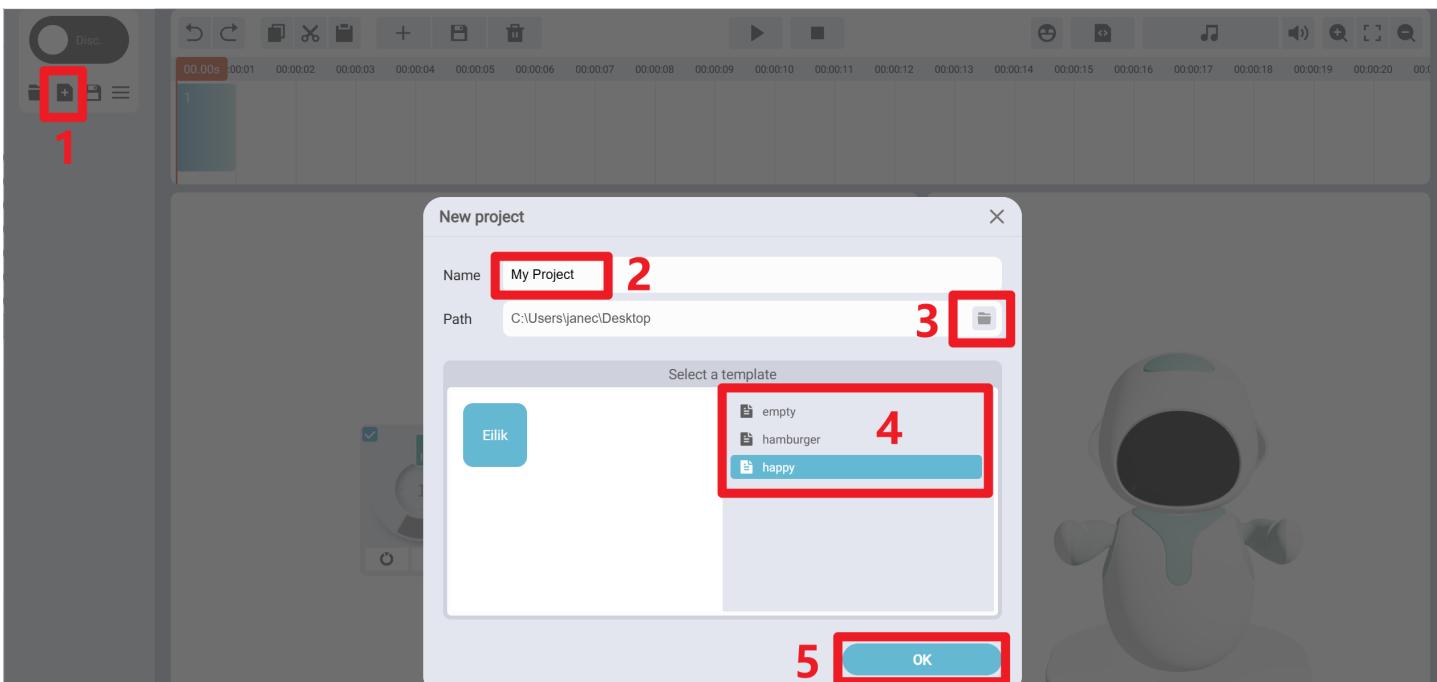
Step 1: Click on “New Project.”

Step 2: Enter the project name.

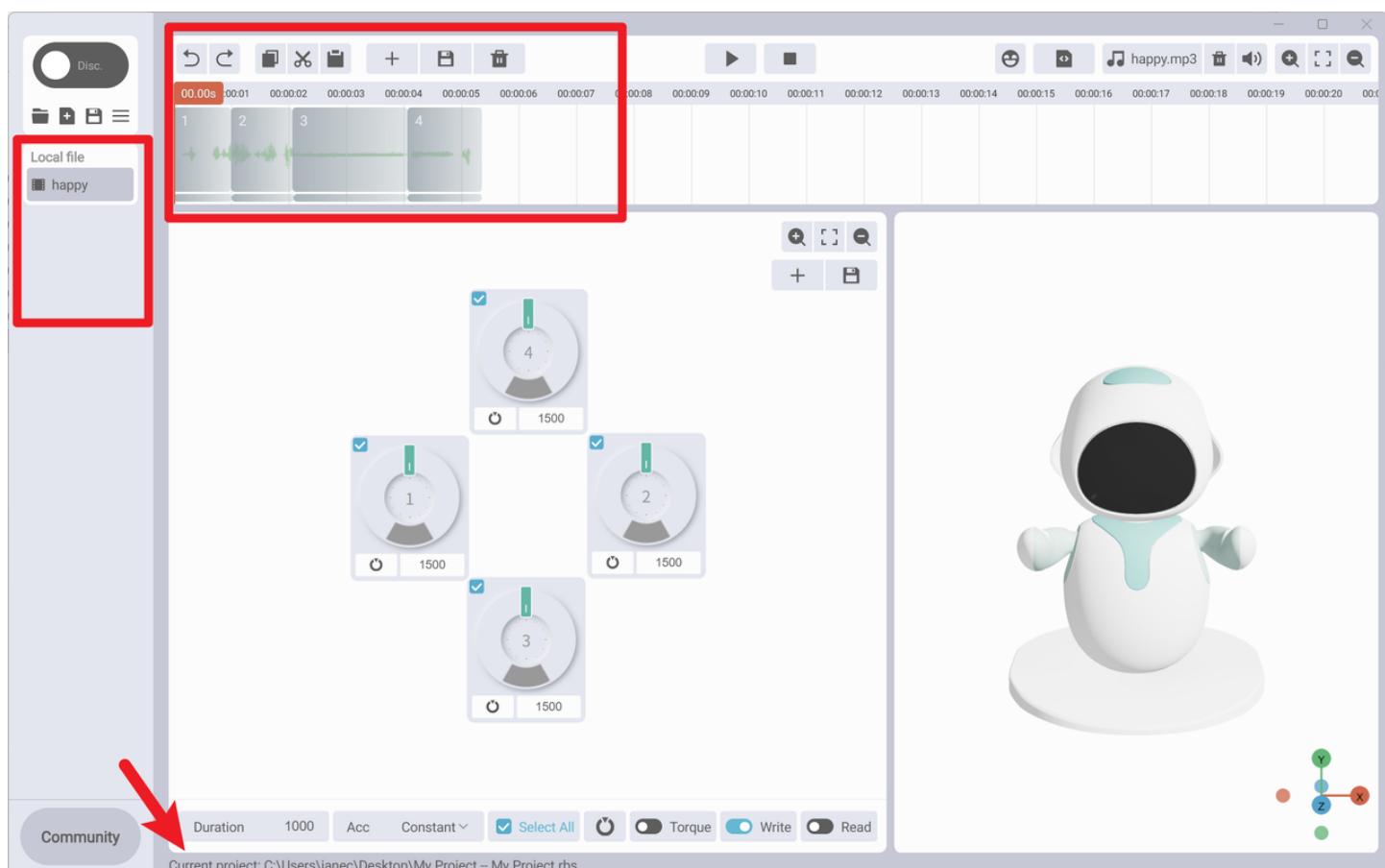
Step 3: Choose the save path. (Note: To avoid unnecessary errors, please do not modify files in the local folders.)

Step 4: Select either an empty Eilik project or an example motion file.

Step 5: Click “OK” to complete the creation.



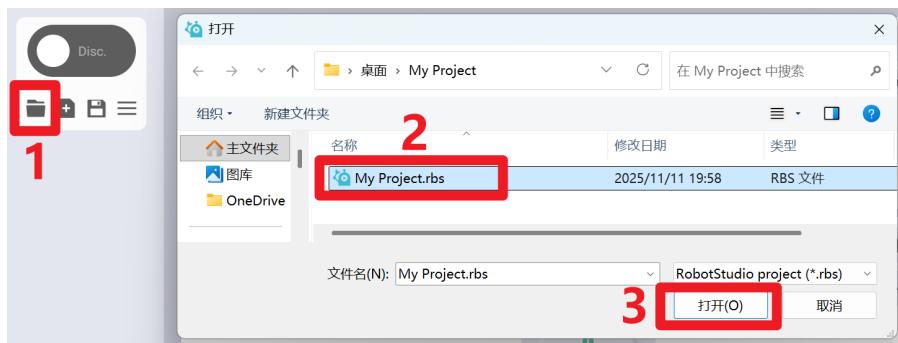
After creating or opening a project, the status bar will display the project information, the file area will show all motion files in the current project, and the timeline will display the first motion file frame along with music information, see section 5.2 File Area.



### 5.1.3 Open / Save Project

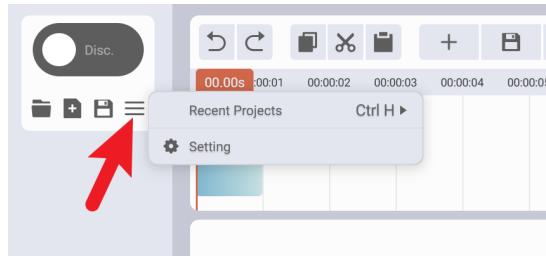
**Open Project** **Ctrl + O** to open a local .rbs layout file, automatically linking it to the associated model, motion, and audio files (if available). Only one project can be opened at a time, meaning

you can open multiple action files under the same model only.

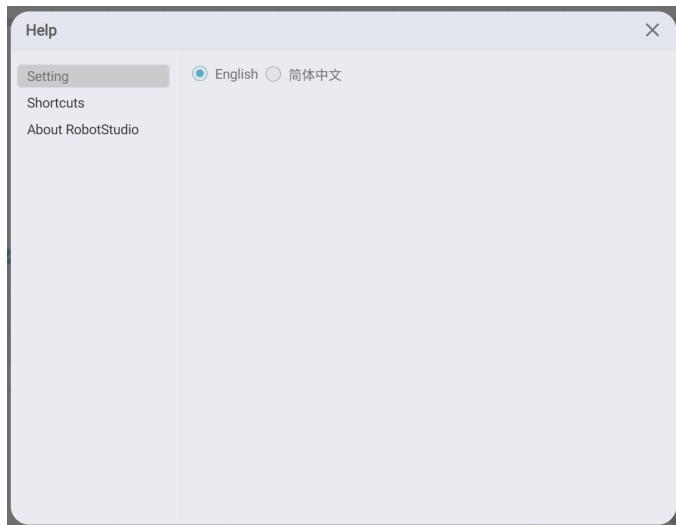


**Save Project** **Ctrl + S** to automatically save the project at regular intervals. It is recommended to manually save the current project frequently.

**Open Recent Project** **Ctrl + H** to display a list of recently opened projects. Select any file name to open that project.



#### 5.1.4 Settings



**Language** Currently supports Chinese and English only. More languages will be added in future updates.

**Shortcuts** View all available shortcut key operations in the software.

**About** Check the current software version, check for updates, visit the official website, and the software manual, and view copyright information.

## 5.2 File Area



**Motion File** used to save all current motion and animation editing parameters, such as the number of servos, motion parameters, and animation content. After creating or opening a local project, the File Area will display all action files in the current project.

**Select a Single File Left Click** to automatically load the motion frames, animation frames, and music (if available) into the timeline, allowing you to edit the file content.

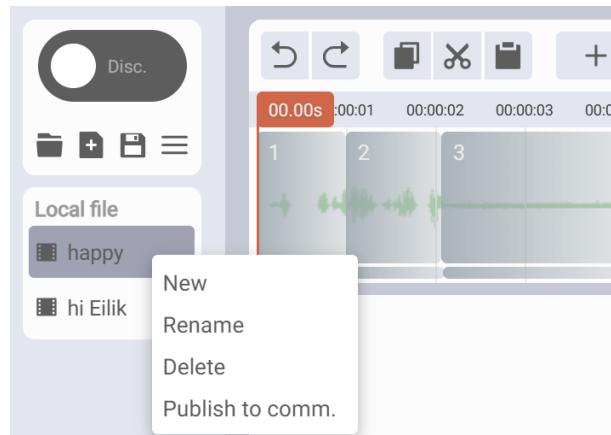


**Select Multiple Files** Batch menu operations are supported, but batch editing of file content is not.

**Select multiple non-continuous files Hold Ctrl + Left Click**

**Select multiple continuous files Hold Shift + Left Click**

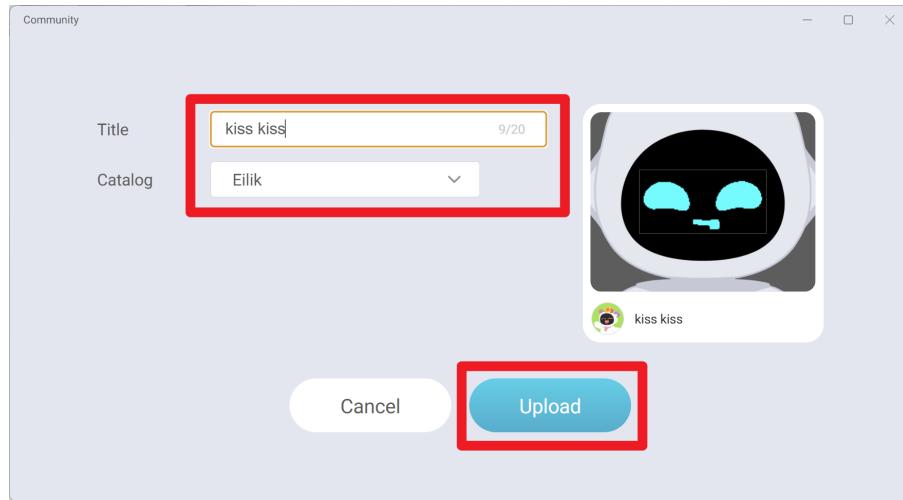
**Context Menu Right Click** includes options such as creating new action files.



**Create/Rename** Enter the motion file name and press Enter or click "OK" to confirm.

**Delete** Removes the file from the project. If it is a copied example file, the original example file will not be deleted. This action cannot be undone, so please proceed with caution.

**Publish to Community** Edited files can be published to the community. You must be logged in before publishing. (See 5.6 Community)



## 5.3 Timeline



### 5.3.1 Timeline Operations

**Timeline Display** time scale (top), motion frames (middle), animation frames (bottom), frame number (top-left of each frame), frames (blue/gray), music spectrum (green), and progress bar (red).



**Undo Frame** **Ctrl + Z**   **Redo Frame** **Shift + Ctrl + Z**



**Global Play/Pause Space** plays/pauses the motions, animations, and music on the timeline from the current progress bar position. Motion parameters/animation content, simulation models, and connected devices (if available) will update accordingly. While playing, other areas cannot be edited. Playback is for previewing purposes only and will not download to connected devices. For single frame playback, see section 5.3.2 Frame Operations.

**Global Stop Esc** Resets the progress bar to the start and stops playback.



**Switch Between Animation & Motion Editing** Motion editing is displayed by default. You can switch to animation editing, and the timeline and editing area will update accordingly.



**Zoom Timeline Scale Mouse Wheel** Zoom in/out on the timeline unit length for precise motion/animation design or batch frame adjustments.



**Move Timeline Scale Left / Middle Click + Drag** move the time scale left or right when reviewing all frames or complete music.



**Change Progress Bar Position** **Left Click** Adjust the current playback progress to preview the simulation effect. During playback, the progress cannot be changed.



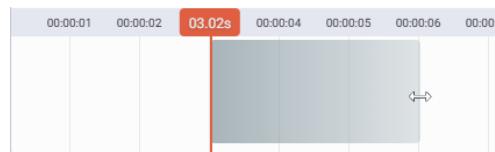
### 5.3.2 Frame Operations

**Create New Frame** The process for creating motion and animation frames is reversed; see section [5.4.1.3 create motion frames](#) and [5.4.2.1 create animation frames](#).

**Click “New Frame”** create a frame starting from the red progress bar position on the timeline; by default, the first frame starts at time position 0. A frame contains the start and duration of the timeline, along with the motion parameters or animation content in the editing area.



**Double-Click & Drag Left Mouse** On the timeline, double-click to set the start point. Keep the button pressed on the second click and drag left or right to set the frame duration. Release the mouse to finish creating the frame. Dragging right increases the frame’s s runtime; the distance dragged represents the current frame’s duration.



**Save Frame** Saves the current motion parameters or animation content to the selected frame.

**Delete Frame** **Delete** Deletes the currently selected frame on the timeline.



**Select a Single Frame** **Right Click** The frame turns blue, and the editing area updates to show its motion parameters/animation content.

**Select Multiple Frames** Selected frames darken to indicate selection, supporting batch operations and modifications.

**Select multiple non-contiguous frames** **Ctrl + Right-Click**

**Select multiple contiguous frames** **Shift + Right-Click**



**Copy Frame** **Ctrl + C** **Cut Frame** **Ctrl + X** **Paste Frame** **Ctrl + V** You can switch between different motion files or run multiple instances of RobotStudio to batch copy frames.



**Move a Single Frame** **Right-click and drag** adjust the position of the selected frame left or right.

**Move Multiple Frames** Select multiple frames, right-click on one of them, and drag left or right to adjust the positions of all selected frames.

**Move multiple non-contiguous frames** **Ctrl + Right-Click + Drag**

**Move multiple contiguous frames** **Shift + Right-Click + Drag**

**Single Frame Playback** **Right-Double-Click** Plays the selected frame, which is useful for testing. The editing area will update motion parameters/animation content, simulation models, and connected devices (if available).

**Modify Frame Duration** **Double-Click & Drag** **Right Mouse** Adjusts the playback time of the selected frame. Keep the button pressed on the second click and drag left/right. For more methods, see 5.4.1.2 Setting Target Parameters.

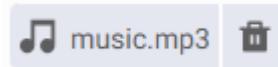


### 5.3.3 Music Operations

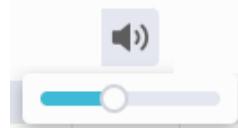
**Select Music** Click “Select Music” to choose a local mp3 file. Once loaded, the music name and spectrum will be displayed. Users can design corresponding motions or animations for the robot based on specific rhythms.



**Remove Music** Remove the music if you don’t want the spectrum displayed.



**Adjust Volume** Adjust the music volume (separate from system volume).



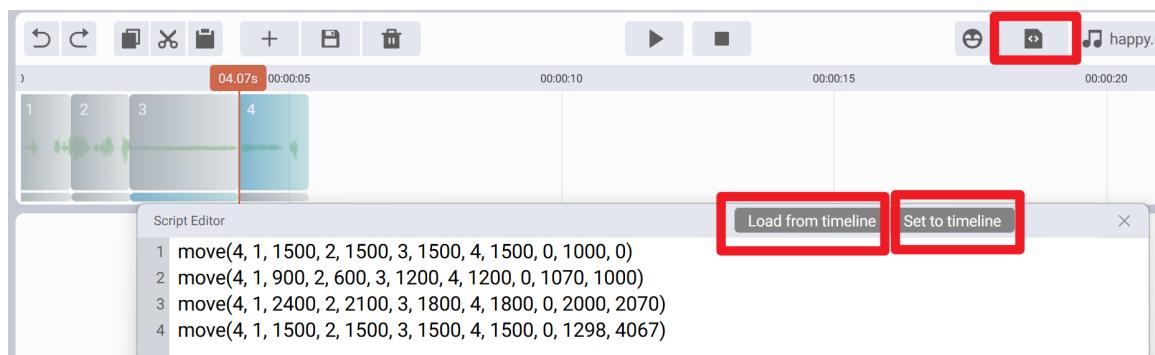
**Play Audio at Current Timeline Position** Left-Click on the timeline to preview audio at the current timeline position.

**Play Audio from Frame Start** Right-Double-Click on a specific frame to preview the audio at the starting time scale of that frame.



### 5.3.4 Script Editing

**Script Editing** Allows precise design of motions or batch adjustment of motion frames. Each line of the script, such as "move," corresponds to each motion frame on the timeline. When loaded from the timeline, the frames are arranged in order by default.



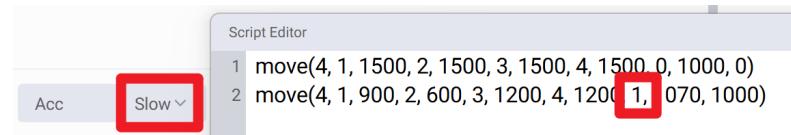
**Load from Timeline** Synchronize the motion frames from the timeline to the script. This action cannot be undone, so please proceed with caution.

**Set to Timeline** Synchronize the edited motion frame script back to the timeline. If applied incorrectly, you can use “Undo Frame” to restore.

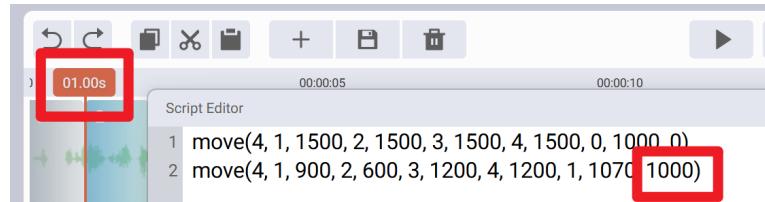
**Script Format** "move(number of servo, id, target position for id, ..., time base target acc, time-base target moving time, motion frame sending time)" must strictly follow this format to avoid errors when setting to the timeline.

**Motion Control** Currently supports time base position control mode only.

**Time Base Target ACC** Different memory tables correspond to different acceleration parameter values. In this software, the numeric values of 0, 5, 3, and 1 represent four acceleration levels: constant speed, fast, medium, and slow.

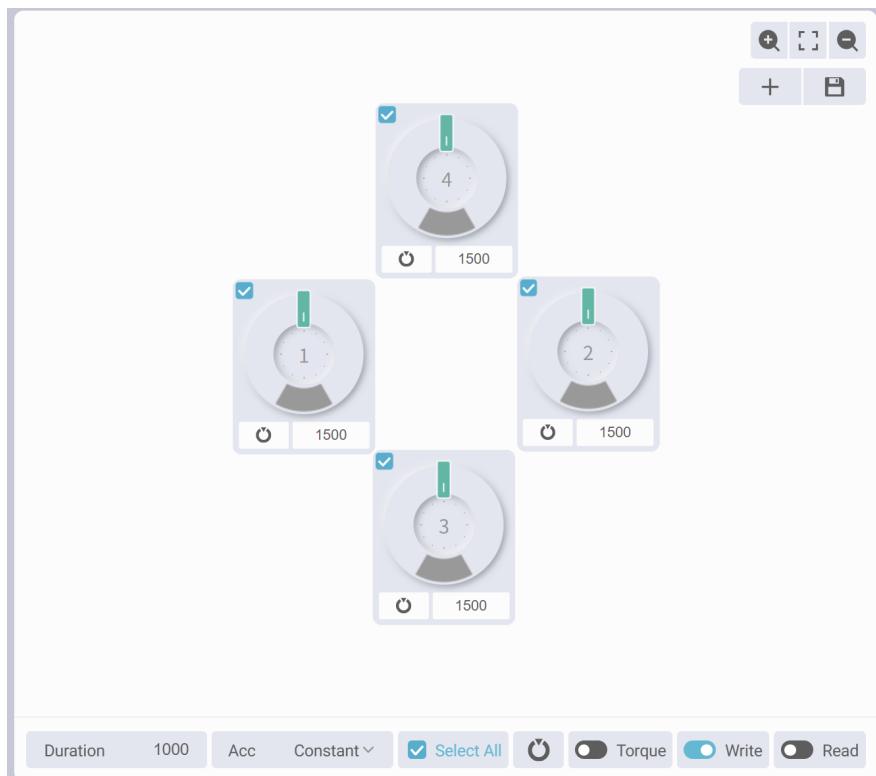


**Motion Frame Sending Time** The sending time point of that frame determines its corresponding frame order on the timeline. The script line order is independent of the timeline frame order.



## 5.4 Editing Area

### 5.4.1 Motion Editing



The motion editing area is displayed by default. Eilik has four servos, corresponding to four dials: ID1 for the right hand, ID2 for the left hand, ID3 for the body, and ID4 for the head.

#### 5.4.1.1 Servo Dials

**Checkbox** Select the servo for batch control.

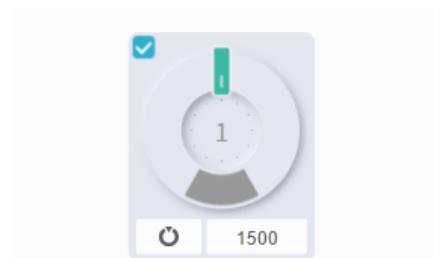
**Slider** Drag to set the target position.

**Circle** Light/dark areas indicate operable and restricted zones, i.e., position limits.

**Number inside the circle** Represents the servo ID.

**Center Button** Quickly returns the servo to the center position.

**Number Box** Precisely set the target position; can also be used to read the current position of the connected device.



#### 5.4.1.2 Methods to Set Target Parameters

**Note:** After setting, click “New Frame” or “Save Frame”, otherwise changes will not be saved.

**Set Target Position:** Refers to the target positions of each servo in a frame.

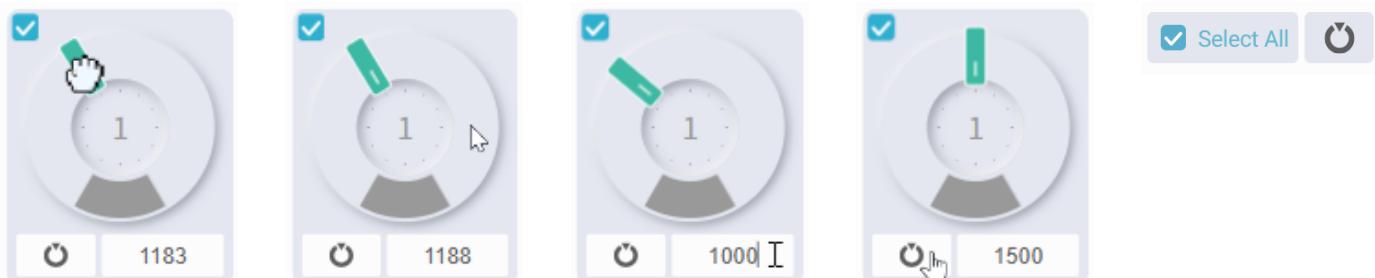
**Drag Slider** On the circle, hold the slider with the left mouse button and drag left or right to quickly set the target position.

**Click Ring** Click on either side of the slider on the circle to increase or decrease the target position by 1.

**Long Press Circle:** Long press on either side of the slider on the circle to continuously increase or decrease the target position by 1.

**Keyboard Input** Click the number box, enter the value, and press Enter to confirm.

**Return to Center** Click the dial’s “Center” button to set that servo to its midpoint ( $150^\circ$ , i.e., 1500). Click the batch “Center” button to set all selected servos to the midpoint.



**Set Target Moving Time:** Refers to the target moving time for all servos within a specific frame.

**Keyboard Input** Click the number box, enter the value, and press Enter to confirm.

**Drag** Hold the mouse over the number box and drag left or right to continuously increase or decrease the number by 1.

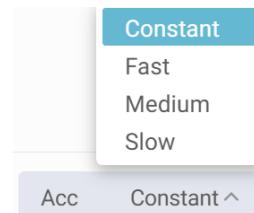
**Increment/Decrement** Click the triangular buttons pointing “Left (<)” and “Right (>)” on either side of the field to increase or decrease the value by 1.



**Double-Click & Drag Right Mouse** Right-click a frame on the timeline, on the second press hold and drag left/right to adjust.



**Set Target Acceleration** Refers to the target acceleration of all servos in a frame. The four acceleration levels—constant speed, fast, medium, and slow—correspond to the values 0, 5, 3, and 1 in script editing.



**Create/Save Frame** After editing the target parameters, you can quickly create and save motion frames from the top right corner of the editing area, which is equivalent to the new/save frame buttons on the timeline.



#### 5.4.1.3 Create Motion Frame

By default, the first frame starts at time position 0 on the timeline, with all target parameters set to default values.

**Difference: When creating a motion frame, you set the target parameters first, then create the frame; when creating an animation frame, you create the frame first, then edit the canvas content!**

**Method 1: Directly drag to set the moving time.** (Recommend, for quickly creating motions based on music waveforms.)

Step 1: Set the target position and acceleration.

Step 2: On the timeline, choose the frame start position, double-click the left mouse button, on the second press hold and drag left/right to set run time, release the mouse to finish creating the frame.

**Method 2: Input the moving time value.** (Suitable for fixed frame moving times.)

**Step 1:** Set the target position, moving time, and acceleration.

**Step 2:** Select the starting position for the frame.

**Step 3:** Click “Create Frame.”



#### 5.4.1.4 Edit Motion Frames

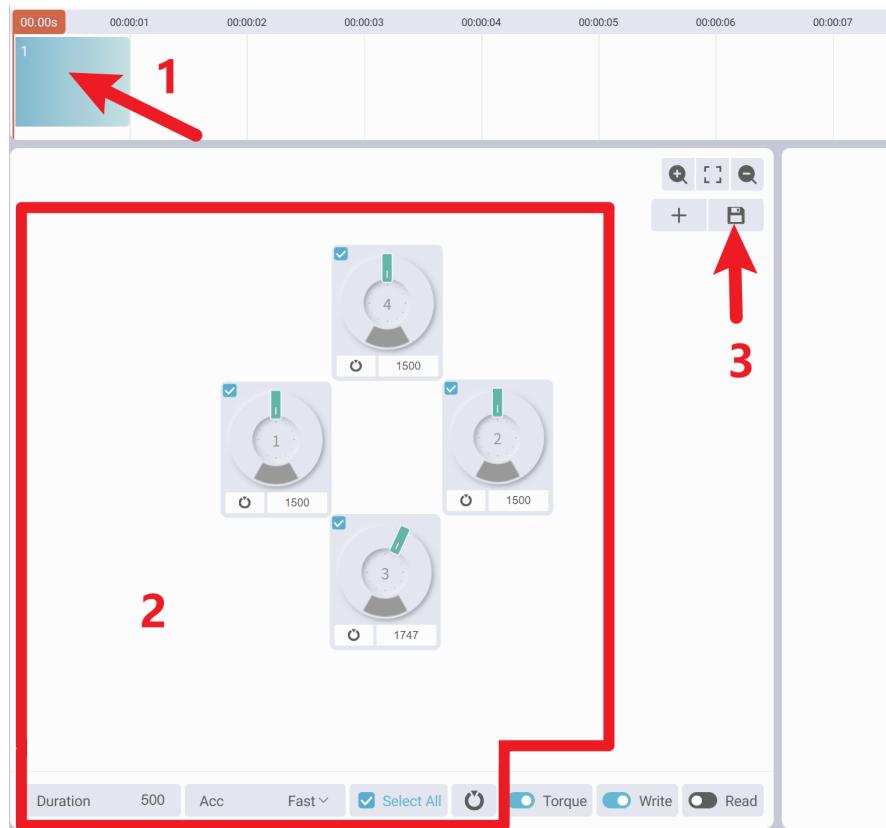
**Method 1: Modify multiple parameters (position, moving time, acceleration)**

Step 1: Select the frame.

Step 2: Adjust target position, moving time, and acceleration.

Step 3: Click “Save Frame” .

Note: Manual saving is required; otherwise, changes will not be applied.



### Method 2: Modify only the moving time.

Right-double-click a motion frame on the timeline, on the second press hold and drag left/right to adjust run time. Release the mouse to complete modification and it will **save automatically**.



#### 5.4.1.5 Create Motions Using the Simulation Model

**Step 1:** Create the motion file.

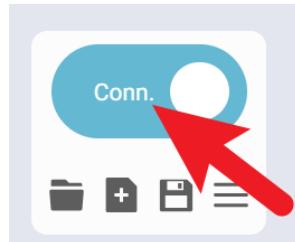
**Step 2:** Use the simulation effects in the model area to create motions. Set the target parameters, create a frame, set the next target parameters, and create the next frame. Continue this process until completed.

**Step 3:** Play globally to preview the simulation model's movement effects.



#### 5.4.1.6 Control Real Servos

After connecting the device:



**Select Servos** Click the checkbox include the servo in batch operations; you can select individually, all, or none..

**Torque ON/OFF** Turn OFF torque to freely move joints. Commonly used for quickly posing dance moves, then reading angles to create new frames (see 5.4.1.7 Method 2).

**Write angles** Turn ON “Write” to control actual servo motion. When setting target positions, connected devices sync in real time (see 5.4.1.7 Method 1).

**Readback angles** Turn ON “Readback” to get the actual servo position, visible in real time in the servo dial numeric boxes.



#### 5.4.1.7 Creating Motions Using a Real Robot

**Step 1:** Create the motion file and connect to the robot.

**Step 2:** Create motions through real-time writing or using physical poses for readback.

##### Method 1: Real-time writing

Select the servos to edit, turn ON torque, and turn ON writing. Set target parameters for each servo, create a frame, set the next target parameters for each servo, then create the next frame. Repeat until complete.



##### Method 2: Manual posing with readback

Select the servos to edit, turn OFF torque, and turn ON readback. Pose the real robot, create a frame, pose the next action, then create the next frame. Repeat until complete.



**Step 3:** Play globally to preview the motion effects of both the simulation model and the actual robot.

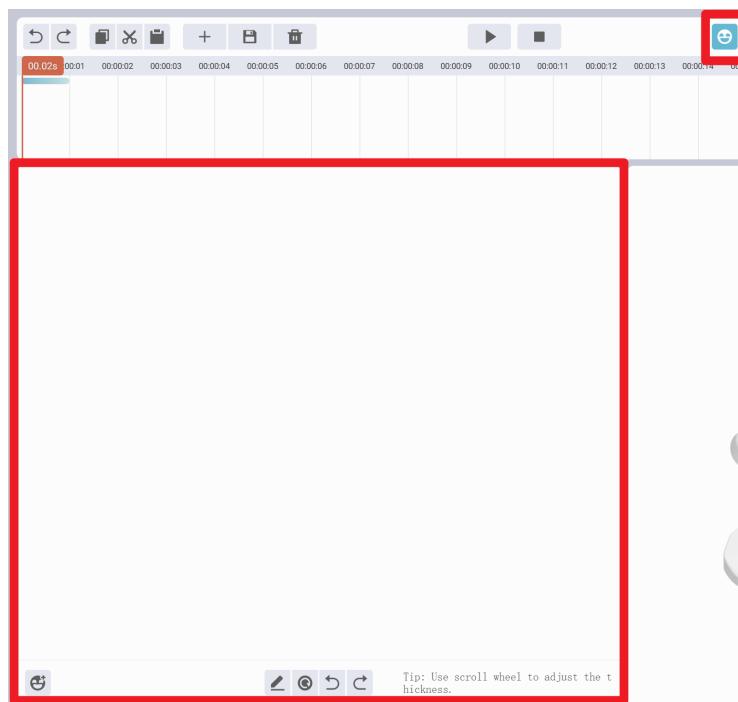
#### 5.4.1.8 Canvas Operations

**Move Canvas** Right/middle-click and drag to reposition servo dials.

**Zoom Canvas** Mouse Wheel to resize servo dials.



#### 5.4.2 Animation Editing



When switching to the Animation Editing Area, the canvas content will appear only after creating or selecting an animation frame.

##### 5.4.2.1 Create Animation Frame

**Difference: When creating an animation frame, you create the frame first, then edit the canvas content; whereas for a motion frame, you set the target parameters first, then create the frame!**

###### Create Animation Frame

**Method 1: Directly drag to set the moving time.** (Suitable for quickly creating animations based on music waveforms.)

**Step 1:** Select the starting position for the frame on the timeline, double-click the left mouse button, hold down the second click without releasing, and drag left/right to set moving time. Release to finish creating.

**Step 2:** Draw the animation content.

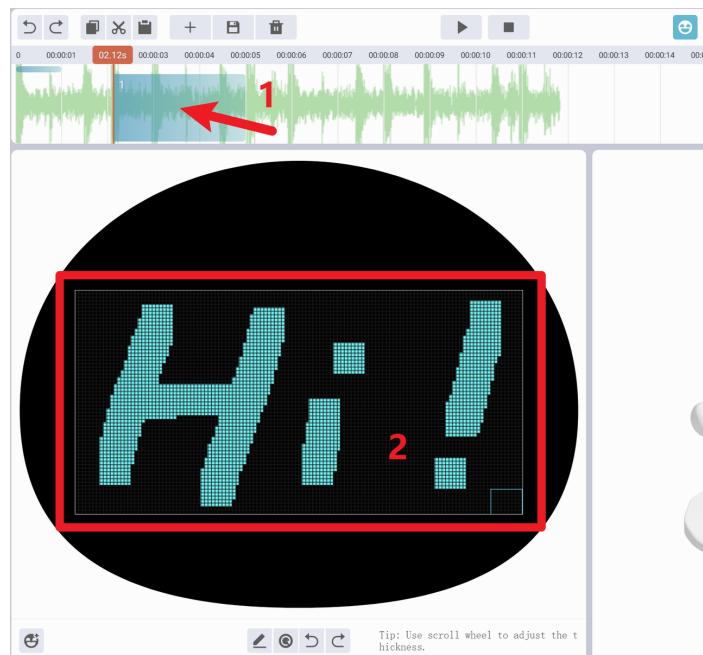
**Method 2: Input the moving time value.** (Suitable for fixed frame running times.)

In the motion editing area, set the moving time. (If you need to change the moving time, return to the motion page to set it again.)

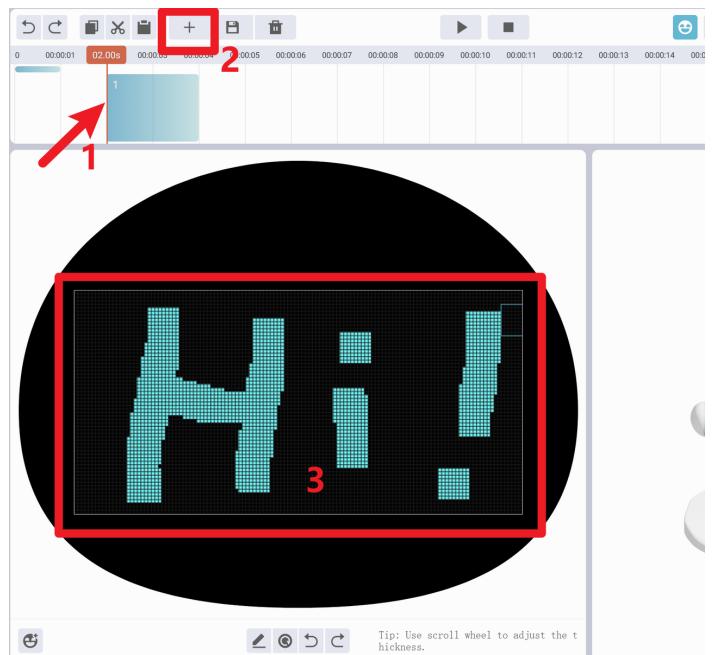
**Step 1:** Select the starting position for the frame.

**Step 2:** Click “Create Frame.”

**Step 3:** Draw the animation content.



方法一



方法二

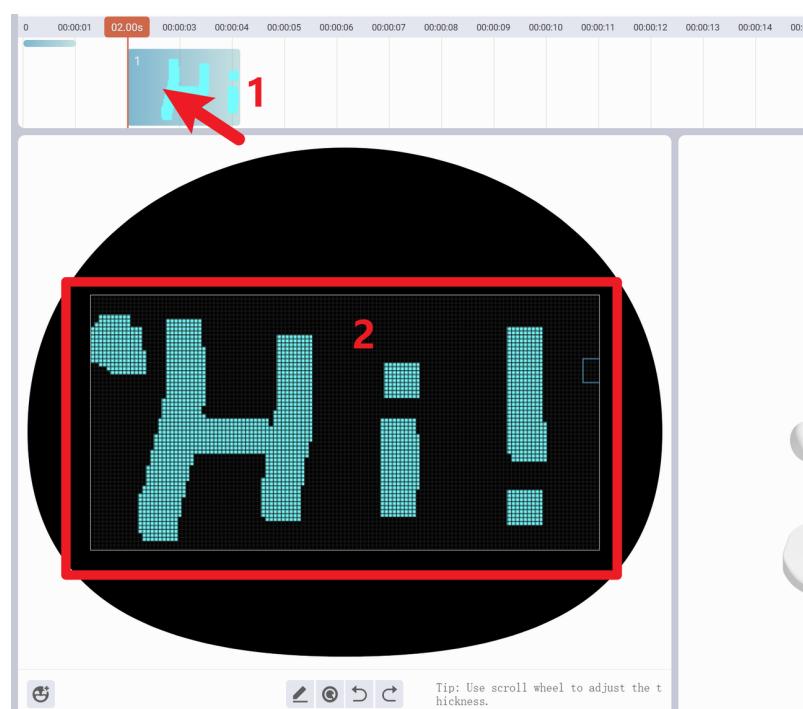
#### 5.4.2.2 Modify Animation Frame

**Method 1: Modify canvas content.**

**Step 1:** Select the frame.

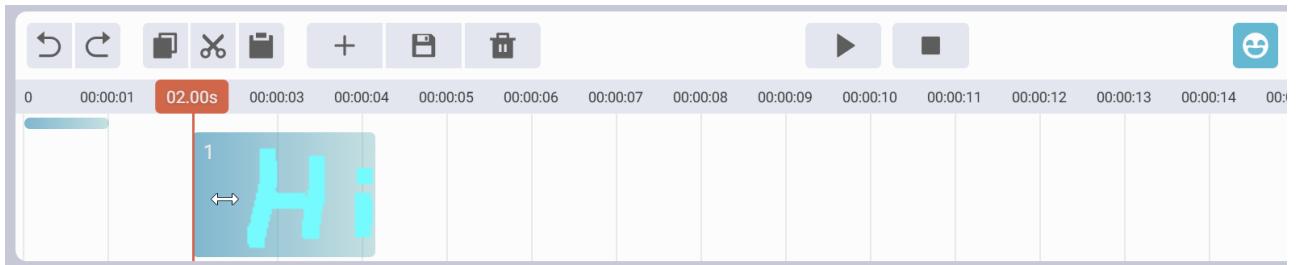
**Step 2:** Edit the canvas content.

Note: This version supports auto-saving, no need to manually save.



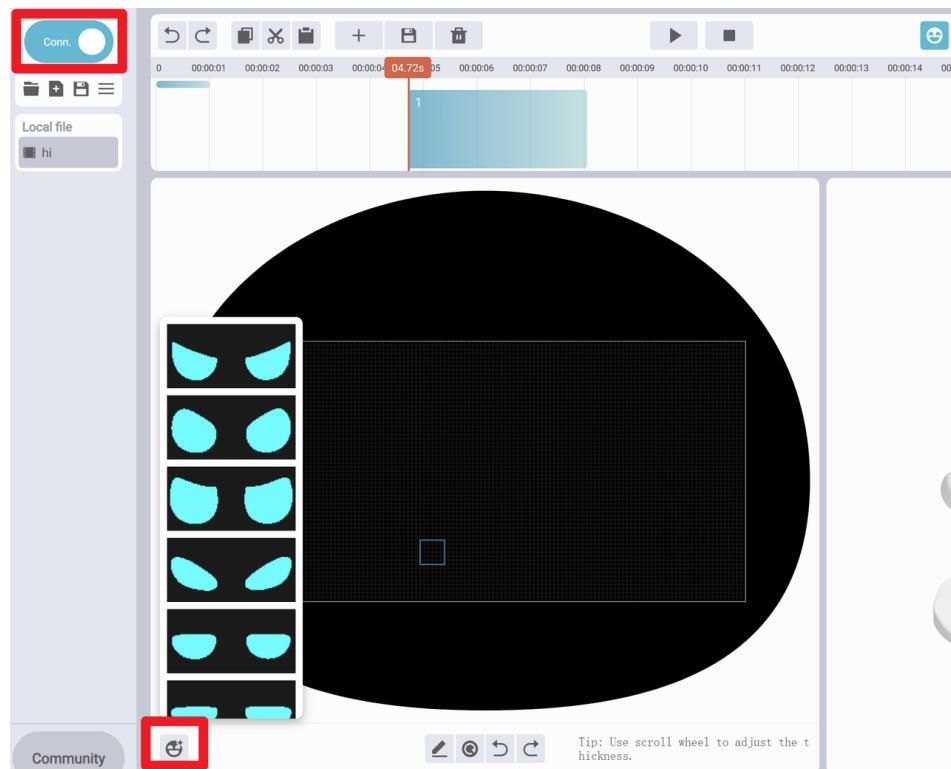
## Method 2: Modify the moving time.

Right double-click an animation frame on the timeline, keep the second click pressed, drag left/right to adjust runtime, then release. Changes are **auto-saved**.



### 5.4.2.3 Drawing Animation Method

**Example Library** After connecting the device, you can choose your favorite expressions from the example library. More examples will be introduced later.



**Canvas** Draw custom expressions directly.

**Switch Tools** Right-click in the canvas area to switch between brush/eraser.

**Draw/erase** Left-click & drag to draw or erase in the canvas area.

**Adjust Tool Thickness** Mouse Wheel scroll up/down in the canvas area to adjust the thickness of the brush/eraser.

**Clear** Clear canvas content.

**Undo** Ctrl + Z

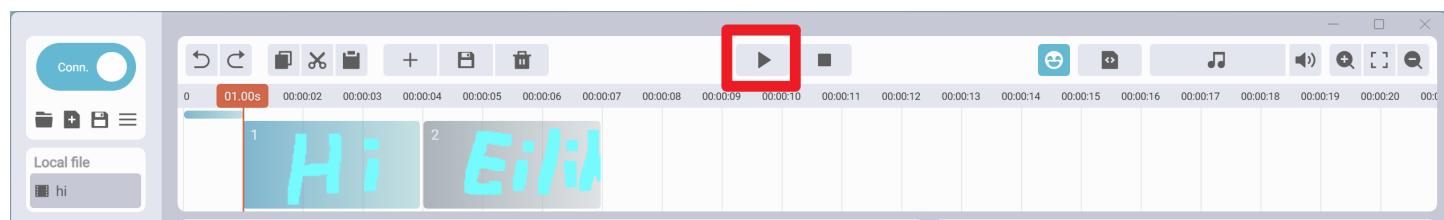
**Redo** Ctrl + Shift + Z

### 5.4.2.4 Creating Animations Using a Real Robot

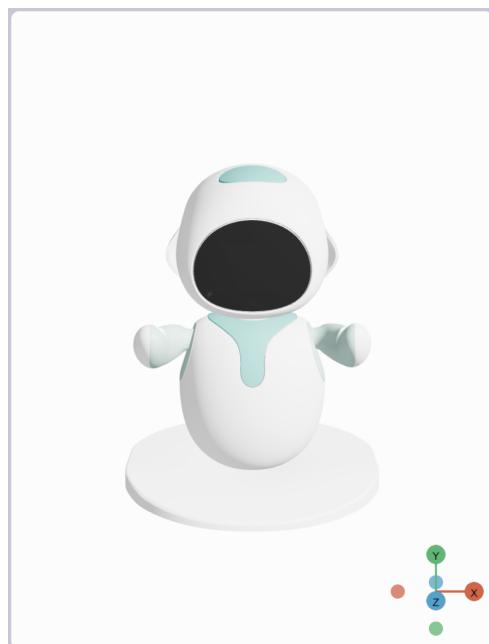
**Step 1:** Create the motion file and connect to the robot.

**Step 2:** Create animations using the simulation effects in the model area. Create frames, select or draw animations from the example library, then create the next frame, and so on until completed.

**Step 3:** Play globally to preview the movement effects of both the simulation model and the actual robot.



## 5.5 Model Area



**Zoom Model** **Mouse Wheel** to scroll up/ down in the model area, which will zoom the model (adjusts camera position).

**Rotate Model** **Left-click & drag or drag XYZ** in the model area, holding the left mouse button while dragging to change the viewing angle.



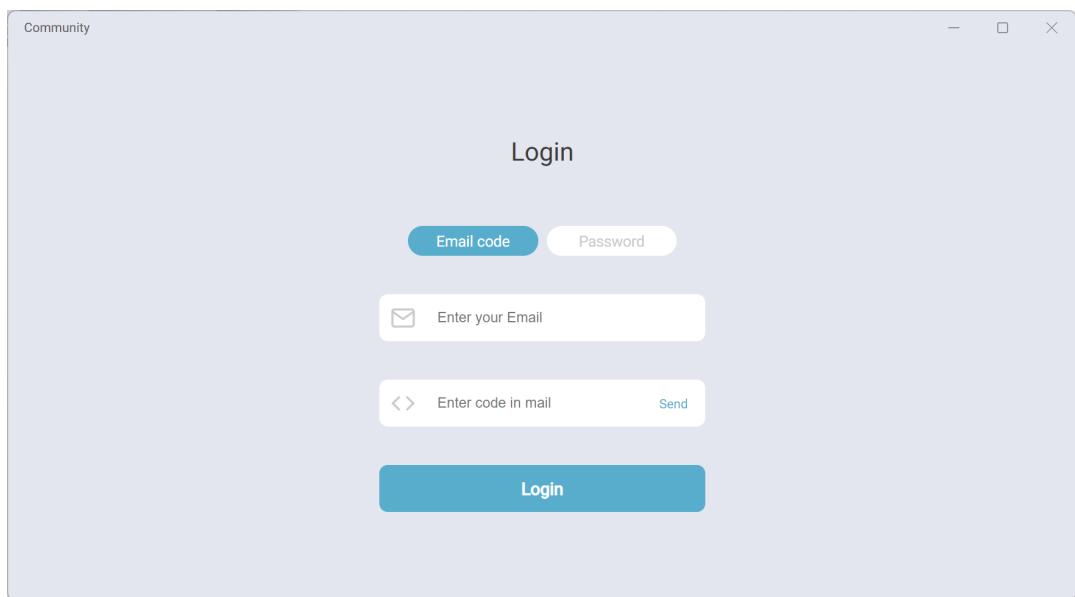
## 5.6 Community



Tip: A network connection is required to use the community features. You must log in to your account to use community functions.

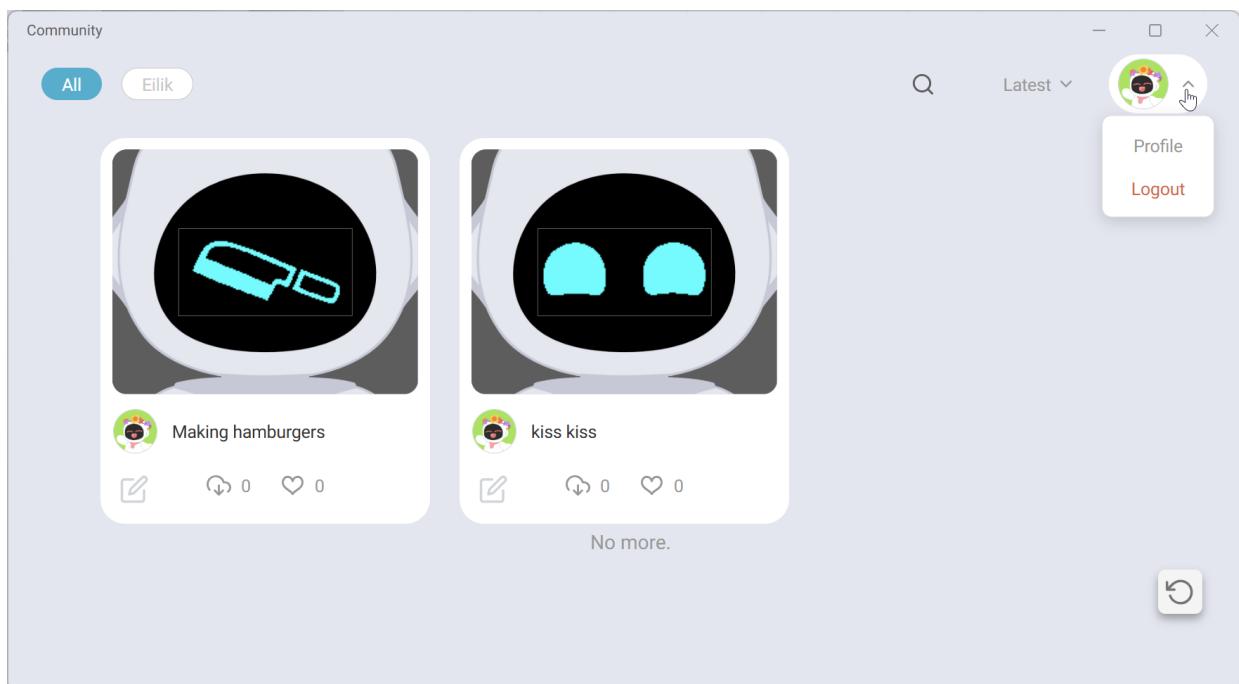
### 5.6.1 Account Login

Log in using your email and verification code/email password.

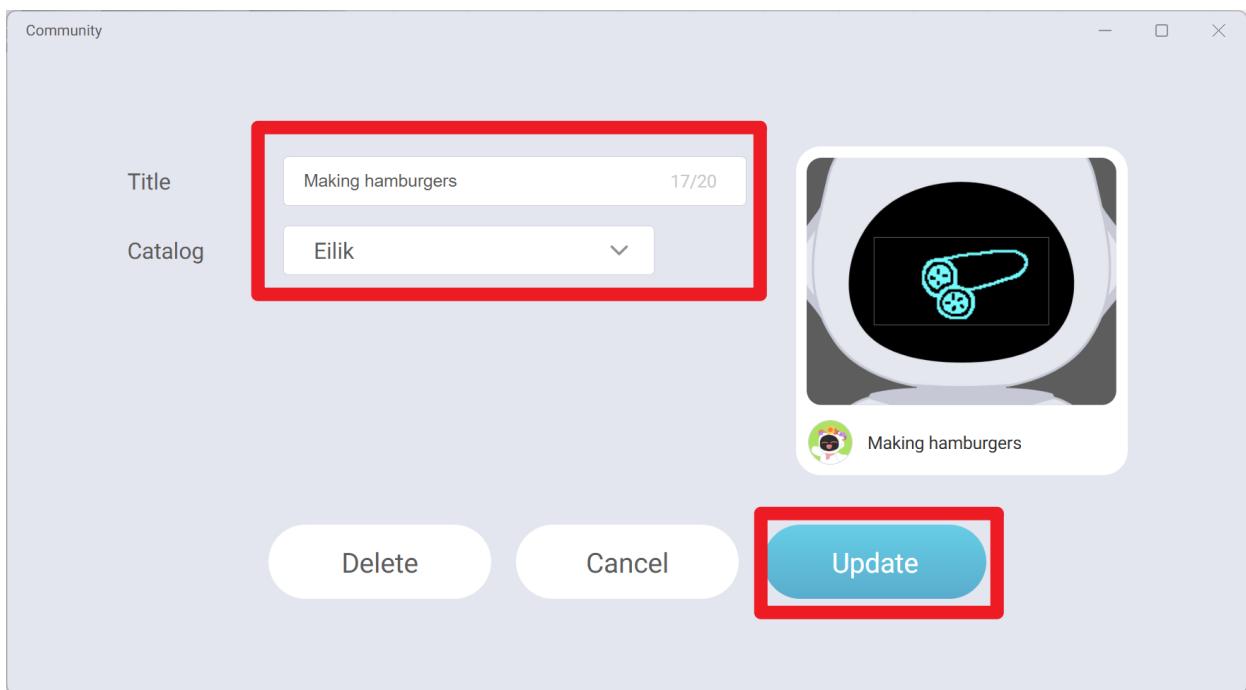


### 5.6.2 Community Homepage

Displays all published works, supports likes. User's own works can be edited (see 5.2 File Area). Personal center allows further viewing (see 5.6.3).



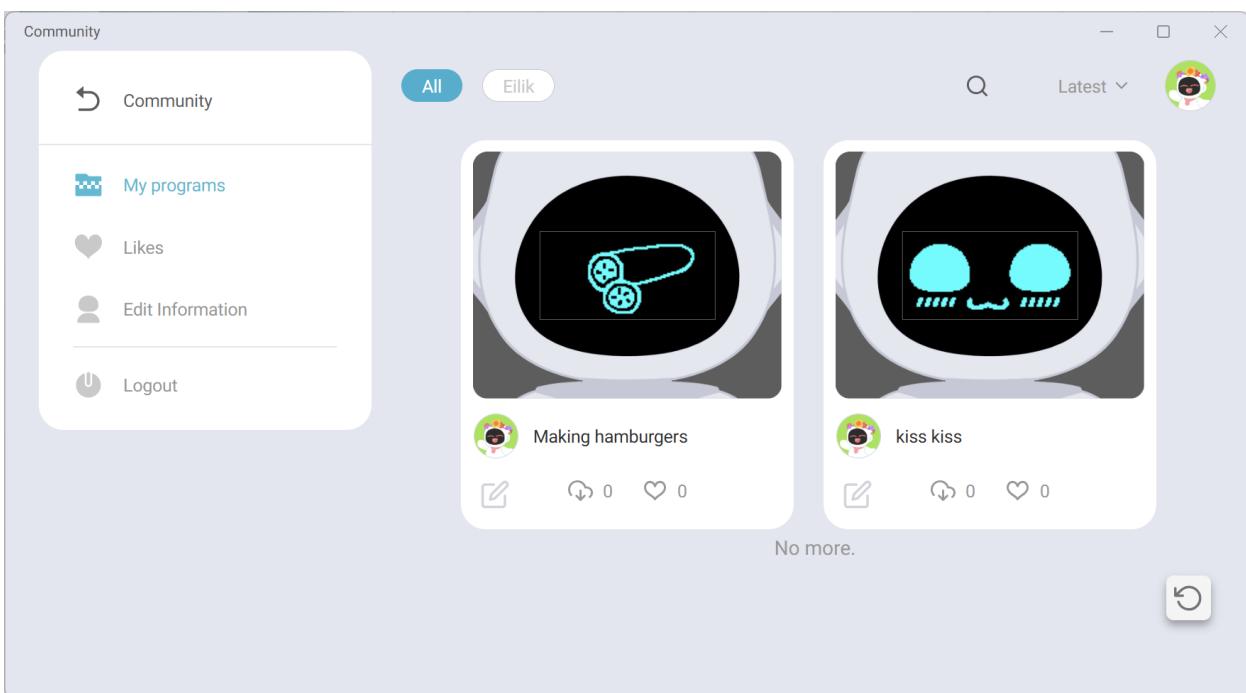
**Edit** Modify title, category, or delete. After editing, navigate to personal center.



**Download to Device** Currently not supported by Eilik.

### 5.6.3 Personal Center

View your published works, liked content, and edit personal info.



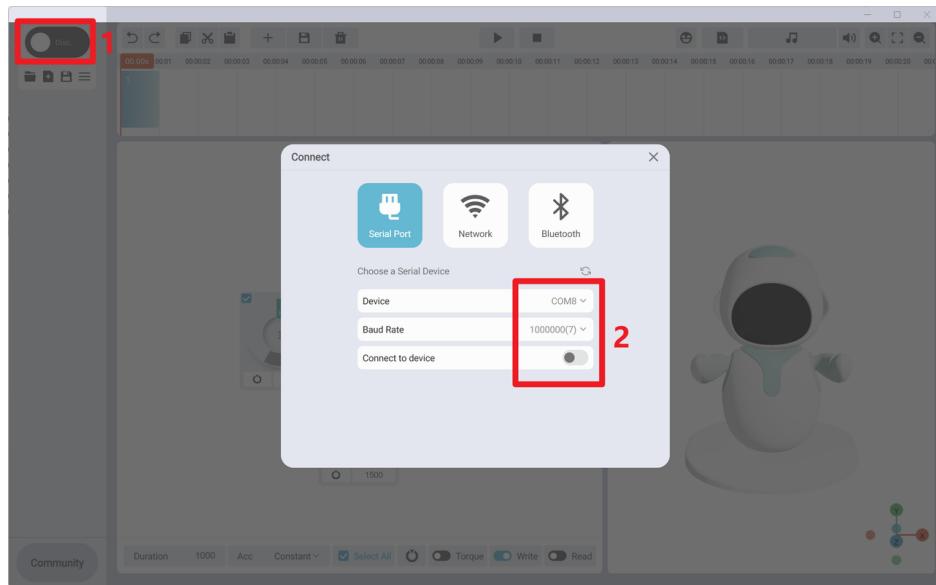
## 5.7 Status Bar

Displays the current project, current connection, and error messages.

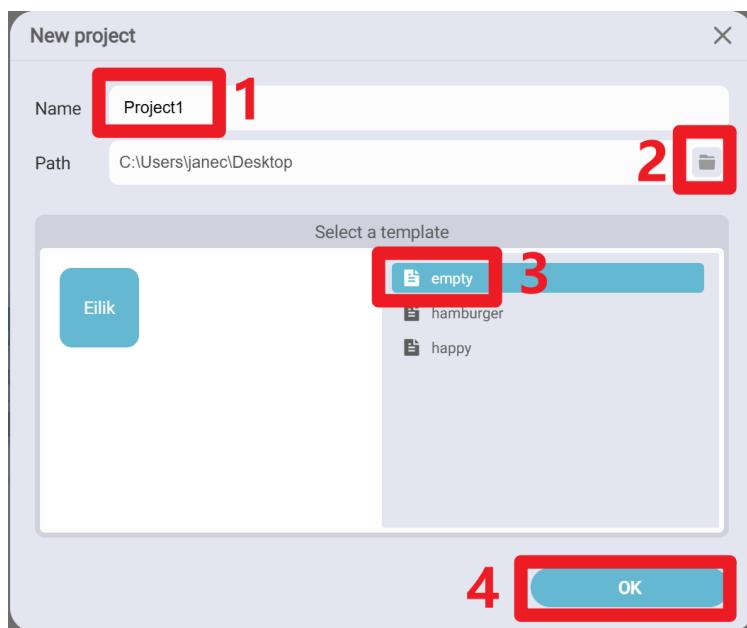
Current project: C:\Users\janec\Desktop\My Project\1 -- 1.rbs | Current connection: COM8

## 6. Practical Example

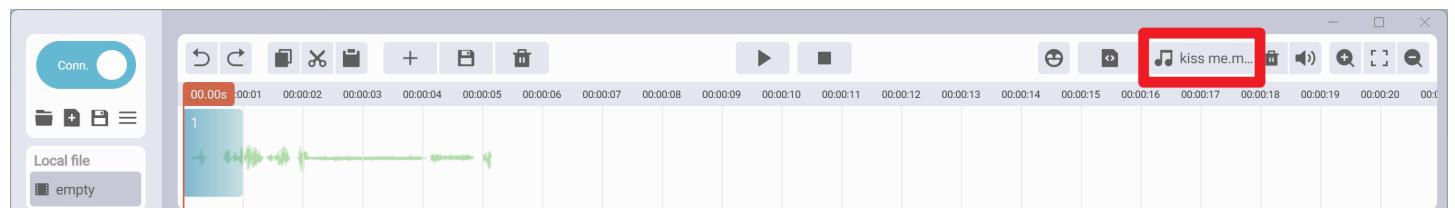
**Step 1:** Connect the device. Ensure Eilik is updated to RFV 13.0 or above, and use a USB cable to connect Eilik to the PC (see 5.1.1).



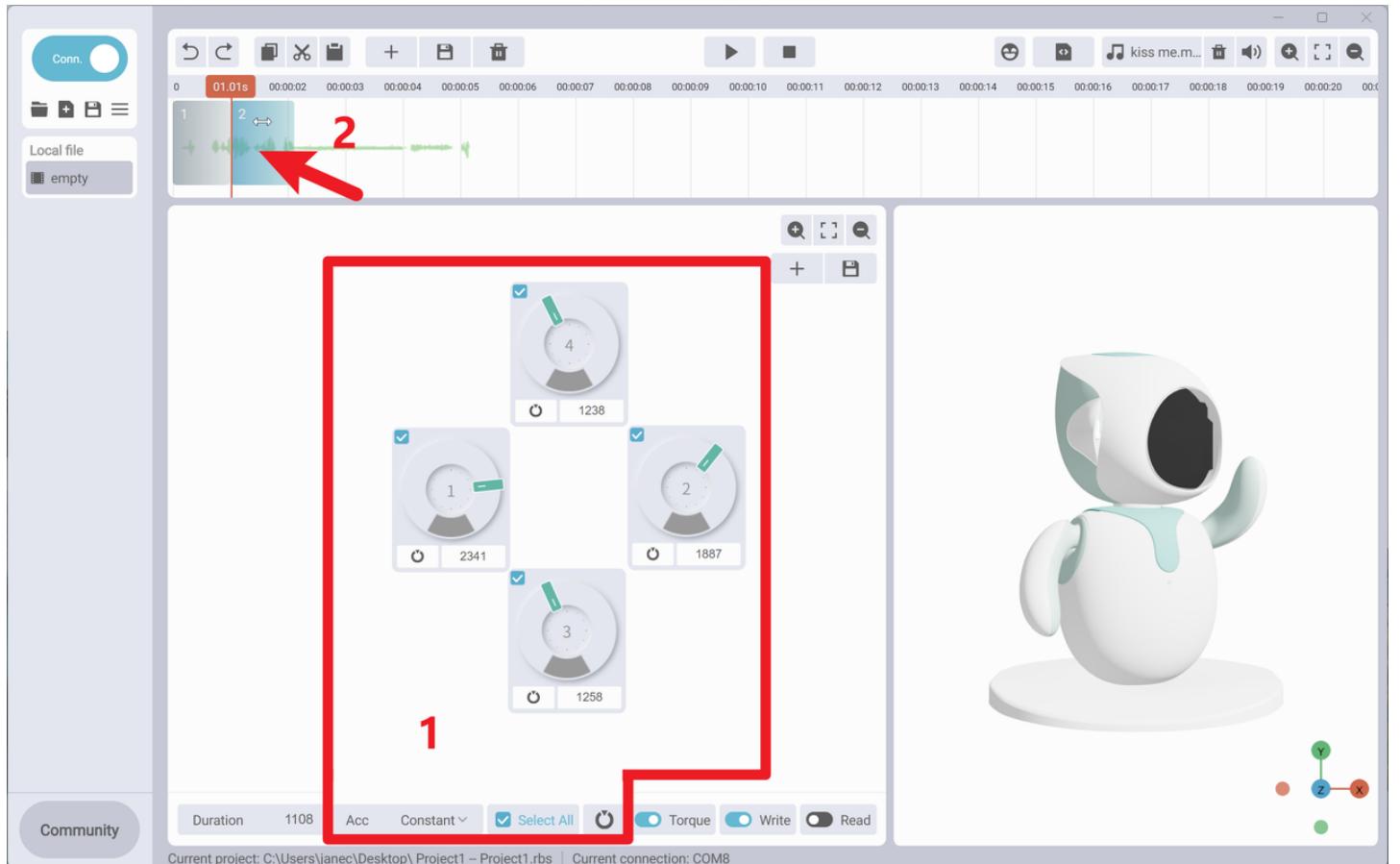
**Step 2:** Create a new project. Select a blank file (see 5.1.2).



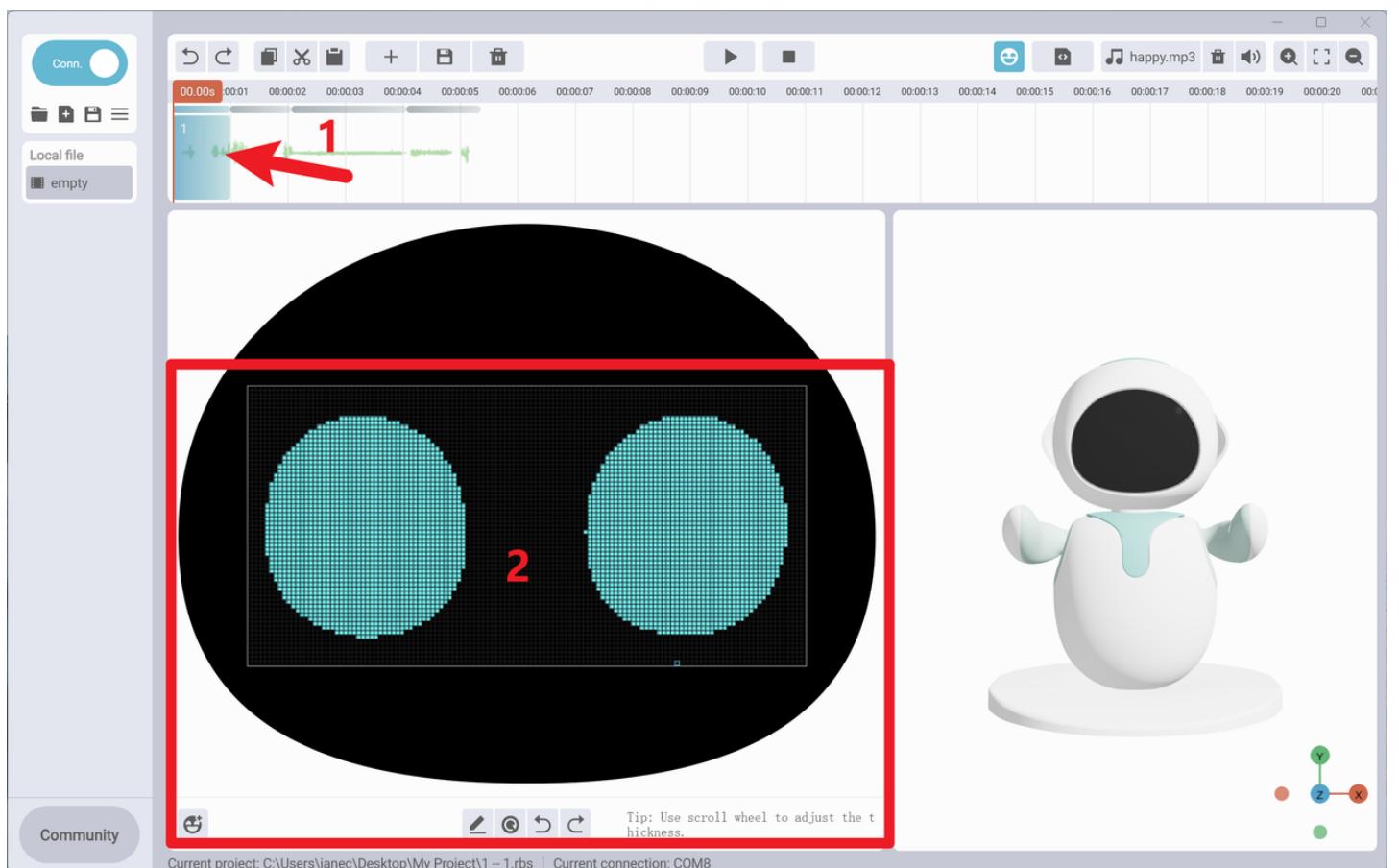
**Step 3:** Select music (see 5.3.3).



**Step 4:** Create motions. Set target parameters, then double-click to create new frames, and continue until completed (see 5.4.1.3 and 5.4.1.4).



**Step 5:** Create animations. Double-click to create new frames, draw expression content, and continue until completed (see 5.4.2.1 and 5.4.2.2).



**Step 6:** Play to preview (see 5.3.1).



**Step 7:** Publish to the community. You need to log in to your account first (see 5.6.1). After uploading, you can view it in the community (see 5.6.2).

**1**: A screenshot of the RobotStudio interface showing a context menu for a step in the timeline. The 'Publish to comm.' option is highlighted with a red arrow.

**2**: A screenshot of the 'Community' login page. It shows fields for 'Email code' and 'Password', and a 'Login' button.

**3**: A screenshot of the 'Community' upload dialog. It shows fields for 'Title' ('kiss kiss') and 'Catalog' ('Eilik'), and a large red box around the 'Upload' button.

**4**: A screenshot of the 'Community' feed. It shows two posts: one by 'Eilik' titled 'Making hamburgers' and another by the user 'kiss kiss'. Both posts have zero likes and zero comments.

Congratulations! You've mastered the essentials of RobotStudio — now share your creations with designers worldwide!