



# Voice Controlled Robot

# Introduction




A Robot is an automatic machine designed to carry out a task. The Voice controlled robot helps to control the robot through voice commands sent by the user. The integration of STEMBOT and google teachable platform is done to capture and read the voice commands. The STEMBOT is trained by the voice commands to move in forward, backward, left, and right directions. After receiving the commands, the STEMBOT then operates the motors.

## Step 1: - Train the robot using audio project

≡ Teachable Machine

### New Project

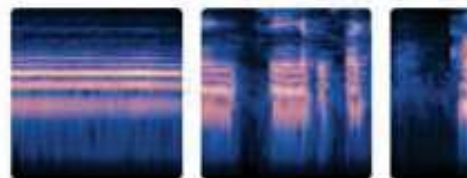
 Open an existing project from Drive.

 Open an existing project from a file.



#### Image Project

Teach based on images, from files or your webcam.



#### Audio Project

Teach based on one-second-long sounds, from files or your microphone.

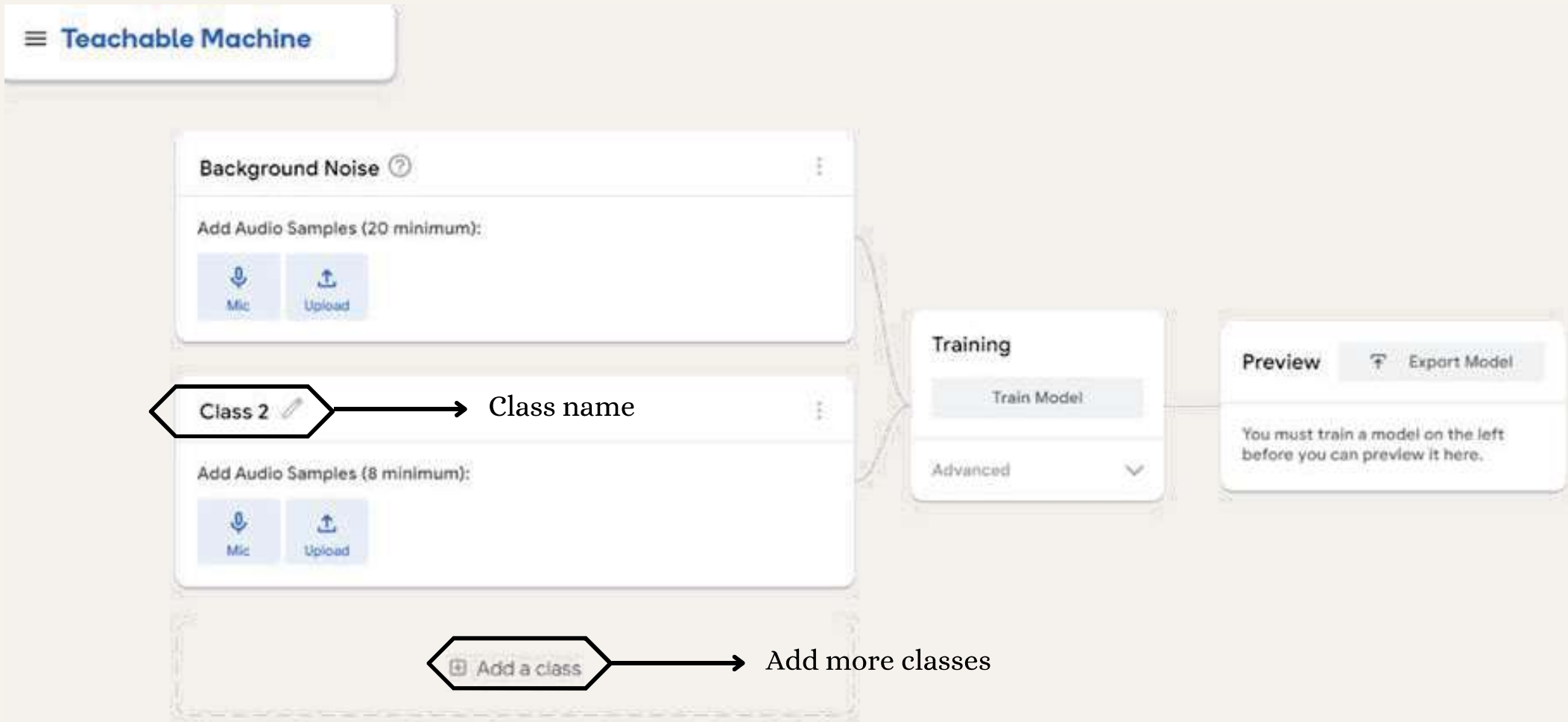


#### Pose Project

Teach based on images, from files or your webcam.

continue to next....

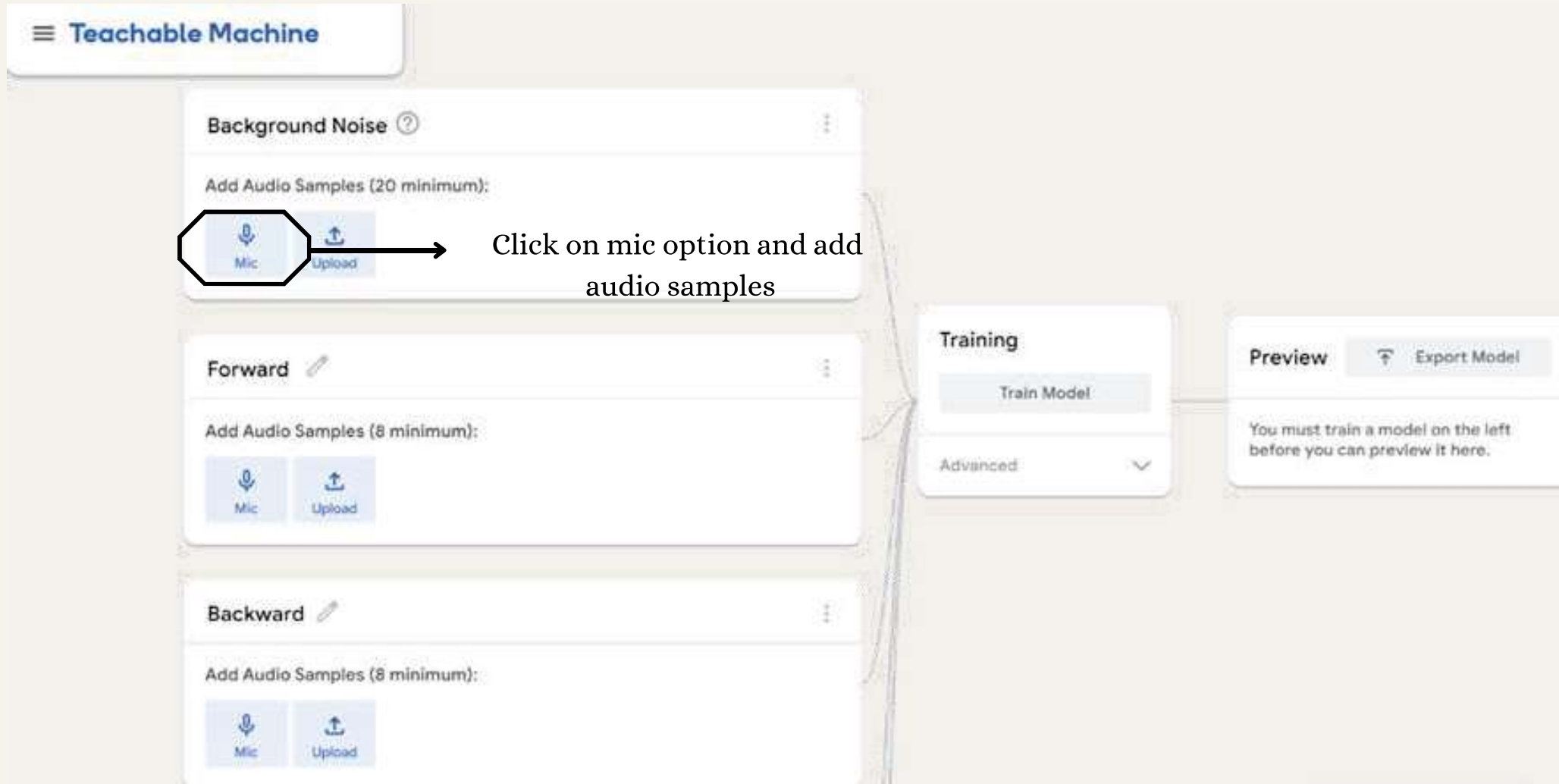
Step 2: - Create 4 classes named forward, backward, left, and right.



The screenshot shows the Teachable Machine interface. At the top left is a hamburger menu icon followed by the text "Teachable Machine". Below this are two class creation panels. The first panel is titled "Background Noise" with a help icon. It contains the text "Add Audio Samples (20 minimum):" and two buttons: "Mic" and "Upload". The second panel is titled "Class 2" with an edit icon. It contains the text "Add Audio Samples (8 minimum):" and two buttons: "Mic" and "Upload". An arrow points from the "Class 2" title to the text "Class name". Below the second panel is a dashed box containing a button labeled "Add a class". An arrow points from this button to the text "Add more classes". To the right of the class panels is a "Training" panel with a "Train Model" button and a dropdown menu currently set to "Advanced". To the right of the training panel is a "Preview" panel with an "Export Model" button and a message: "You must train a model on the left before you can preview it here."

**continue to next....**

Step 3: - Write the classes name and add audio samples.



Teachable Machine

Background Noise ?

Add Audio Samples (20 minimum):

Mic Upload

Click on mic option and add audio samples

Forward

Add Audio Samples (8 minimum):

Mic Upload

Backward

Add Audio Samples (8 minimum):

Mic Upload

Training

Train Model

Advanced

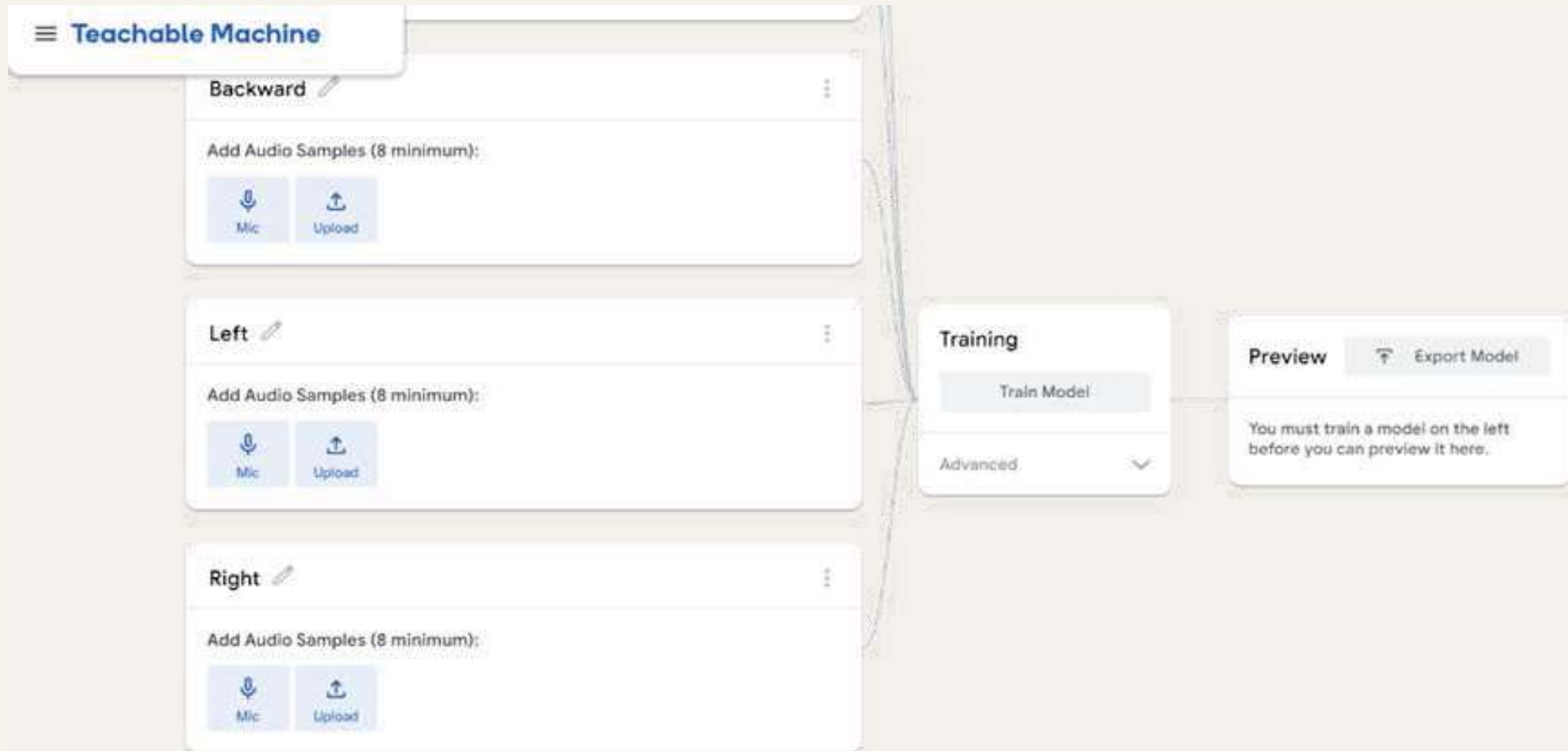
Preview

Export Model

You must train a model on the left before you can preview it here.

continue to next....

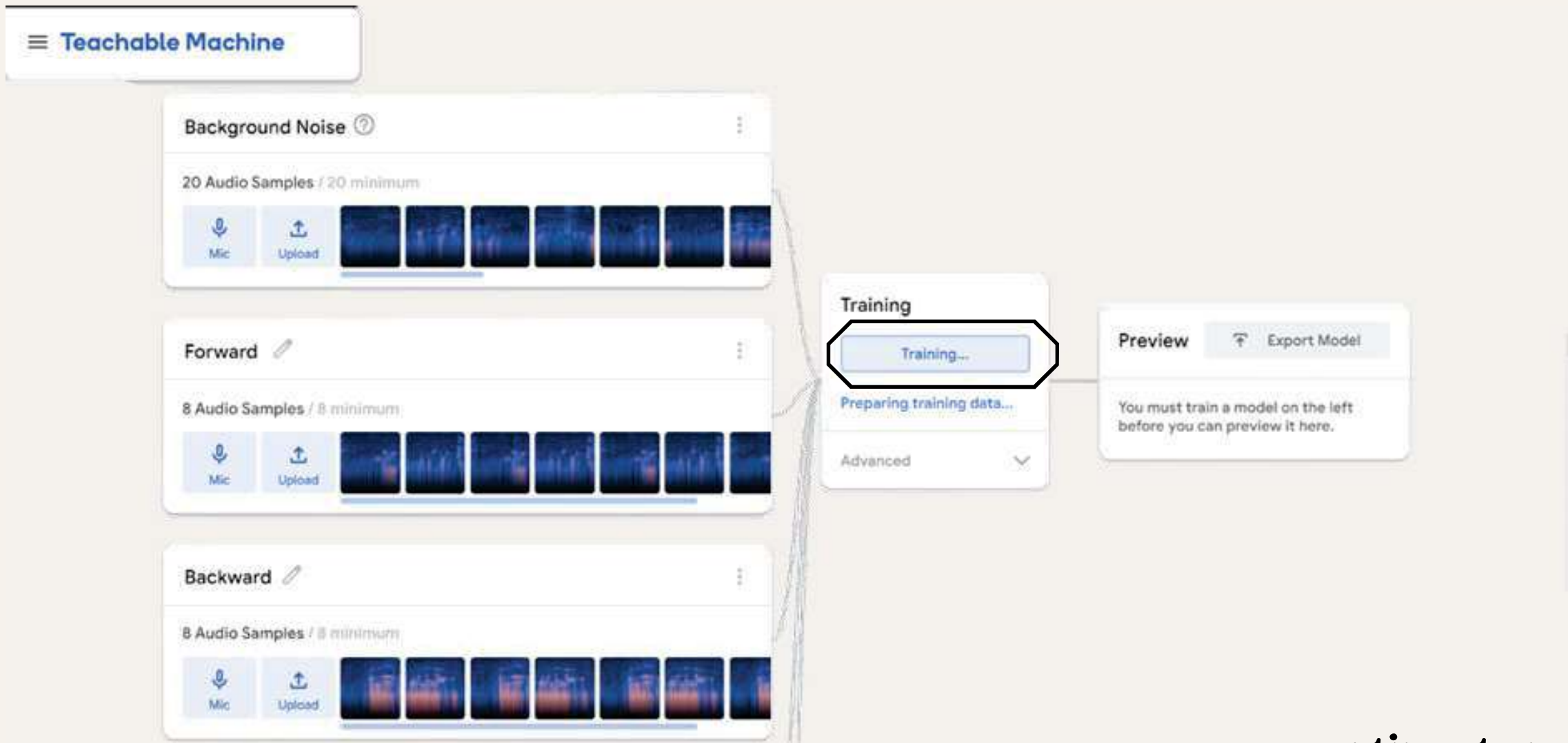
Step 3: - Write the classes name and add audio samples.



The screenshot displays the Teachable Machine web interface. On the left, there are three class panels labeled "Backward", "Left", and "Right". Each panel has a title bar with a pencil icon for editing and a three-dot menu icon. Below the title bar, each panel contains the text "Add Audio Samples (8 minimum):" followed by two buttons: "Mic" (with a microphone icon) and "Upload" (with an upload icon). In the center, there is a "Training" panel with a "Train Model" button and a dropdown menu currently set to "Advanced". On the right, there is a "Preview" panel with an "Export Model" button and a message that reads: "You must train a model on the left before you can preview it here." The interface is clean and modern, with a light gray background and white panels.

**continue to next....**

Step 4: - Click on Training option.

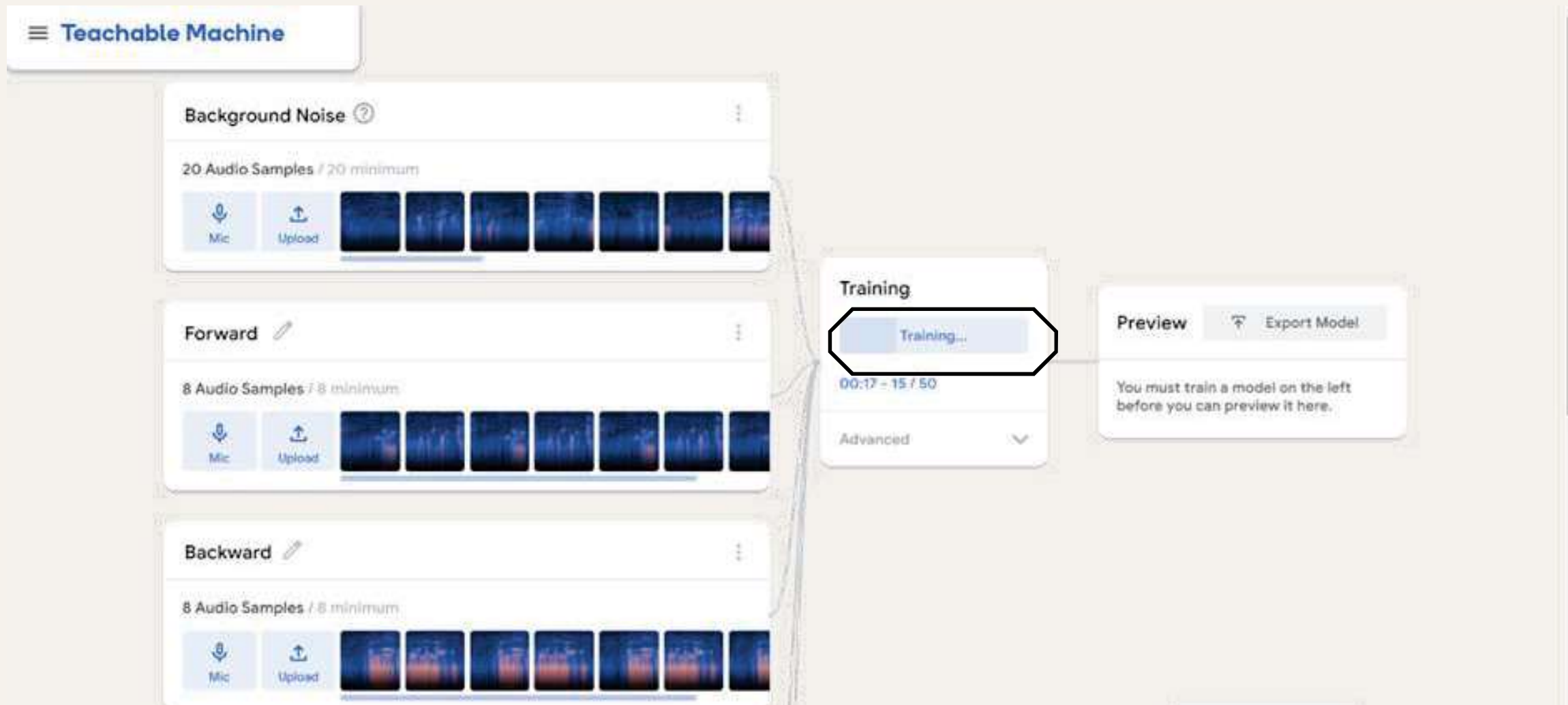


The screenshot displays the Teachable Machine web interface. On the left, there are three data collection panels: 'Background Noise' (20 Audio Samples / 20 minimum), 'Forward' (8 Audio Samples / 8 minimum), and 'Backward' (8 Audio Samples / 8 minimum). Each panel includes a 'Mic' button, an 'Upload' button, and a row of audio waveform visualizations. A hand-drawn line connects the 'Forward' panel to the 'Training' panel on the right. The 'Training' panel features a 'Training...' button, which is highlighted with a black octagonal border. Below this button, it says 'Preparing training data...' and 'Advanced' with a dropdown arrow. To the right of the 'Training' panel is a 'Preview' panel. It contains an 'Export Model' button and a message: 'You must train a model on the left before you can preview it here.'

continue to next....



## Step 5: - Model is start training

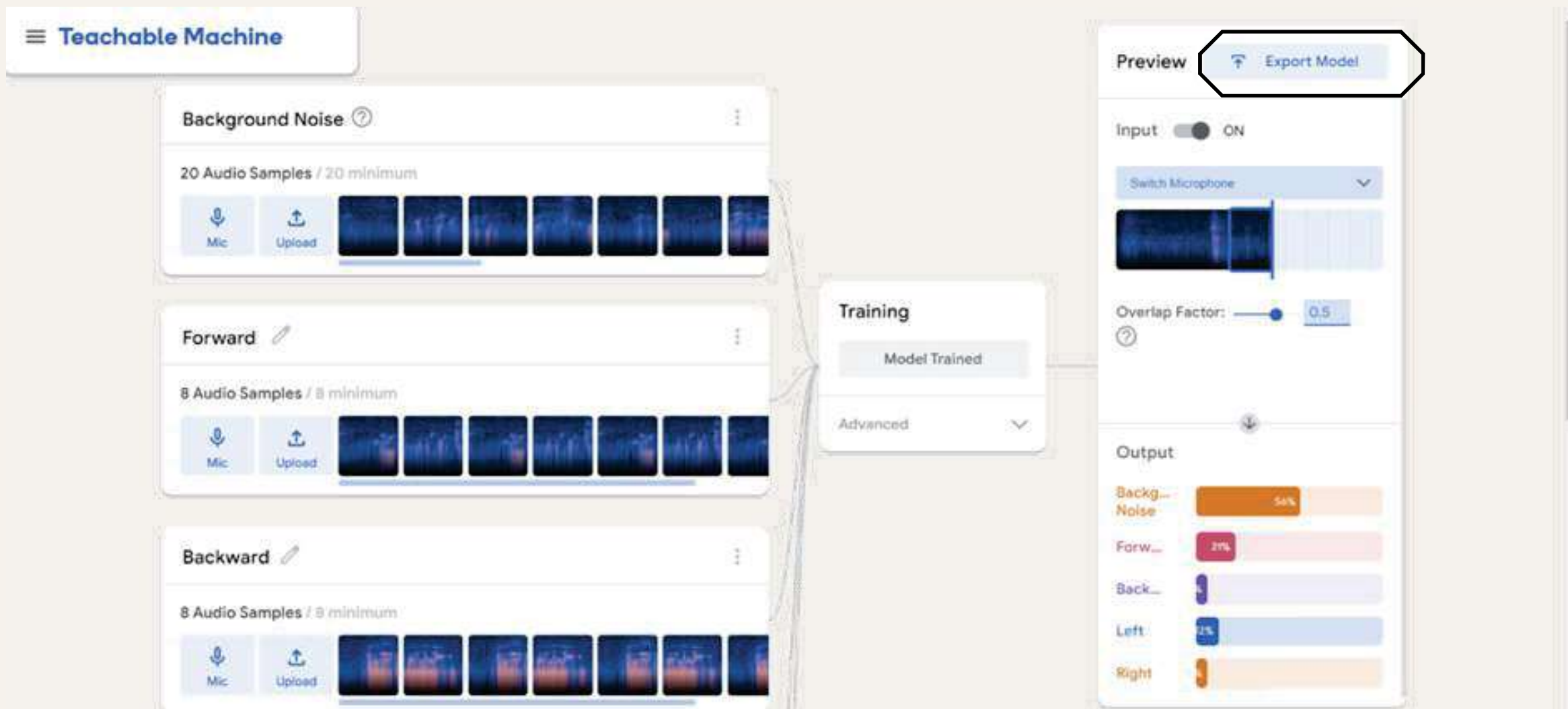


The screenshot displays the Teachable Machine web interface. On the left, there are three audio sample collection panels: 'Background Noise' (20 samples), 'Forward' (8 samples), and 'Backward' (8 samples). Each panel includes a microphone icon, an 'Upload' button, and a visualizer. In the center, the 'Training' panel is active, showing a 'Training...' button highlighted with a black octagonal border. Below this button is a progress indicator '00:17 - 15 / 50' and an 'Advanced' dropdown menu. On the right, the 'Preview' panel is visible, featuring an 'Export Model' button and a message: 'You must train a model on the left before you can preview it here.'

**continue to next....**



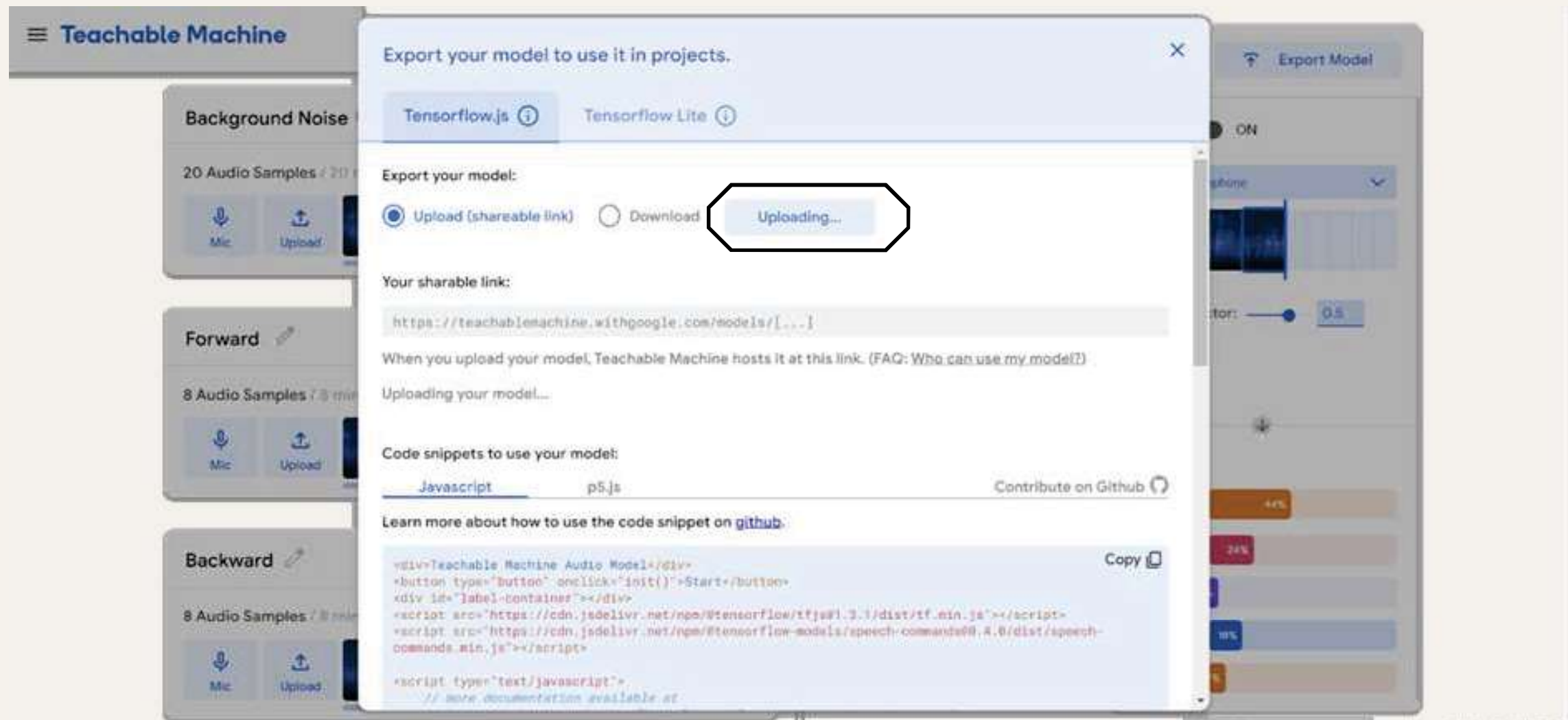
## Step 6: - Click on Export model



The screenshot displays the Teachable Machine web interface. On the left, there are three audio sample upload sections: 'Background Noise' (20 samples), 'Forward' (8 samples), and 'Backward' (8 samples). Each section includes a microphone icon, an 'Upload' button, and a visual audio waveform. In the center, a 'Training' panel shows a 'Model Trained' button and an 'Advanced' dropdown menu. On the right, the 'Preview' panel is active, featuring an 'Export Model' button highlighted with a black hexagonal border. Below this, there's an 'Input' section with a toggle switch set to 'ON' and a 'Switch Microphone' dropdown. An 'Overlap Factor' slider is set to 0.5. The 'Output' section displays five horizontal progress bars for different categories: 'Backg... Noise' (54%), 'Forw...' (21%), 'Back...' (1%), 'Left' (12%), and 'Right' (1%).

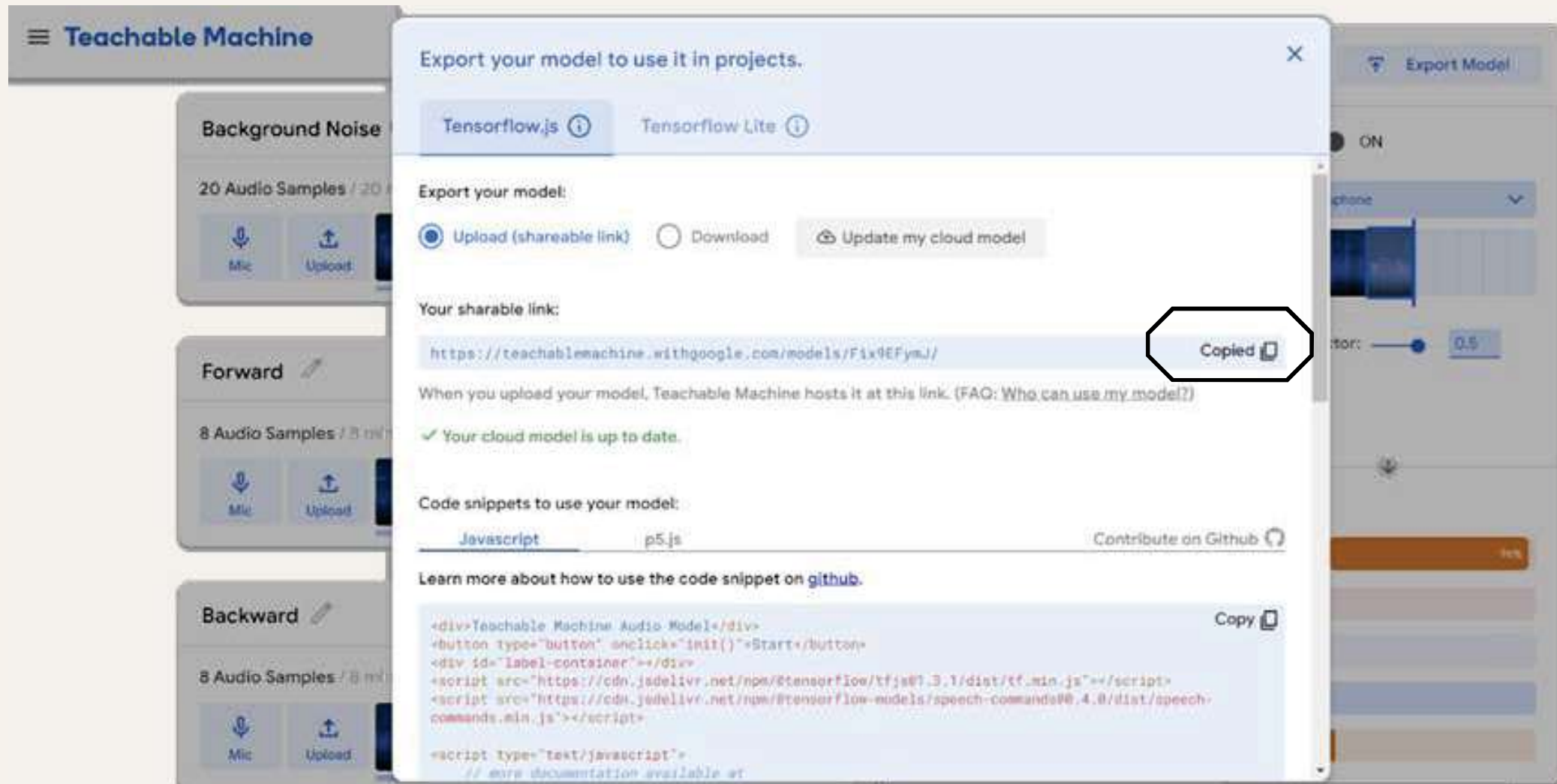
continue to next....

## Step 7: - click on upload my channel



continue to next....

## Step 8: - copy the link.



**Teachable Machine**

Background Noise

20 Audio Samples / 20

Mic Upload

Forward

8 Audio Samples / 8

Mic Upload

Backward

8 Audio Samples / 8

Mic Upload

Export Model

ON

phone

tor: 0.5

100%

Export your model to use it in projects.

Tensorflow.js Tensorflow Lite

Export your model:

☒ Upload (shareable link) ☐ Download

Your sharable link:

<https://teachablemachine.withgoogle.com/models/Fix9EFymJ/> Copied

When you upload your model, Teachable Machine hosts it at this link. (FAQ: Who can use my model?)

✓ Your cloud model is up to date.

Code snippets to use your model:

Javascript p5.js Contribute on Github

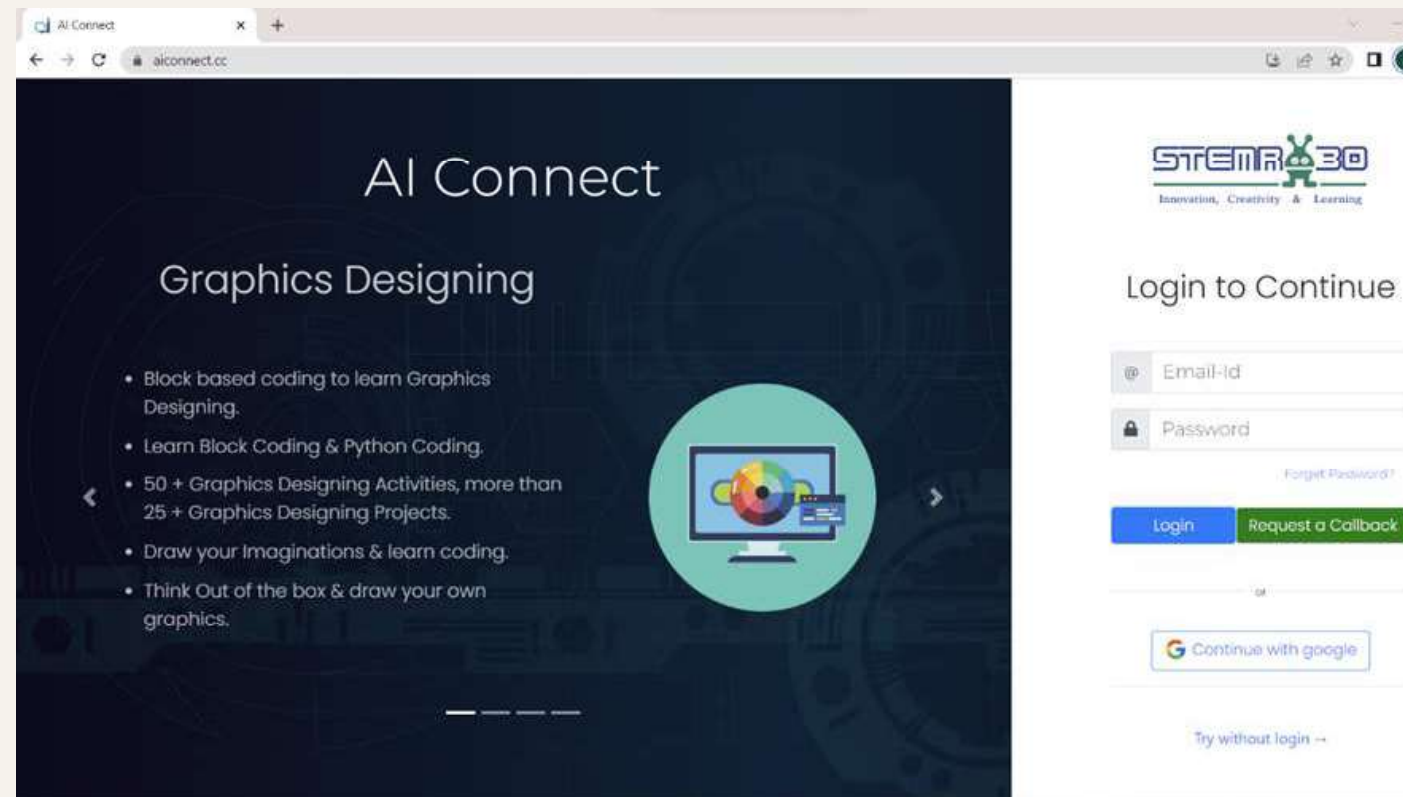
Learn more about how to use the code snippet on [github](#).

```
<div>Teachable Machine Audio Model</div>
<button type="button" onclick="init()">Start</button>
<div id="label-container"></div>
<script src="https://cdn.jsdelivr.net/npm/@tensorflow/tfjs@1.3.1/dist/tf.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/@tensorflow-models/speech-commands@0.4.0/dist/speech-commands.min.js"></script>
<script type="text/javascript">
  // more documentation available at
```

Copy


# Source Code

Step – 1 Go to <https://aiconnect.cc/login>.



**continue to next....**

Step-2 Log-in through your aiconnect mail id & password/ continue with google.




AI Connect

## Graphics Designing

- Block based coding to learn Graphics Designing.
- Learn Block Coding & Python Coding.
- 50 + Graphics Designing Activities, more than 25 + Graphics Designing Projects.
- Draw your Imaginations & learn coding.
- Think Out of the box & draw your own graphics.

Enter your email- id & password



Innovation, Creativity & Learning

### Login to Continue


Email-Id

Password

[Forgot Password?](#)

[Login](#) [Request a Callback](#)

or

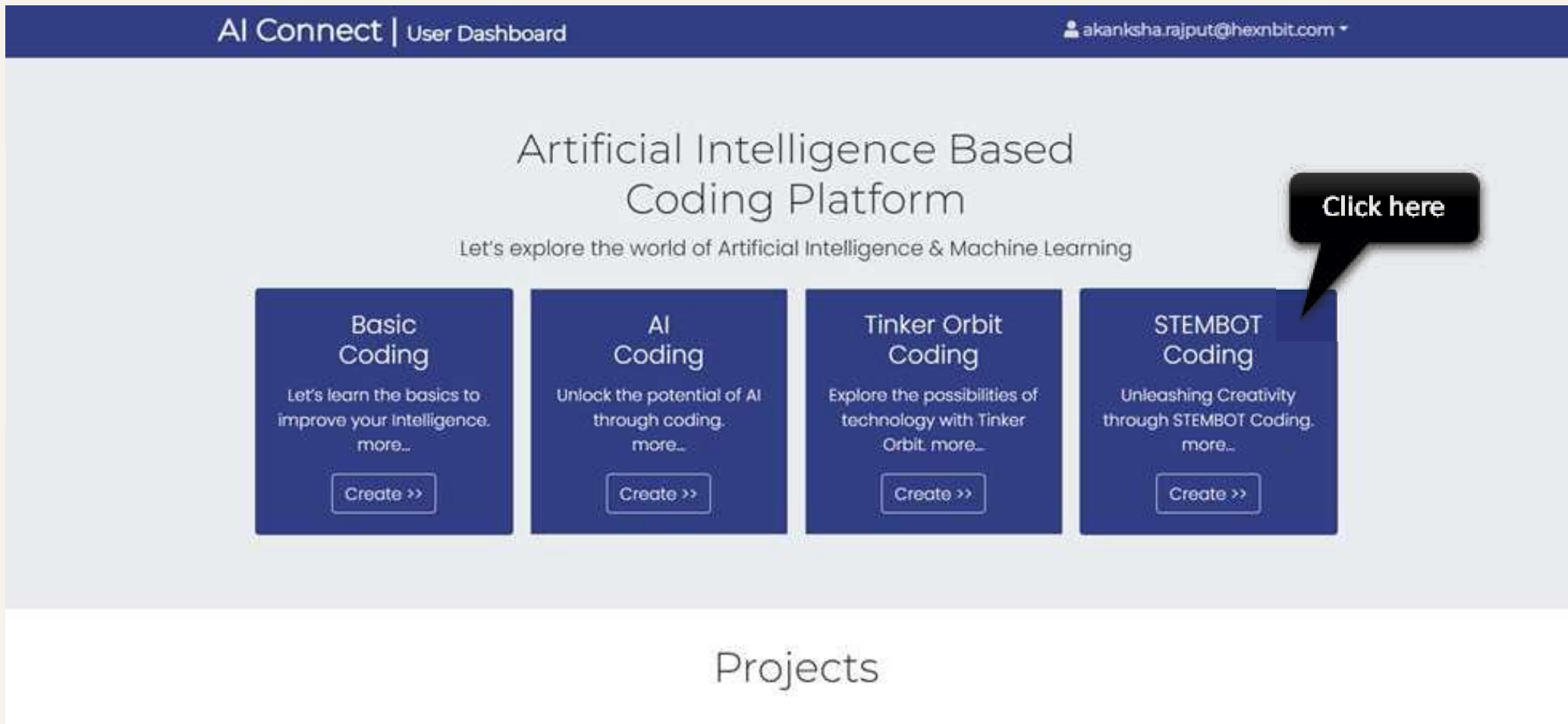
 [Continue with google](#)

[Try without login](#)

**continue to next....**

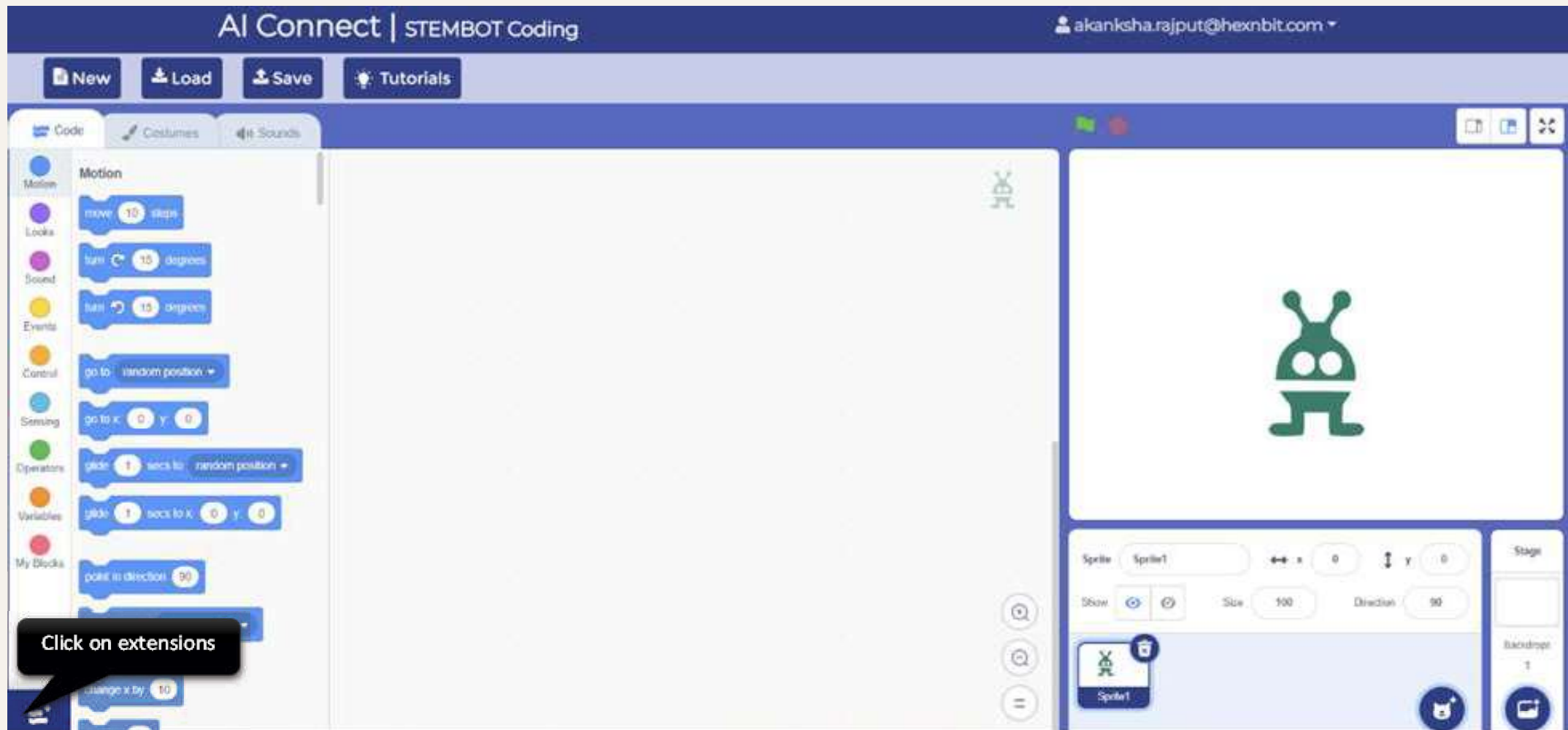


Step – 3 Click on STEMBOT Coding to create a project/ click on create.



**continue to next....**

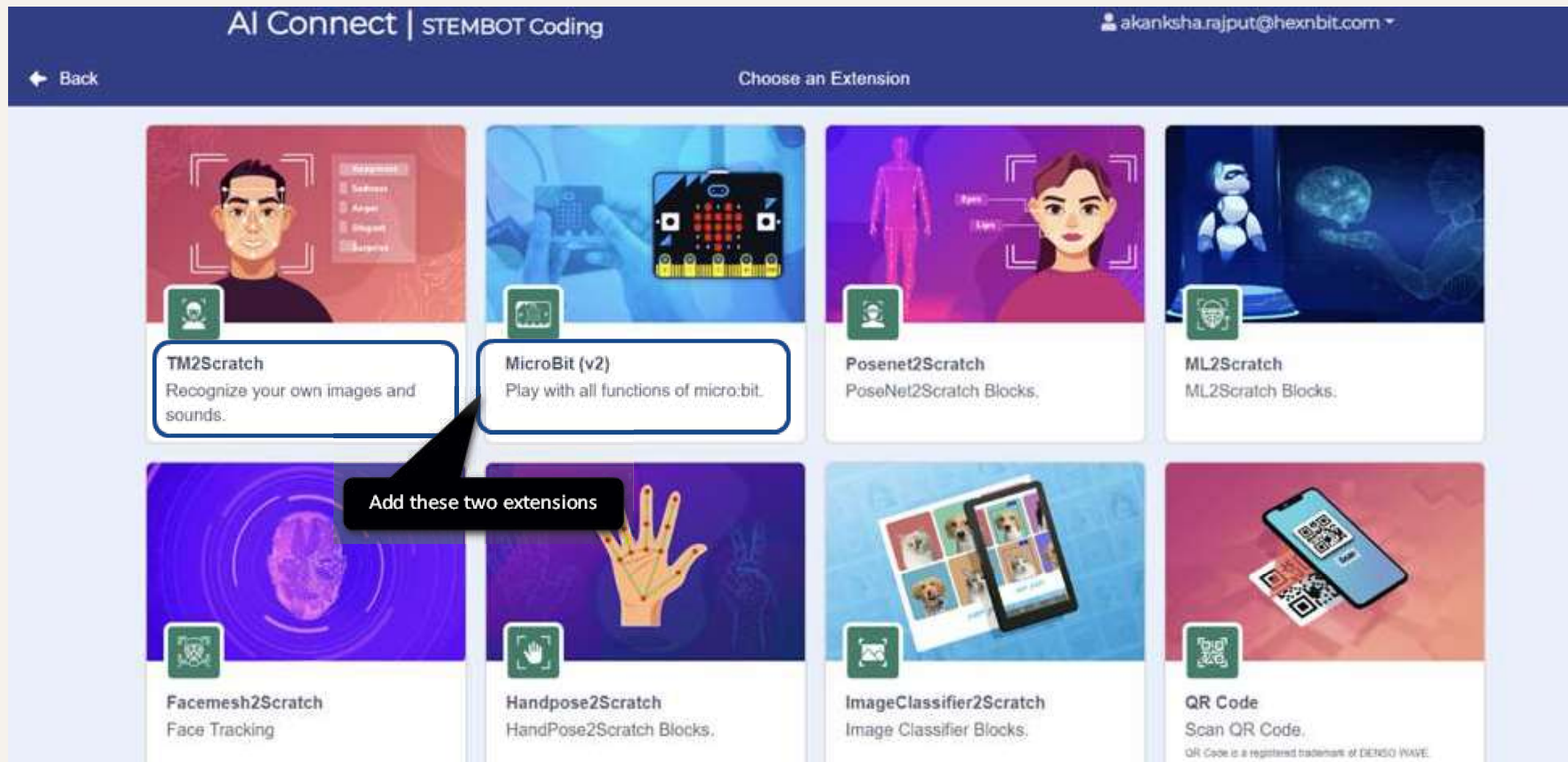
Step-4 Click on extensions.



continue to next....

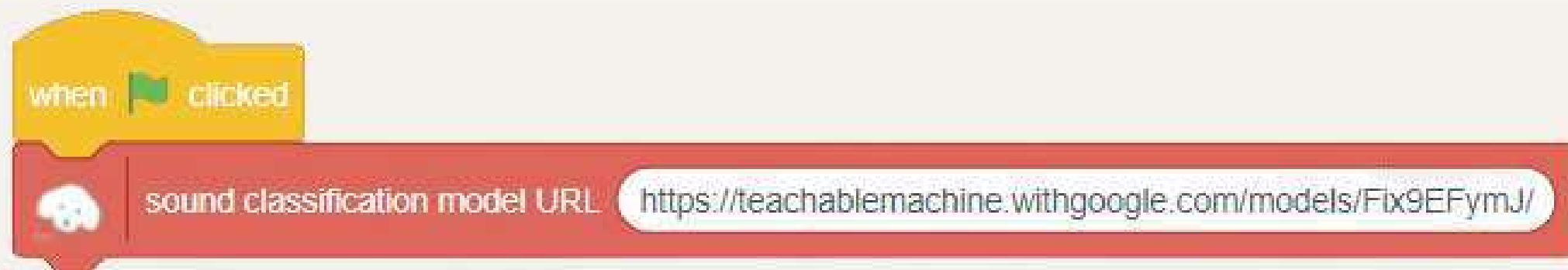


## Step-5 Add Micro: bit V2 and Google teachable extensions.



continue to next....

Step- 6 Write the following code on the workspace by dragging the blocks.



**continue to next. . . .**

Step- 6 Write the following code on the workspace by dragging the blocks.



continue to next....

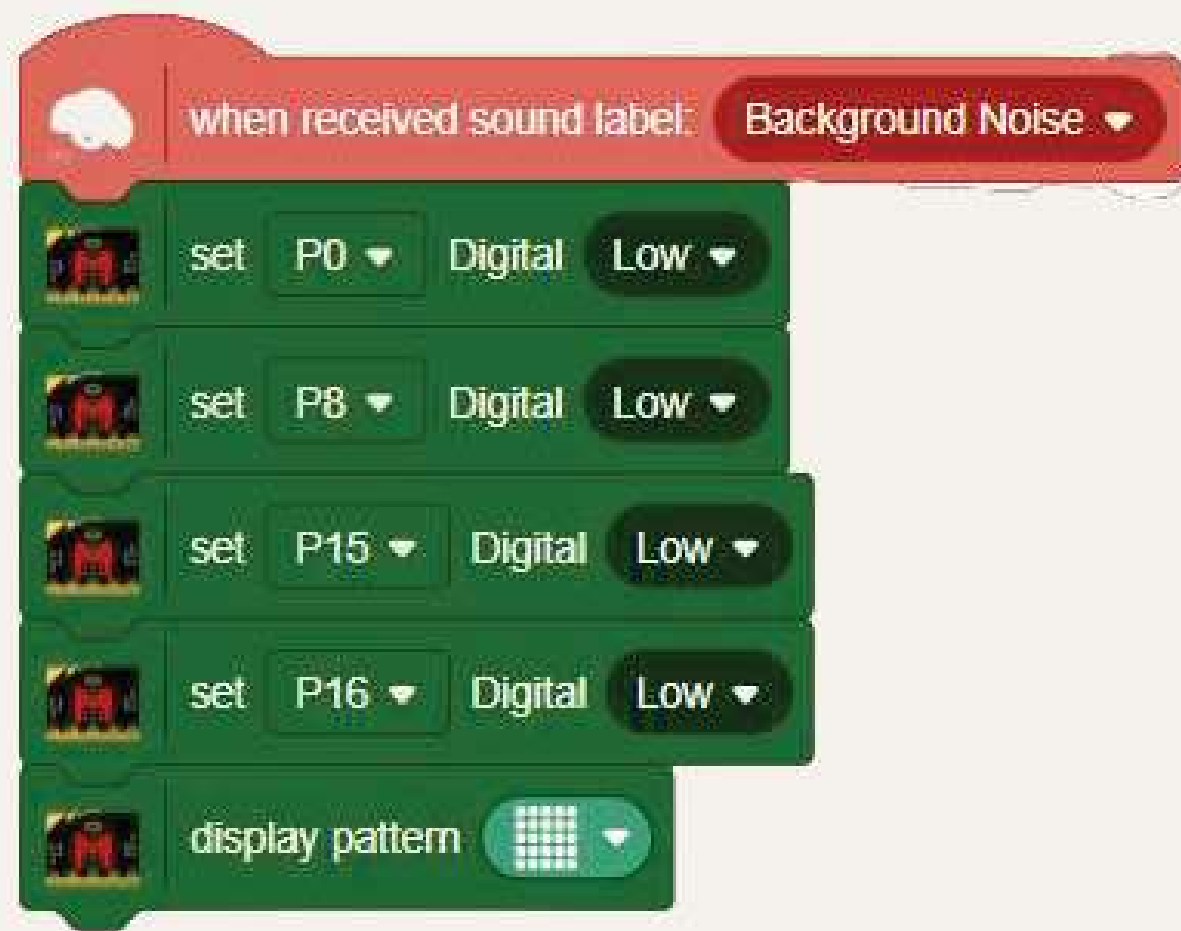
Step- 6 Write the following code on the workspace by dragging the blocks.



continue to next....

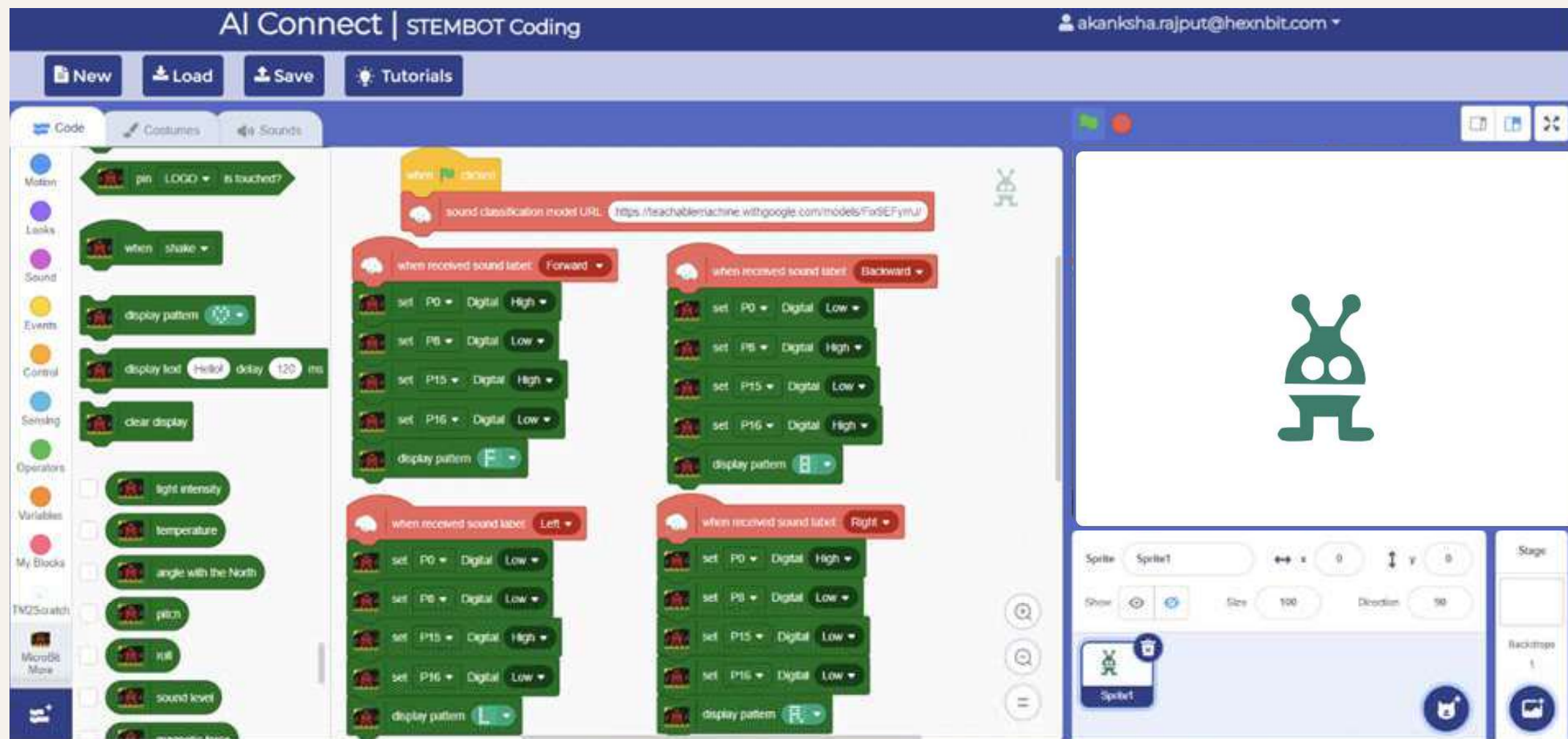


Step- 6 Write the following code on the workspace by dragging the blocks.



**continue to next. . . .**

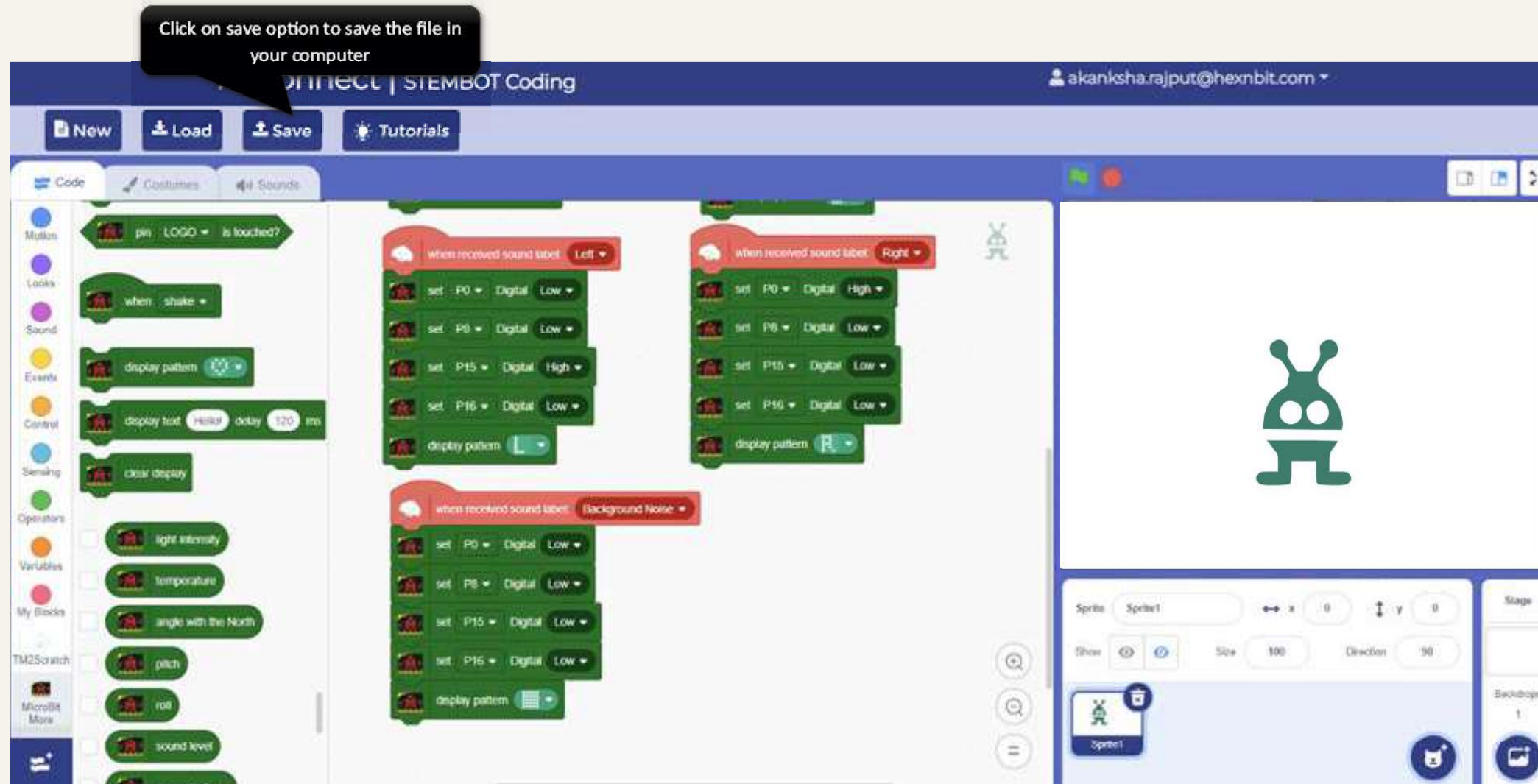
Step- 6 Write the following code on the workspace by dragging the blocks.



continue to next....

Step- 6 Write the following code on the workspace by dragging the blocks.

Click on save option to save the file in your computer



The screenshot shows the STEMROBO Coding interface. The top bar includes 'New', 'Load', 'Save', and 'Tutorials' buttons. The left sidebar lists various block categories: Motion, Looks, Sound, Events, Control, Sensing, Operators, Variables, My Blocks, TM2Scratch, and Micro:bit More. The main workspace contains a script with three event-driven blocks:

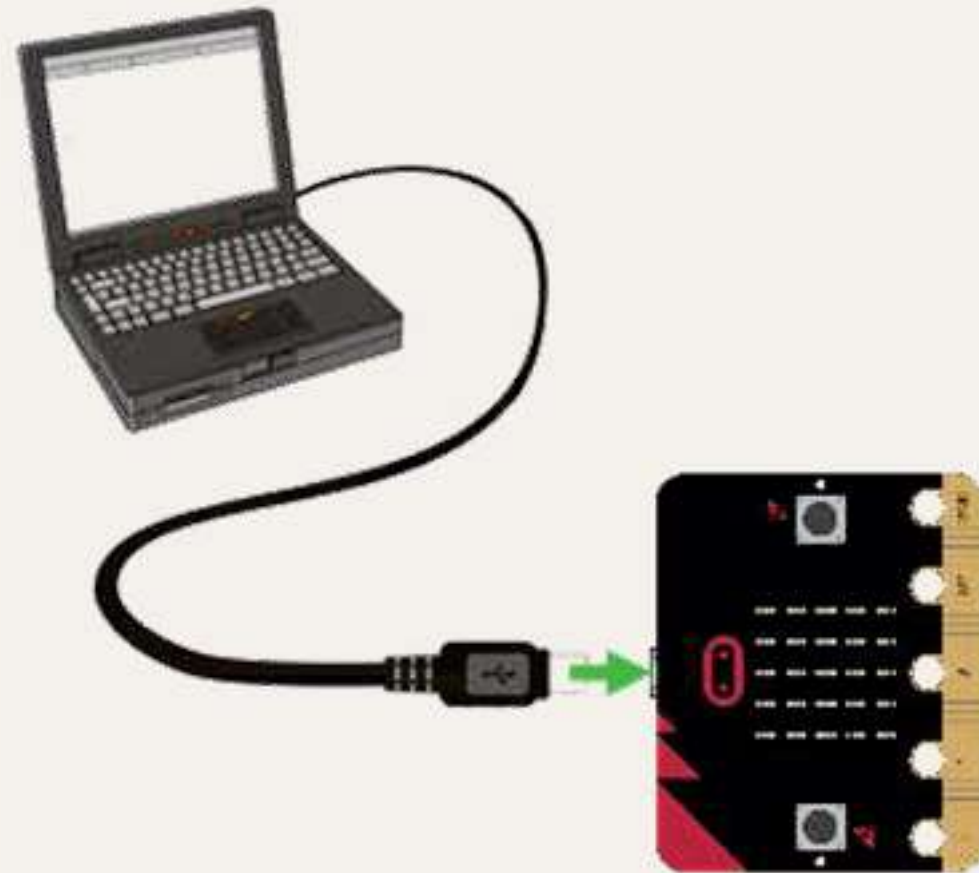
- when received sound label: Left**
  - set P0 Digital Low
  - set P8 Digital Low
  - set P15 Digital High
  - set P16 Digital Low
  - display pattern [L]
- when received sound label: Right**
  - set P0 Digital High
  - set P8 Digital Low
  - set P15 Digital Low
  - set P16 Digital Low
  - display pattern [R]
- when received sound label: Background Noise**
  - set P0 Digital Low
  - set P8 Digital Low
  - set P15 Digital Low
  - set P16 Digital Low
  - display pattern [ ]

The right side of the interface shows a stage with a robot sprite and a 'Backdrops' list with 'Backdrop 1'.

continue to next....



Step- 7 Connect the micro: bit with your computer.

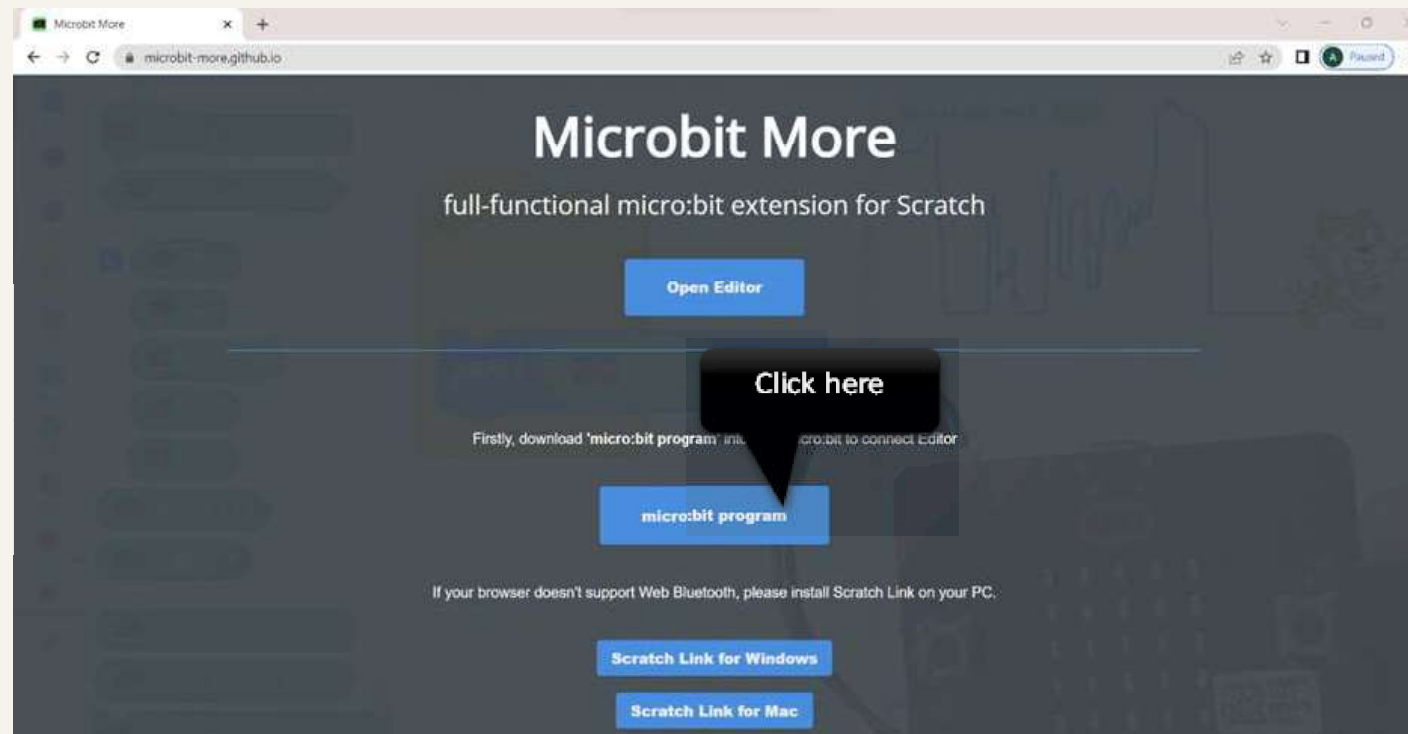


**continue to next....**

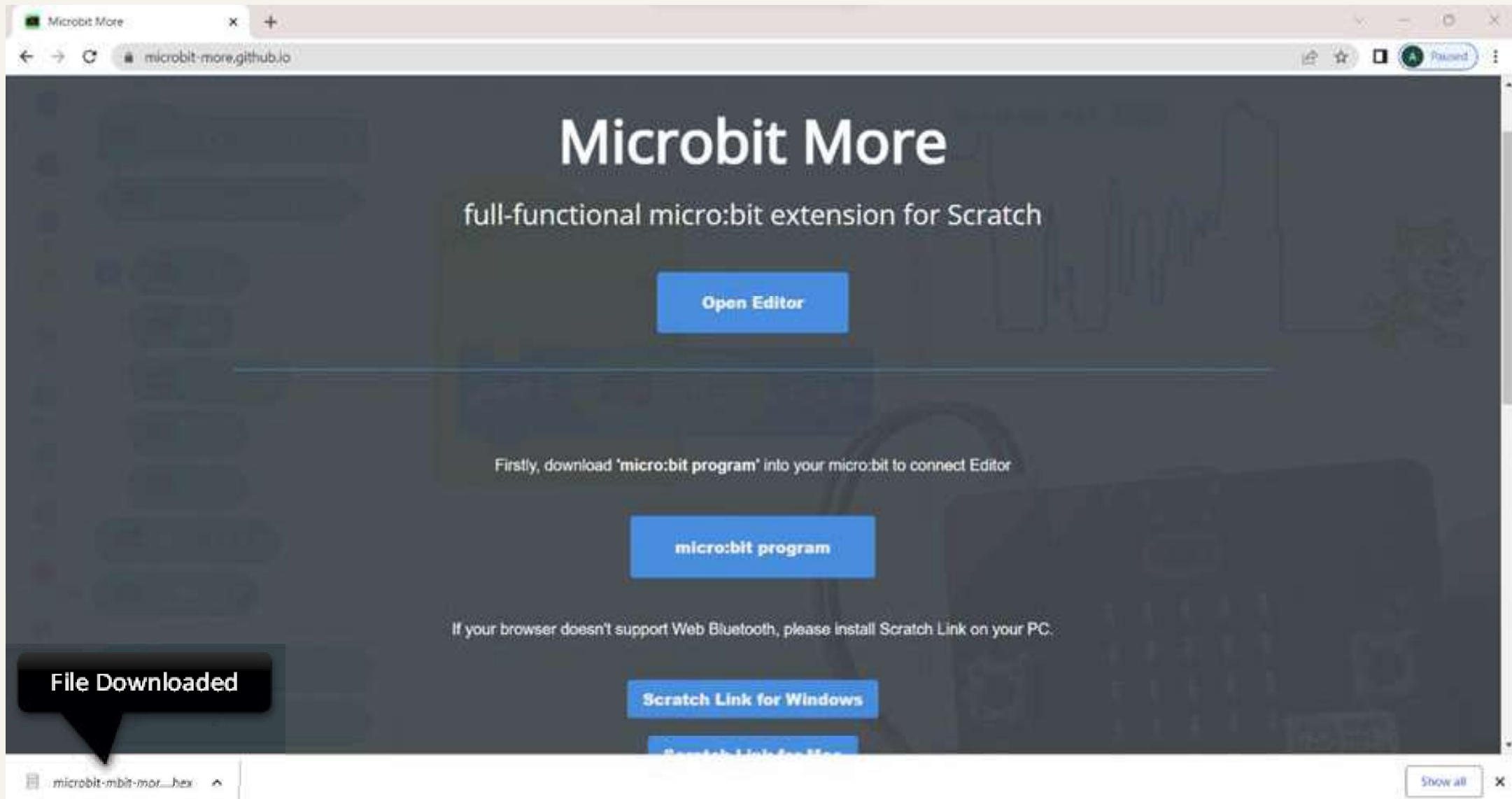
Step- 8 Upload the Bluetooth Hex file inside the micro: bit.

a. Go to Step-2 Log-in through your g-mail id & password/ continue with google.

b. Click on micro: bit program to download the Bluetooth hex file.



**continue to next. . . .**



Microbit More

full-functional micro:bit extension for Scratch

Open Editor

Firstly, download 'micro:bit program' into your micro:bit to connect Editor

micro:bit program

If your browser doesn't support Web Bluetooth, please install Scratch Link on your PC.

Scratch Link for Windows

Scratch Link for Mac

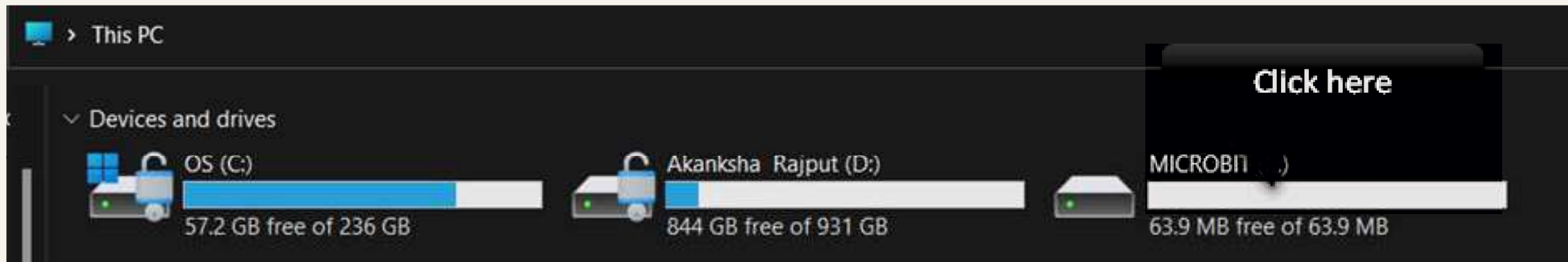
File Downloaded

microbit-mbit-mor...hex

Show all

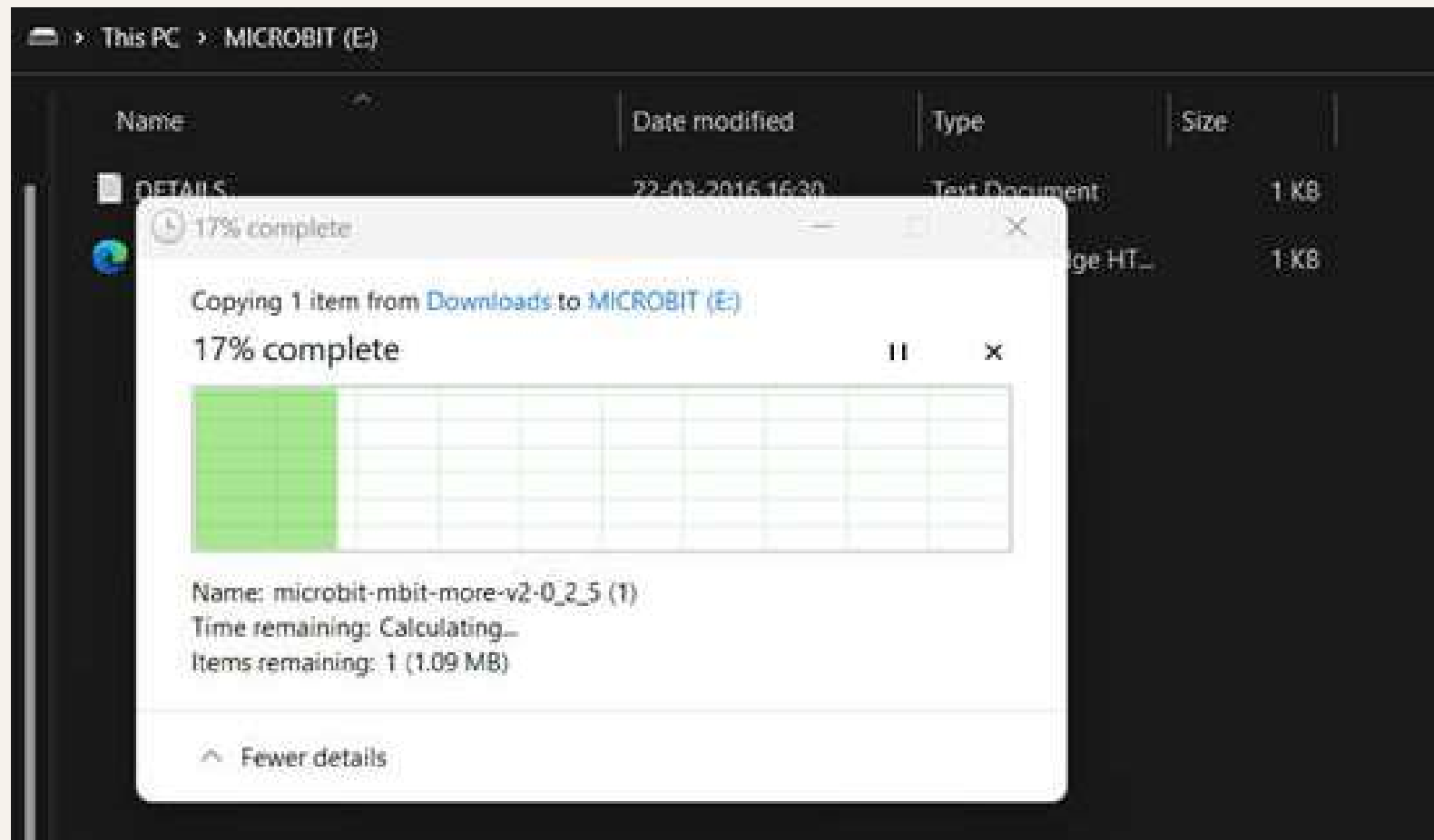
continue to next....

- c. Copy this file from the download.
- d. go to this pic and click on MICROBIT (E)



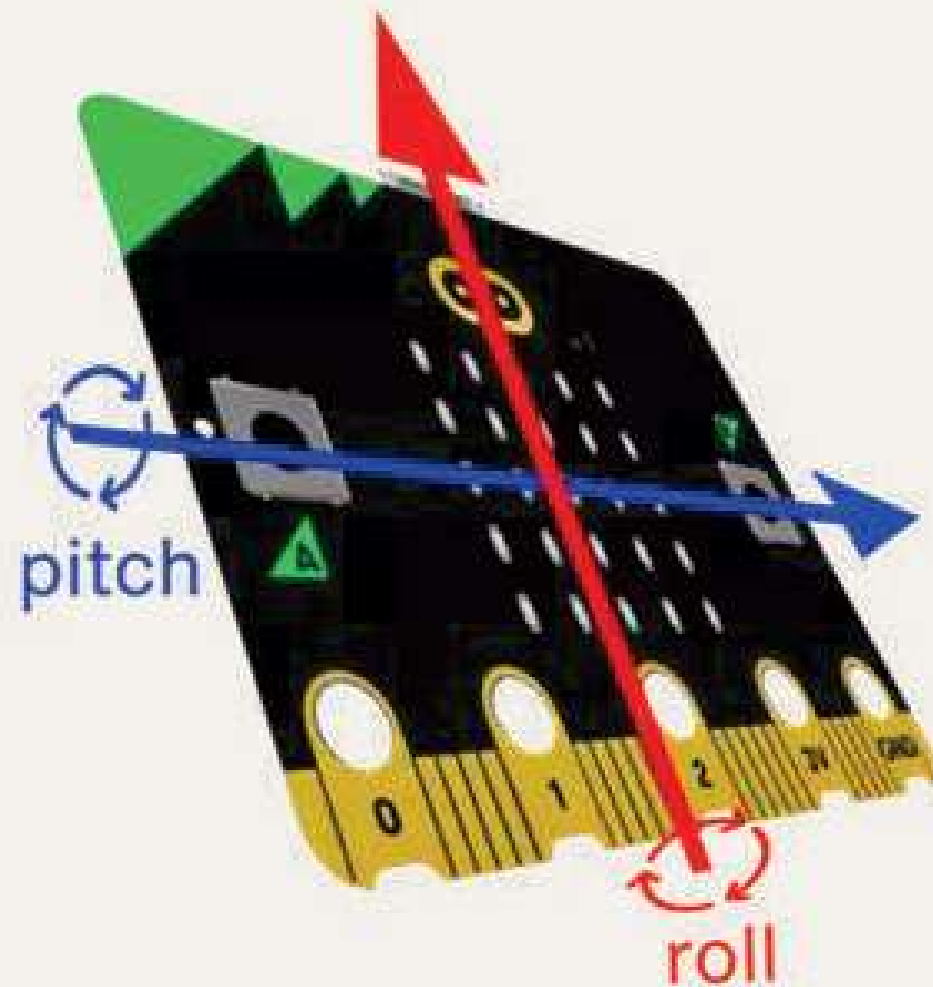
**continue to next....**

e. paste the copied file in MICROBIT (E)



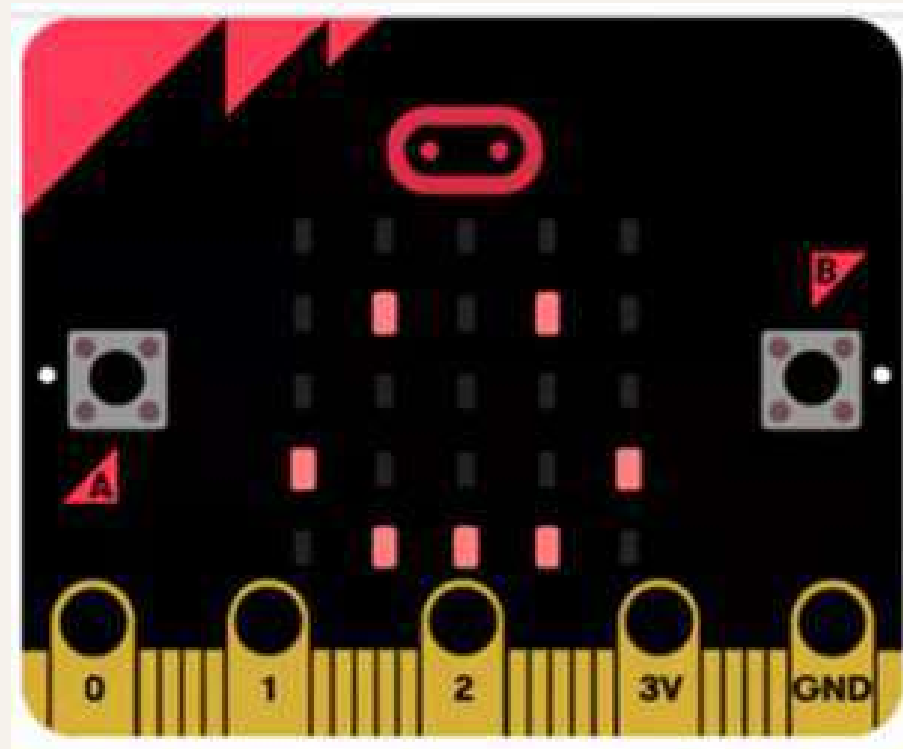
**continue to next....**

f. Tilt your micro: bit in X, Y and Z directions and try to turn on all the leds.



continue to next....

g. If all the led' s are turned on then the smile icon will display after that it will show your micro: bit name.



**continue to next....**



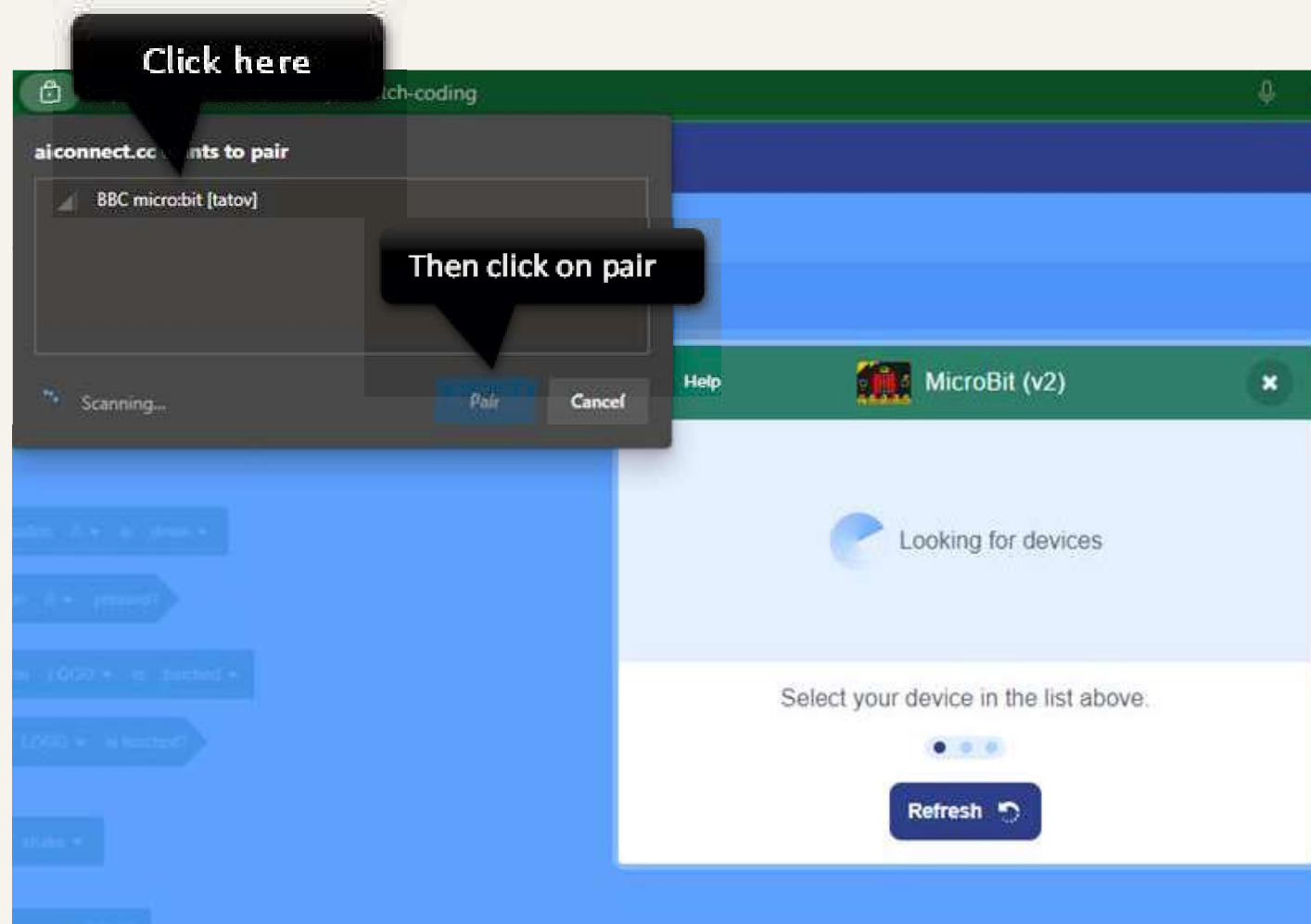
Step- 10 Remove the micro: bit from your computer and connect it with STEMBOT. And power up the robot by pressing the power button.

Step- 11 Now connect your micro: bit with aiconnect platform.



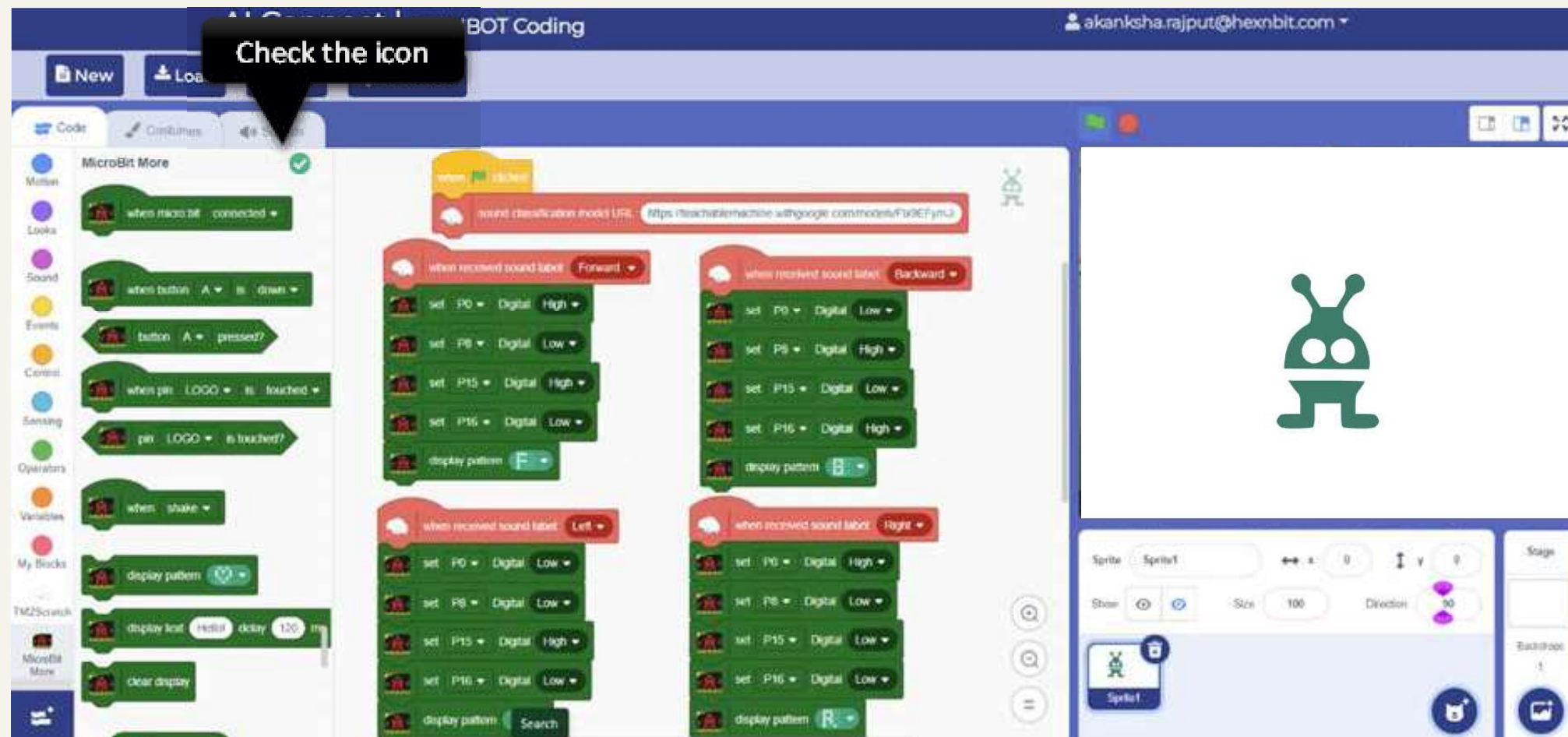
continue to next....

Step- 12 A pop-up window will come where you can see your micro: bit name. Click on the name then click on the pair option.



**continue to next....**

Step- 13 Now you can see a green tick icon that means micro: bit is connected with the aiconnect platform via Bluetooth.



**Thank you** 