

**Step 1:** Go to <u>teachable machine</u> with Google

**Step 2:** Choose IMAGE Project and STANDARD Image Model

Step 3: Decide which hand gestures (or even printed images) you would like to use to send commands. For example, I used a hand, all fingers pointing to ceiling as a STOP command



#### **Teachable Machine** Train a computer to recognize your own images, sounds, & poses.

A fast, easy way to create machine learning models for your sites, apps, and more - no expertise or coding required.

**Get Started** 



Class 1 🧷	
Add Image Samples:	
Webcam Upload	Training
Class 2	Train Moo
Add Image Samples:	Advanced
Webcam Upload	



Click on webcam icon and take photos of your first chosen hand gesture, using all sorts of angles, and up close and further away from the camera. You might like to have 200 or more photos for accuracy.





Class 1 //	
Add Image Samples:	
webcam Opioad	Training
	Train
Class 2	
Add Image Samples:	Advanced
Webcam Upload	

Where you see "Class 1"; click on the pencil icon and change the name to whatever you want. Foe example, I would call my palm images, with fingers pointing upwards STOP. \*\* Remembering the precise name of your commands will be important.



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You will need to train at least TWO classes (and yes you can do more than TWO). So choose another hand gesture or take photos of the background where you will be working.



STOP			;
126 Image Samples			
Webcam Upload			1
FORWARD			÷
Webcam	×	59 Image Samples	
Hold to Record			

#### Once images are complete

Click Train Model
And then EXPORT





- Once **EXPORT** is complete, a new window will appear.
- Click on UPLOAD my MODEL and then a COPY option will appear at the end of the grey line in "Your shareable link."

\*Copy that link and I would suggest pasting into a google doc, or even a sticky note on your computer for future use.

Export your model to	o use it in projects	11	×
Tensorflow.js (i)	Tensorflow (i)	Tensorflow Lite (i)	
Export your model:			
O Upload (shareable line)	k) O Download	Update my cloud model	
Your sharable link:			
https://teachablemach	ine.withgoogle.com/m	odels/EL88poRI-/	Сору 🔲
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✓ Your cloud model is up	to date.		



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flow (i)	Tensorflow Lite (i)	
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		Contribute on Github 📿
de snippet o	n g <u>ithub</u> .	
l it()">Start		Сору 🔲



## IN EXT PHASE

While keeping your teachable machine google tab open, open another screen tab and go to <a href="https://ml.brilliantlabs.ca/">https://ml.brilliantlabs.ca/</a>

**Choose RECOGNIZE VIDEO and enter** whatever you would like as your **CONNECTION** name Click CONTINUE and then paste your Teachable Machine Learning URL into the space under LOAD YOUR MODEL



#### **Connect AI to the b.Board** Use your trained Teachable Machine models on your b.Board to recognize images and audio.

Build a voiced-controlled submarine, LEDs that activate when your cat is around, or anything else that springs into your imagination.

#### **Recognize Audio**

**Recognize Video** 



### LOAD YOUR MODEL

Choose RECOGNIZE VIDEO and enter whatever you would like as your CONNECTION name Click CONTINUE and then paste your Teachable Machine Learning URL into the space under LOAD YOUR MODEL.

Connect your micro:bit and b.Board to your computer. Turn on your b.Board. Click the check box next to Use USB Serial Connection. Click START. Ensure your micro:bit is paired to your computer.

#### Load an AI model recognizing video

Enter a connection nume	
Example	
Continue	
Your MQTT feed name is: Bobbie-7301	
Load your model	
Load your model below then press <b>Start</b> .	
https://teachablemachine.	
Use USB Serial Connection	
Start	





#### **CODING YOUR** MICRO: BIT AND B.BOARD

- ON START.

#### Go to <u>code.brilliantlabs.ca</u>

Click on down arrow next to ADVANCED,

• choose SERIAL,

• then SERIAL REDIRECT TO USB.





Add your code; I have included an example. The names have to be **IDENTICAL** to the ones you gave in your teachable machine learning in Google- so be mindful of spelling and capitalization.



#### CODING YOUR MICRO: BIT AND B.BOARD





### PLAY AND PRACTICE

• Take time now to practice your recorded hand gestures. • Go back and retrain your model if necessary, edit your code, etc. • Try adding another micro:bit and use the radio feature to send commands between two or more micro:bits



#### Thank You

## < concode >

For funding this resource

With funding from



