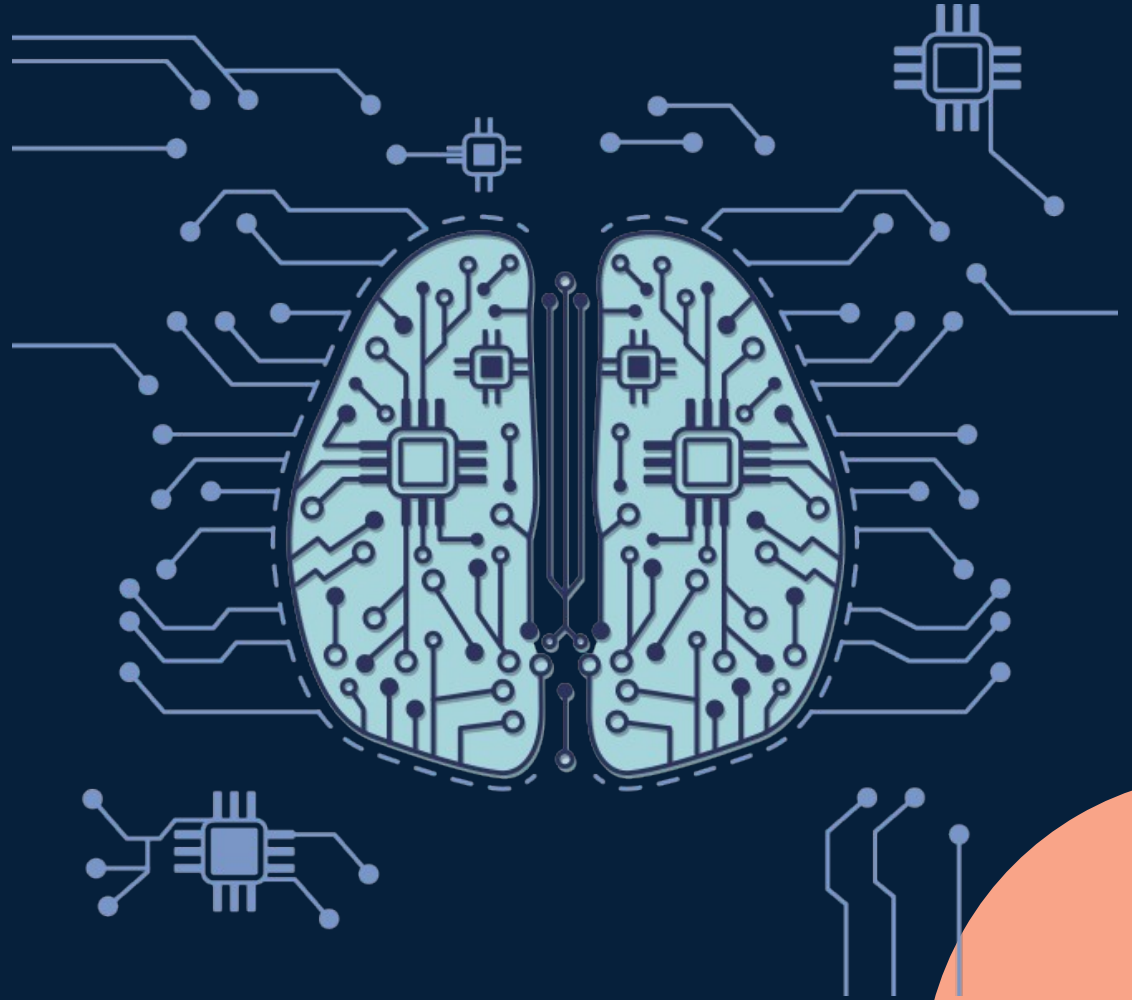


# Audio Models

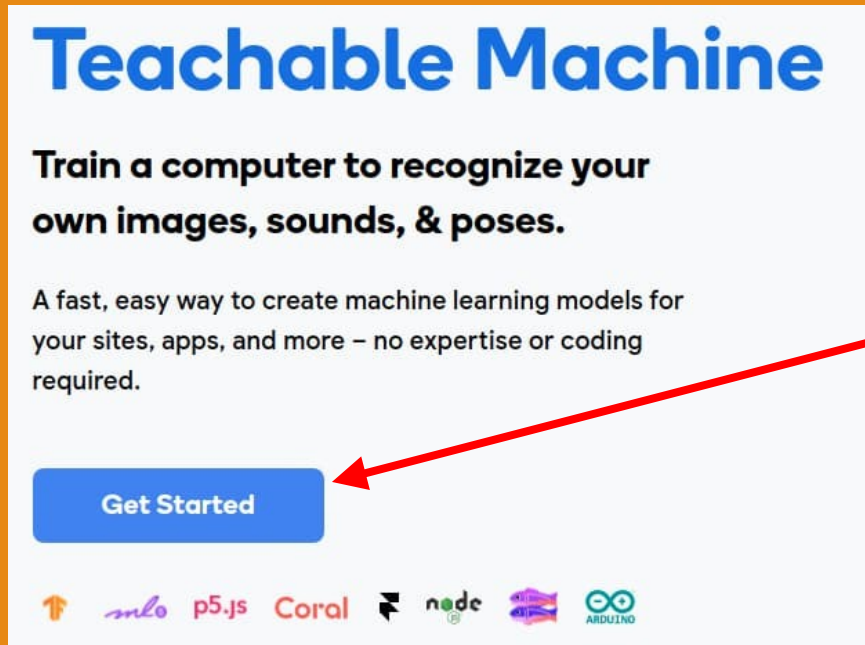


# Audio Model

- Trains the machine to classify different types of sound
- Process:
  - 1) Provide samples of the sound
  - 2) Tell the machine what each sound means
  - 3) Teachable machine will train the model
  - 4) Use the model file in your program

# Teachable Machine

- Open <https://teachablemachine.withgoogle.com>



**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.

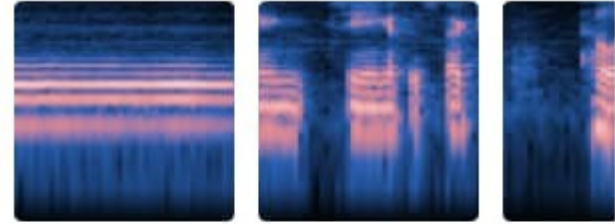
[Get Started](#)

↑ ml5 p5.js Coral ↩ node 🐟 ARDUINO

Click “Get Started”

# Teachable Machine

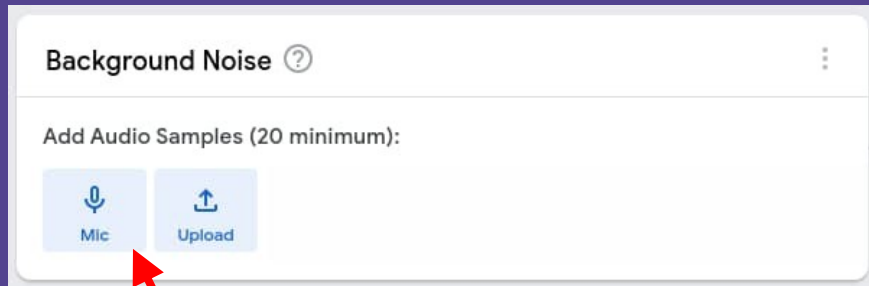
- Select “Audio Project”



## Audio Project

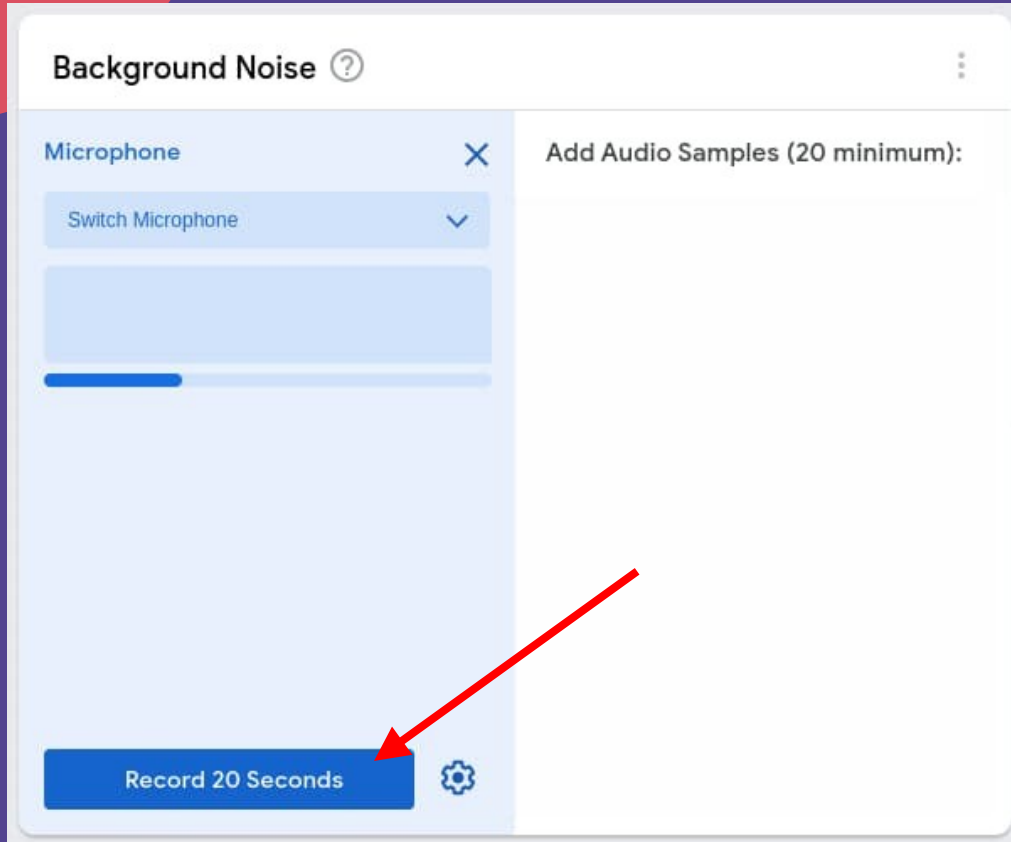
Teach based on one-second-long sounds, from files or your microphone.

# Background Noise



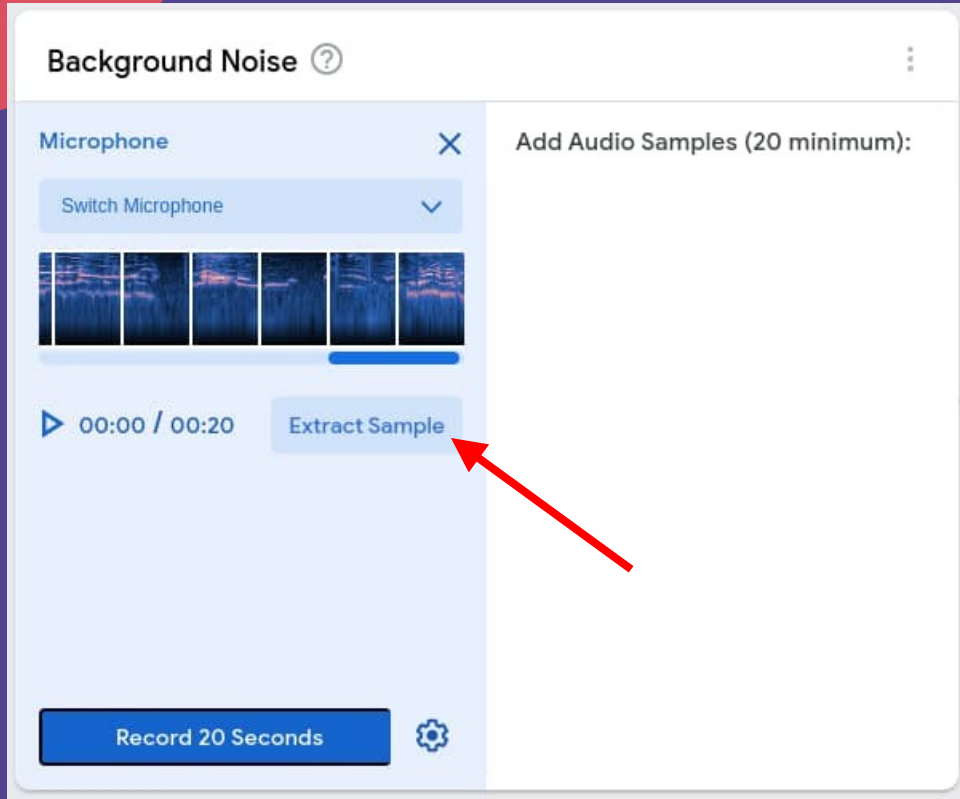
- Every audio project must have a “Background Noise” class

# Background Noise



- Must provide at least 20 seconds

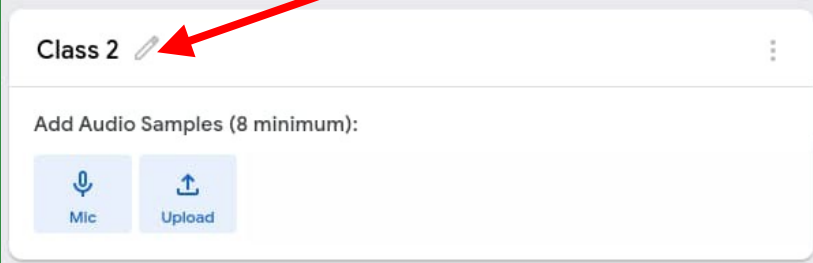
# Background Noise




- “Extract sample” to break it into 20 x 1s long samples



# Sample Audio

- Give your class a suitable name
- Add more classes if you require it



Class 2 

Add Audio Samples (8 minimum):

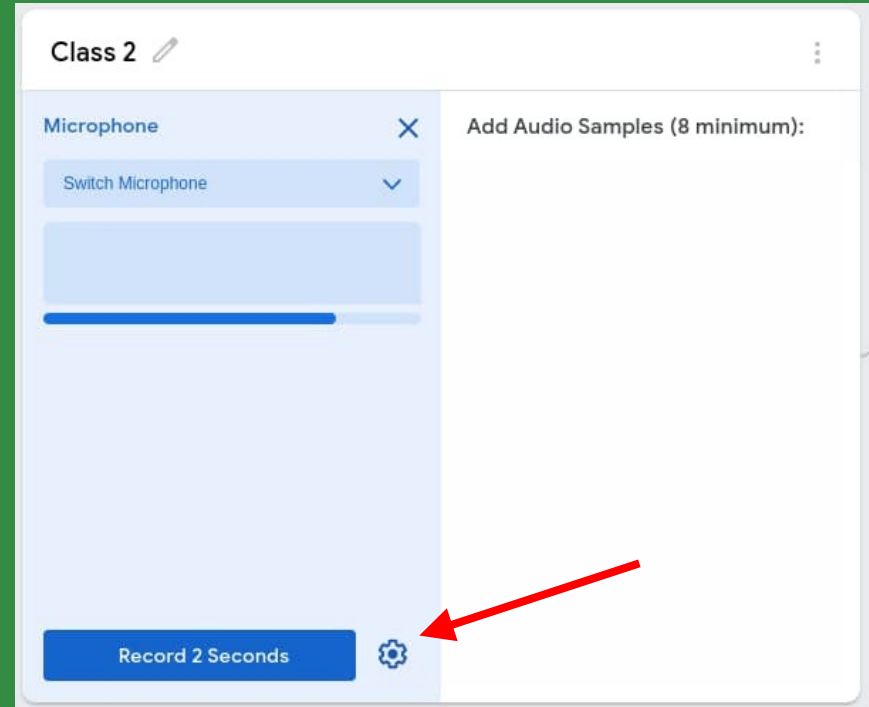
 Mic  Upload

A red arrow points to the edit icon next to 'Class 2'.



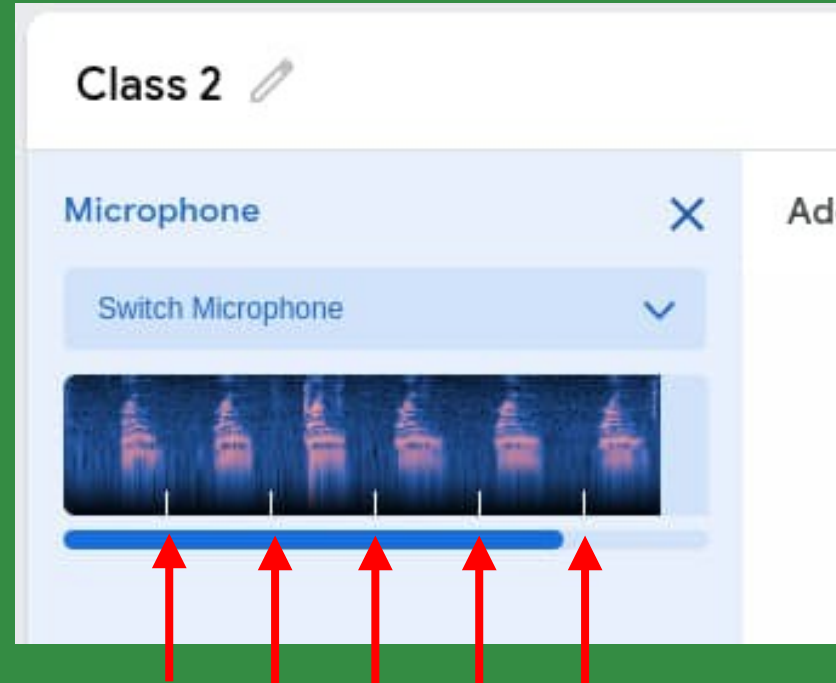
# Sample Audio

- Click on the gear to change the settings
- Set it to a longer duration (8s or more)
- Not compulsory, but it's more convenient

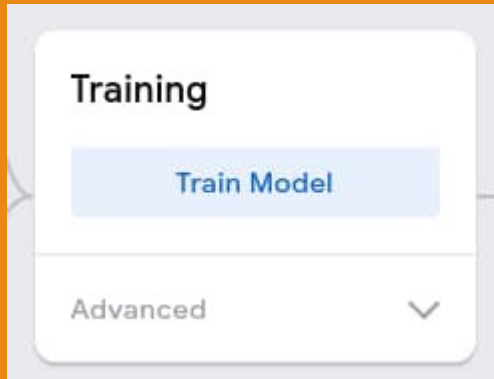


# Sample Audio

- Say or produce the sound repeating it 8 times (...or more if you selected more than 8 seconds)
- Make sure the sound fits in between the white lines



# Train and Test



- Train the model
- This may take a while to complete

# Train and Test



- Test out the model
- Make sure it works correctly
- Record more samples / background noise if needed

- Will need to re-record background noise if using the model in a different environment
- Each sample is only 1 second long; it won't work well for long sentences

## Audio Model Limitations

# Hungry Princess



- Run around eating as many pizzas as possible within the time limit (30s)
- Control using voice commands
  - Princess moves the given direction until ordered otherwise
- New pizzas appear every 1 sec, and disappear after 3 sec.

- You can record more than 8 samples
- Try different intonation when speaking
- Try having samples from different people
- Avoid words that sounds alike (eg. “fish”, “dish”)
- As always, increasing epoch can help

## Tips



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