

FeelMe: Using AI to Recognise Emotions with Teachable Machine

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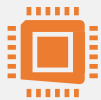
Nadine Aburumman

**Innovative
Inclusive
Diverse**

FeelMe Workshop: Using AI to Recognise Emotions with Teachable Machine

The **FeelMe** Workshop is a Hands-On Experience

The objectives:



An opportunity for all of you to gain knowledge of computer science.



An introduction to fundamental concepts and applications of computer science.



The **FeelMe** Workshop is a Hands-On Experience

The objectives:



Run a range of activities that focus on using AI to recognise emotions.



Having fun with coding while also learning.



Microsoft | micro:bit

Blocks JavaScript

Search...

- Basic
- Input
- Music
- Led
- Radio
- Loops
- Logic
- Variables
- Math
- Extensions
- Advanced

on start

- serial redirect to USB
- show icon
- clear screen

serial on data received new line ()

- set picture to serial read until new line ()
- if picture = Class 1 then
 - show leds
- else
 - show leds

Download

AI

Software

Microsoft MakeCode

an online learn-to-code platform

<https://makecode.microbit.org/>

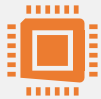
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HourofCode

Sequencing concept

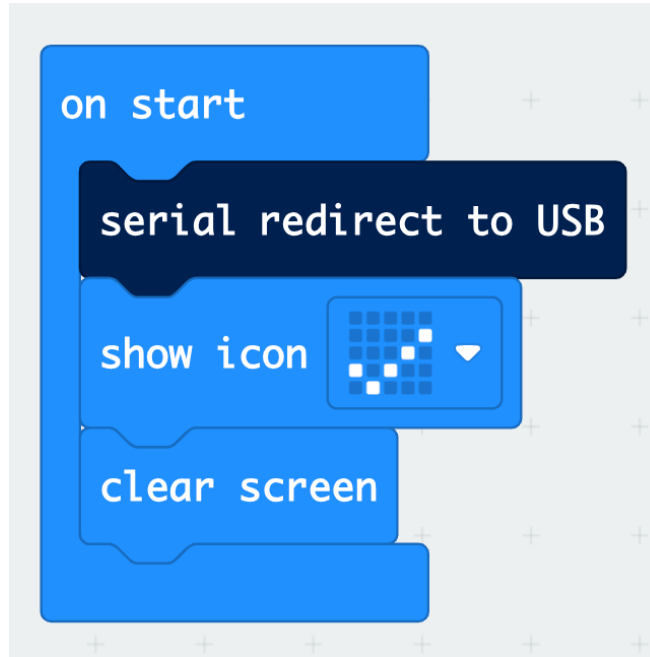


A sequence simply specifies the order of the tasks.

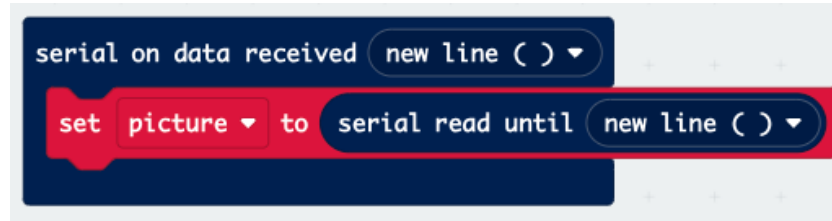
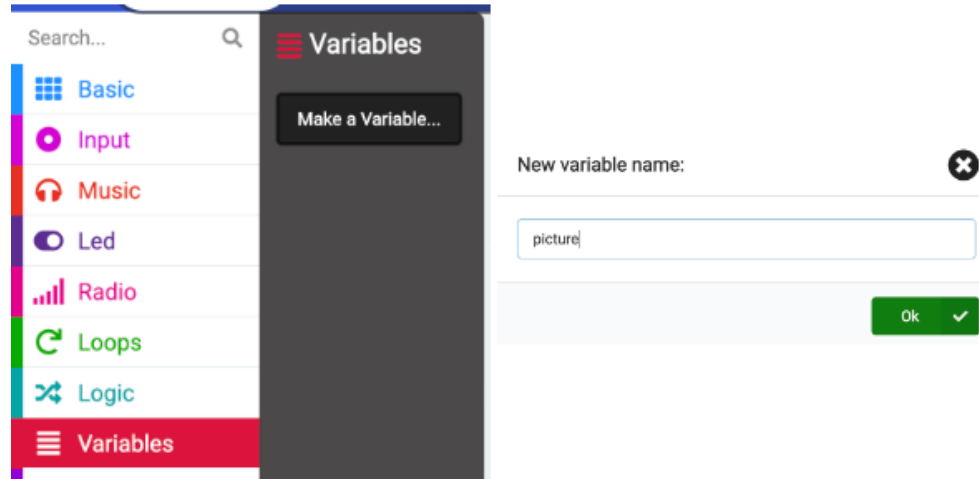


A programmer tells a computer which tasks to perform first, which to perform second, and so on, so that every requirement falls into place in its proper sequence.

Activity 1: Set Up AI Connection



Activity 2: Create AI Variable



Selection Concept

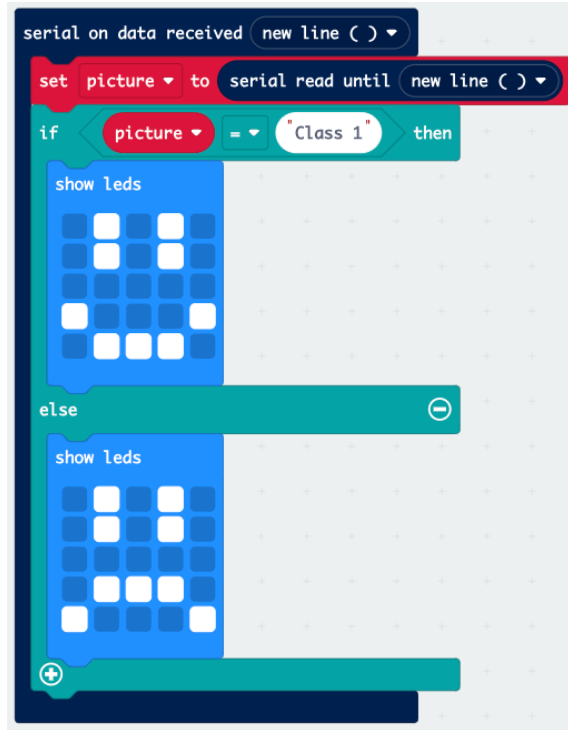


Selection statements (also known as conditional statements) are pieces of code that are only completed if certain conditions are met.



These are often referred to as “IF-THEN” statements.

Activity 3: Sensing with AI





Software

MICRO:BIT OF AI

an online platform to allow your micro:bit to use your computers webcam to recognize images.

<https://microbitai.inventor.city/>

New to Google Teachable Machine? Follow these guidelines to learn more: [Guide to Teachable Machine](#)

New to Microbit Makecode? Follow these guidelines to learn more: [Microbit Makecode Website](#)

Email Address *

Subscribe

Activity 4(a): Google Teachable Machine AI Model

1) A MICRO:BIT OF AI

Give your micro:bit project AI superpowers! This site will allow your micro:bit to use your computer's webcam to recognize images. You can recognize facial expressions, poses, and any object you can think of to put in front of your webcam! What will your micro:bit do when it can tell if you're smiling, or if you've deposited the right amount of coins?

Use the links below to get your Teachable Machine image recognition model and your micro:bit starter code. Then click on the third button to connect everything together!

1. Google Teachable Machine AI Model

2. Starter micro:bit code

3. Connect your micro:bit to your AI!

Select the Microbit in the popup screen. Past, it might be called mbed Serial Port.

2) 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



3) New Project

Open an existing project from Drive.

Open an existing project from a file.

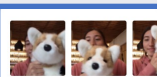
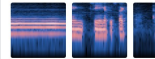


Image Project

Teach based on images, from files or your webcam.



Audio Project

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



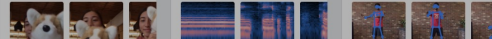
Pose Project

Teach based on images, from files or your webcam.

4) New Project

Open an existing project from Drive.

Open an existing project from a file.



New Image Project

Standard image model

Best for most uses

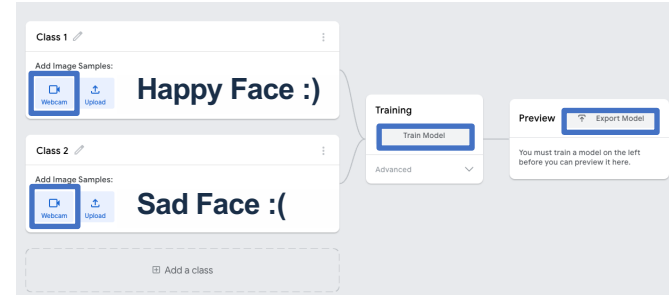
224x224px color images
Export to TensorFlow, TFLite, and TF.js
Model size: around 1mb

Embedded image model

Best for microcontrollers

16x16px grayscale images
Export to TFLite for Microcontrollers, TFLite, and TF.js
Model size: around 500kb
[See what hardware supports these models.](#)

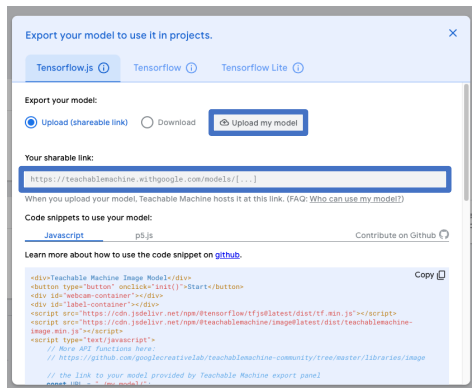
5)



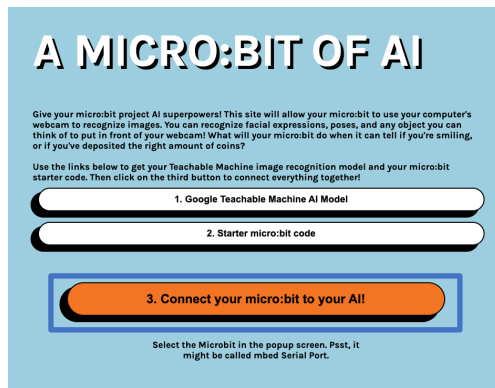
*The more photos you train the model with the more accurate the outcome will be.

Activity 4(b): Google Teachable Machine AI Model

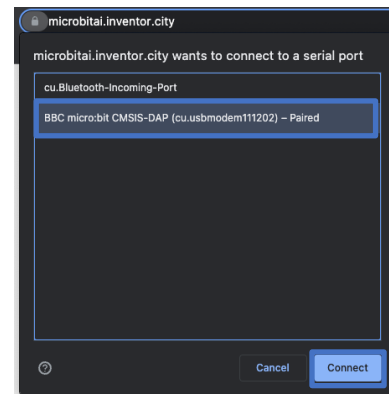
6)



7)



8)



9)

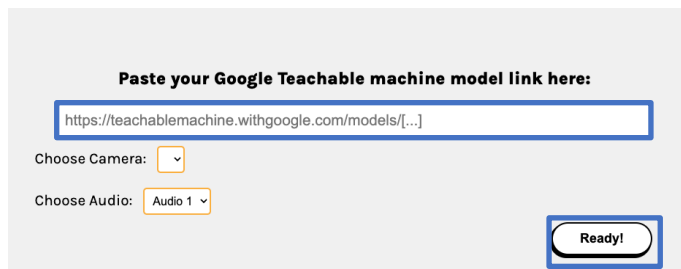
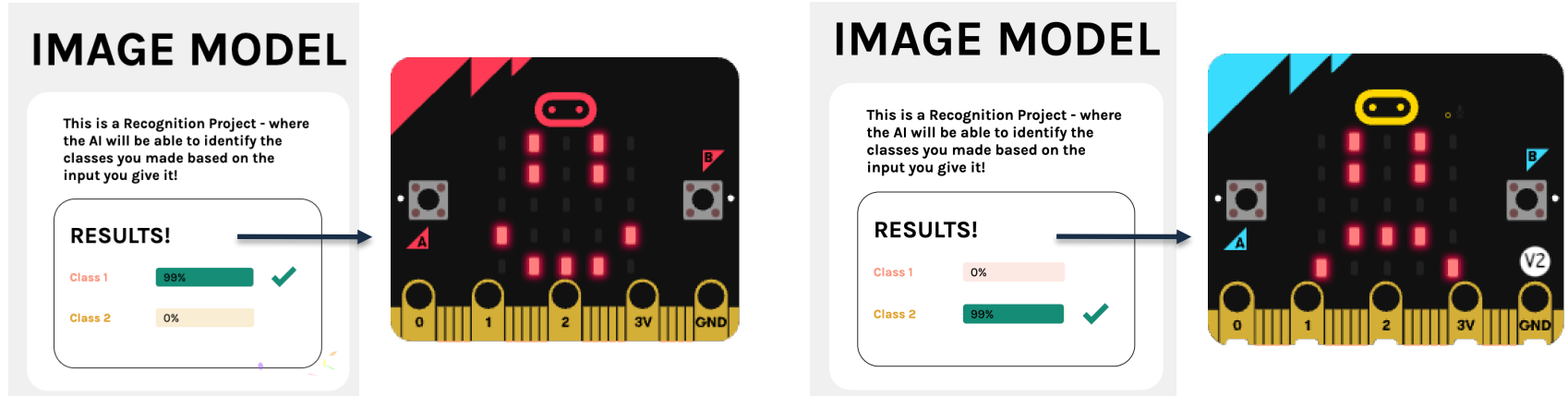


Image Model Results



Challenge Task : Add more classes to the training model for the micro:bit to recognize more emotions e.g. neutral emotion.

Challenge Task Solution

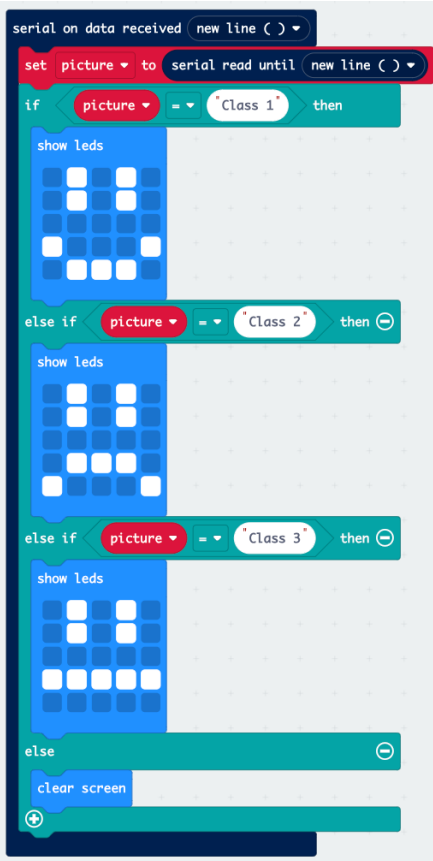
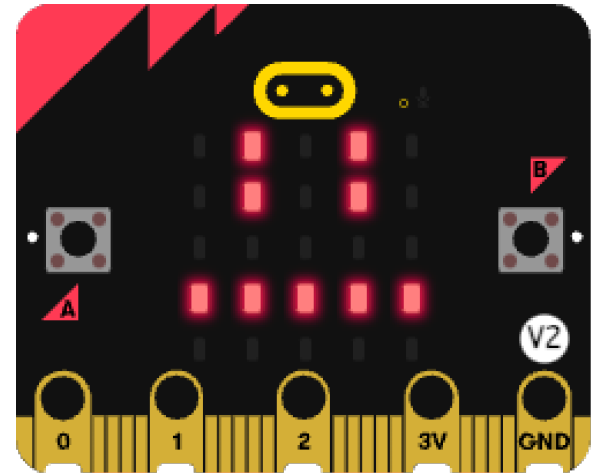


IMAGE MODEL

This is a Recognition Project - where the AI will be able to identify the classes you made based on the input you give it!

RESULTS!

Class 1	0%
Class 2	0%
Class 3	99% ✓



Any Questions?