



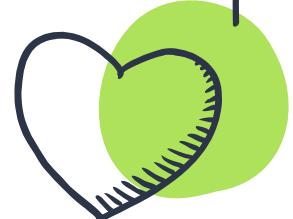
CODE 4 FUN 2 GETHER

MEGAN/ODIN



ODIN SHEN

- 軟體工程師
- 技術演講者

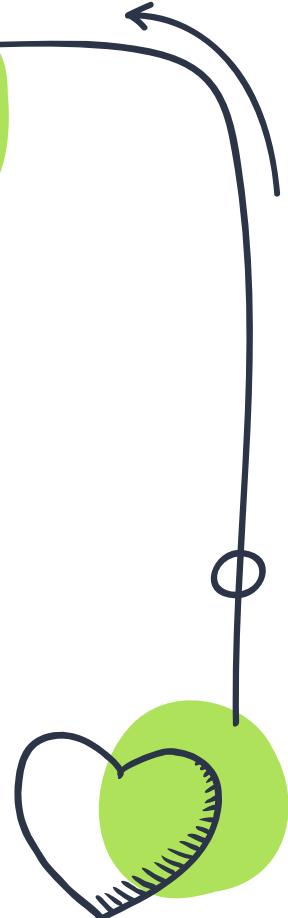


其實我是...

- ✗ 軟體工程師
- ✗ 技術演講者

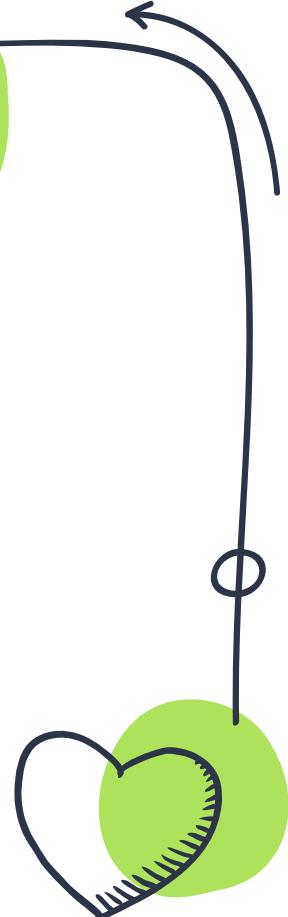


- ✗ 技術阿宅
- ✗ 邊緣人



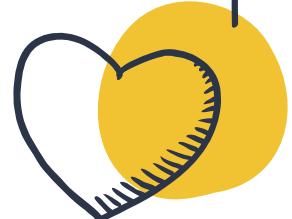
我還是...

- ✖ 生活美學家的老公
- ✖ 小四學生的家長



MEGAN SHEN

- ✖ 小四學生
- ✖ 喜歡露營
- ✖ 領養兔子



我喜歡…

X 野外放空



我喜歡…

✓ 野外放空

✓ 團隊合作



我喜歡...



✓ 野外放空 → 露營

✓ 團隊合作



我喜歡…

✗ 野外放空 → 露營



✗ 團隊合作 → 踢跳拍



對我而言最重要的是...

✓ 陪伴探索



✓ 創造回憶



“陪伴”能夠創造屬於家庭的回憶

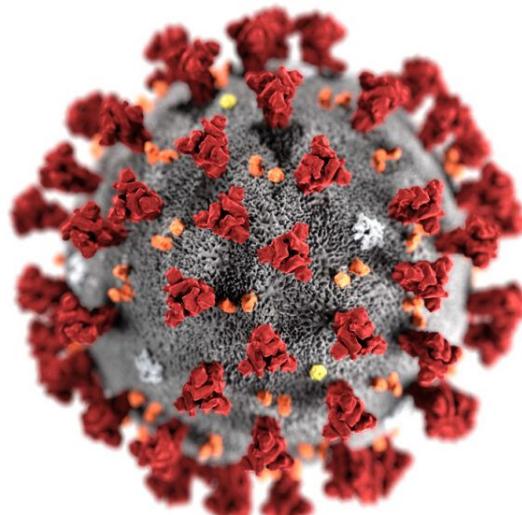


陪伴探索



創造回憶

2019 COVID-19

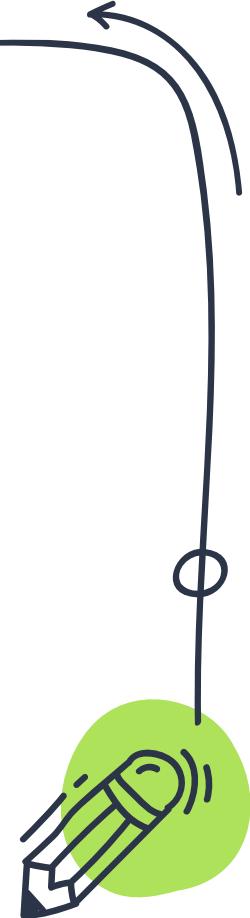


✗ 旅遊

✗ 生活
✗ 學習
✗ 工作



在家工作/上課，我以為會是這樣



在家工作/上課，但是大部分是這樣...



以為多家人相處的機會，其實…



以為多了相處的時間，其實...



在家工作/上課 反而缺乏陪伴 😢

家庭與生活 > 聊關係 / 家庭與生活 > 聊關係

疫情停課期間父母心聲 | 全家一起在家工作學習 為何讓人心累？

2021-08-27 00:00 更新：2021-09-02 10:57

by 陳志恆（諮詢心理師）（親子天下雜誌120期 2021-09-01出刊）

過去幾個月，許多人都經歷了全家在家上班上學，混亂、爭吵、放生……是不少家庭的寫照，身為諮詢心理師、親子教養和學習輔導專家，陳志恆有話對家長們說。

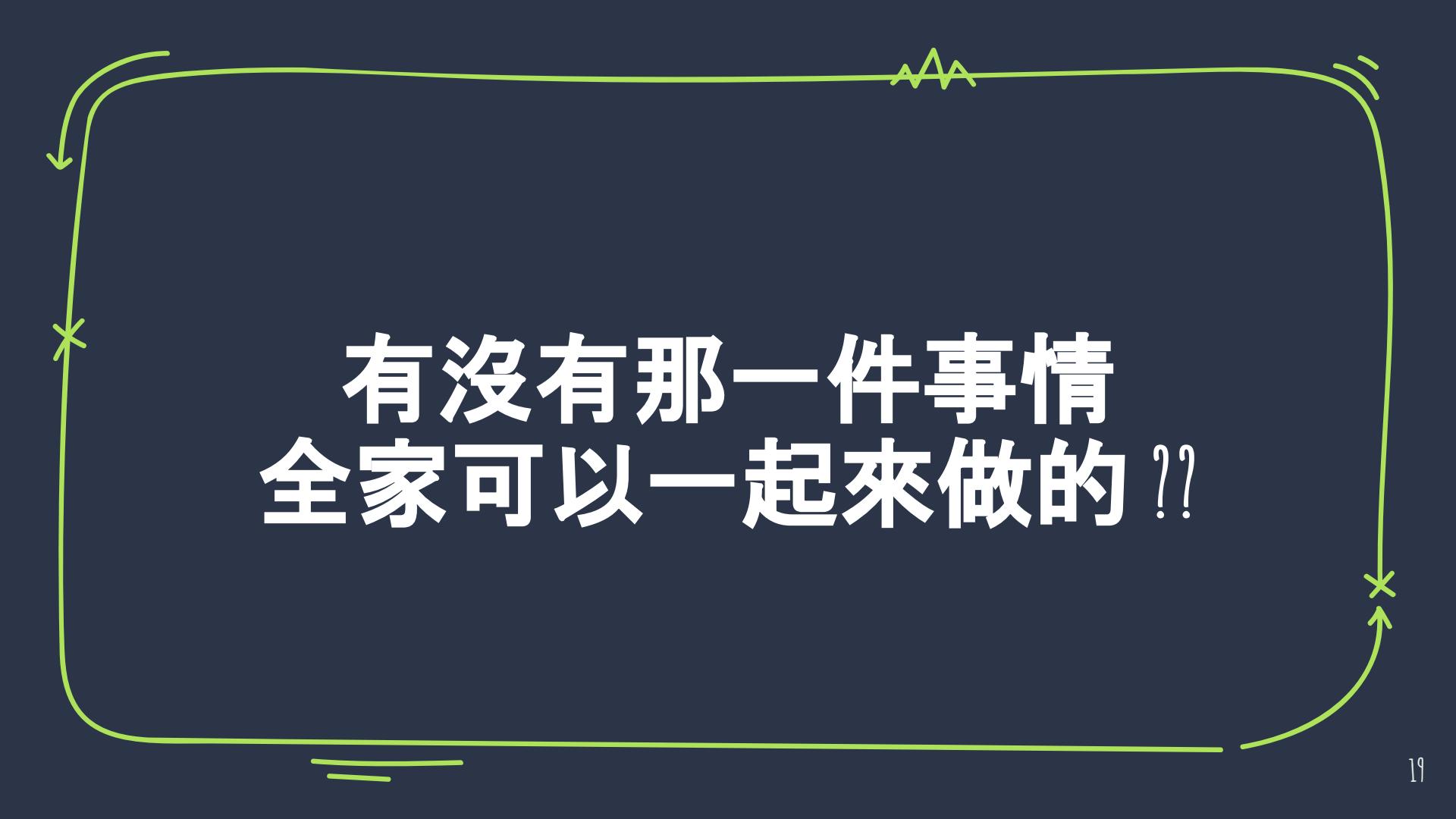
<https://www.parenting.com.tw/article/5090641>





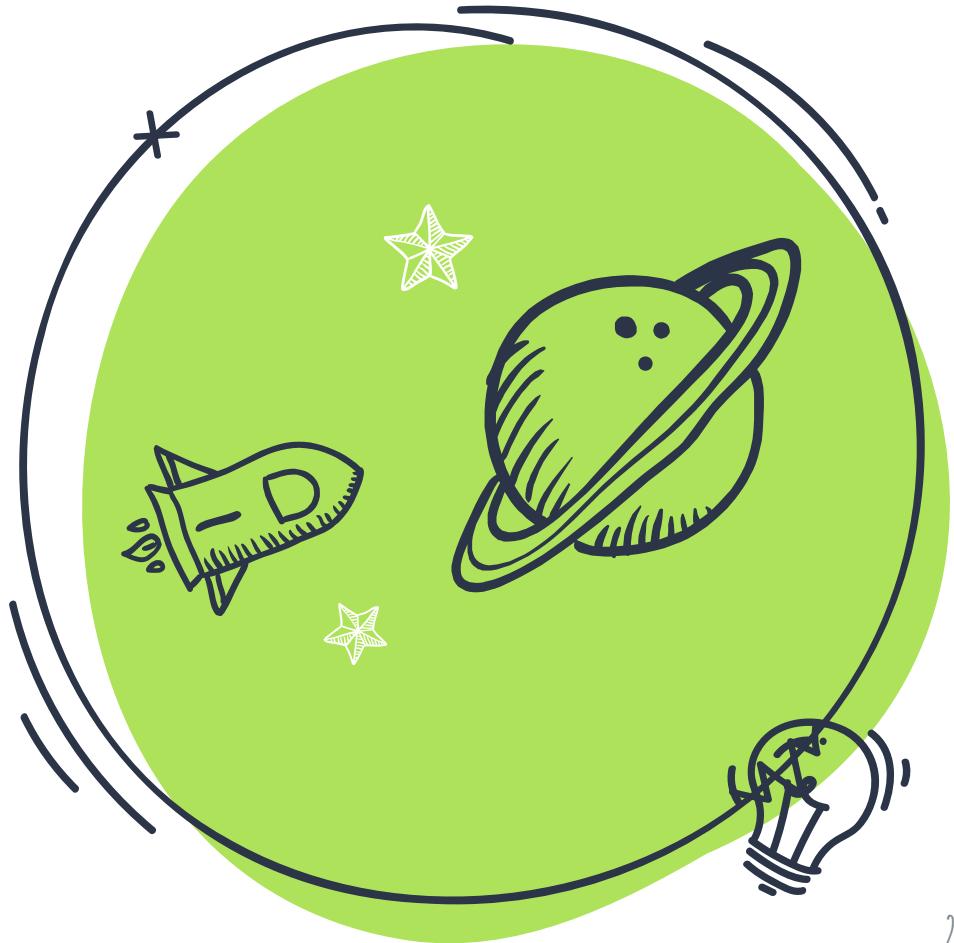
PROJECT-BASED LEARNING

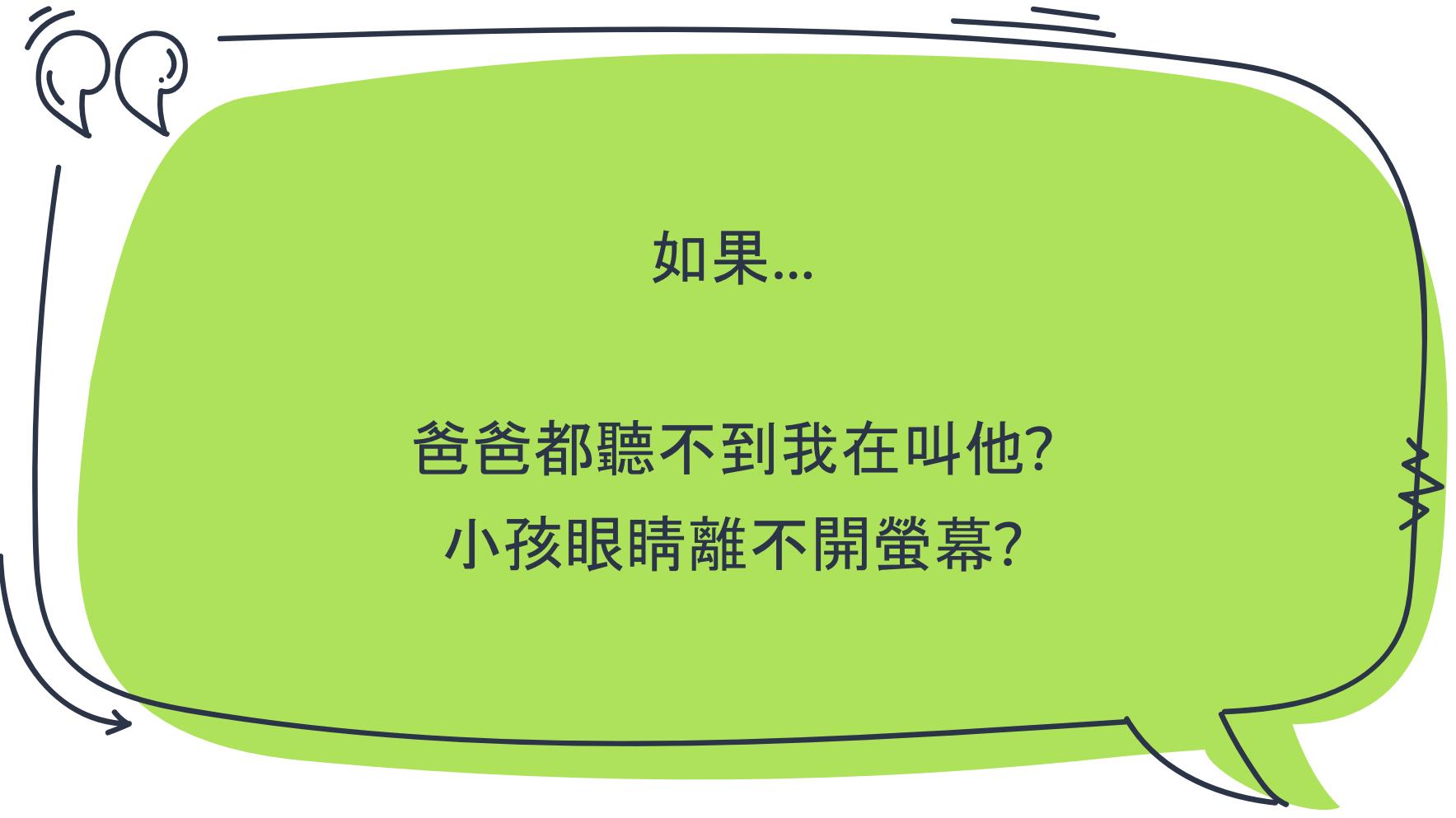
專題式學習



有沒有那一件事情
全家可以一起來做的 ??

跟小孩 玩程式？





如果...

爸爸都聽不到我在叫他?

小孩眼睛離不開螢幕?

角色扮演

PM

定義規格

ENGINEER

技術實作

ART

產品行銷

MICRO:BIT

MakeCode
Sensors
Modules



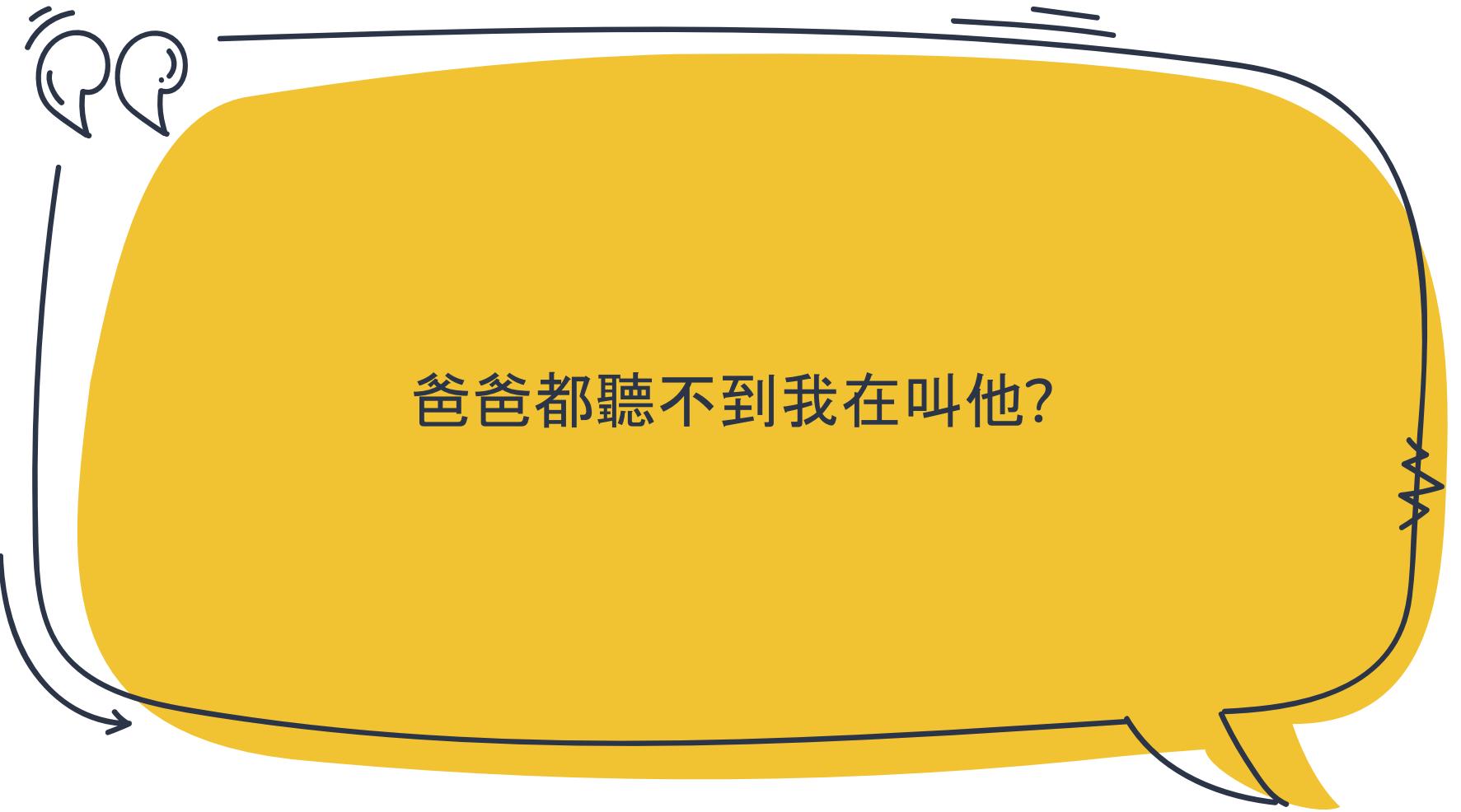
RASPBERRY PI PICO

<https://www.raspberrypi.com/products/raspberry-pi-pico/>

AI ?

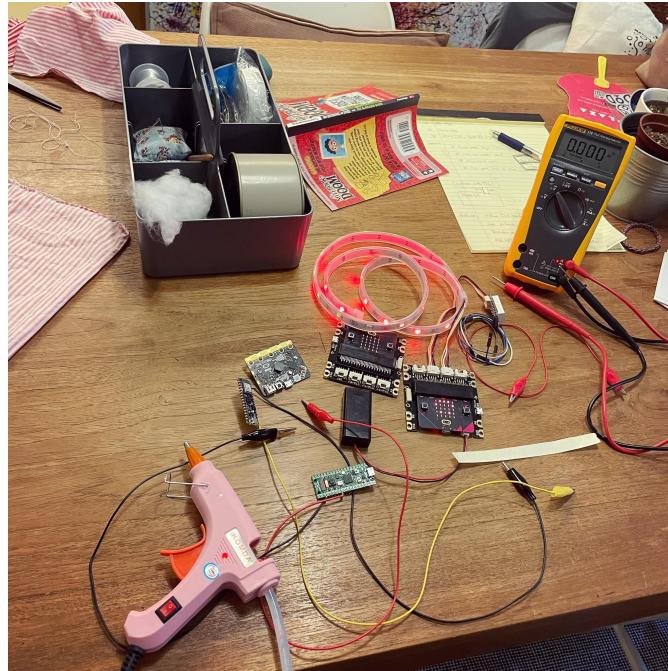
引導延伸發想





爸爸都聽不到我在叫他?

從有趣的地方開始



MAKECODE

The image displays four sets of Scratch-style code blocks:

- on start:** Set strip to NeoPixel at pin P8 with 30 leds as RGB (GRB format). Strip show rainbow from 1 to 360. Set 4digit to 4-Digit Display at P1 and P15. Radio set group 88. Set status to 0.
- forever:** If status = 1 then:
 - Set x to acceleration (mg) x + 2
 - Set y to acceleration (mg) y + 2
 - Set z to acceleration (mg) z + 2
 - Strip shift pixels by 1
 - Strip set pixel color at 0 to red x green y blue 0 - z
 - Strip show

Else:
 - Set status to 0
 - Strip show rainbow from 1 to 360
- on button A pressed:** If status = 0 then:
 - Play sound happy
 - Set status to 1

Else:
 - Set status to 0
 - Strip show rainbow from 1 to 360
- on radio received receivedNumber:** Set command to receivedNumber. Show number command.

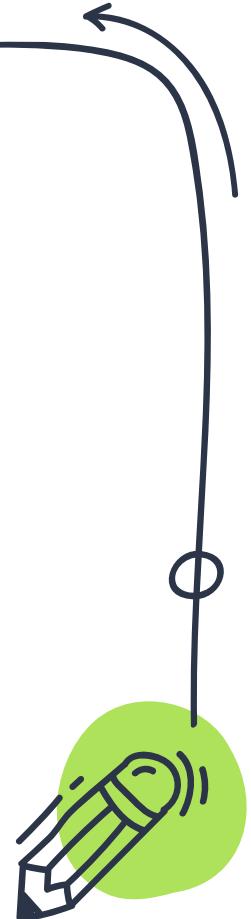
MAKECODE

```
def on_button_pressed_ab():
    radio.send_number(trigger)
input.on_button_pressed(Button.AB, on_button_pressed_ab)

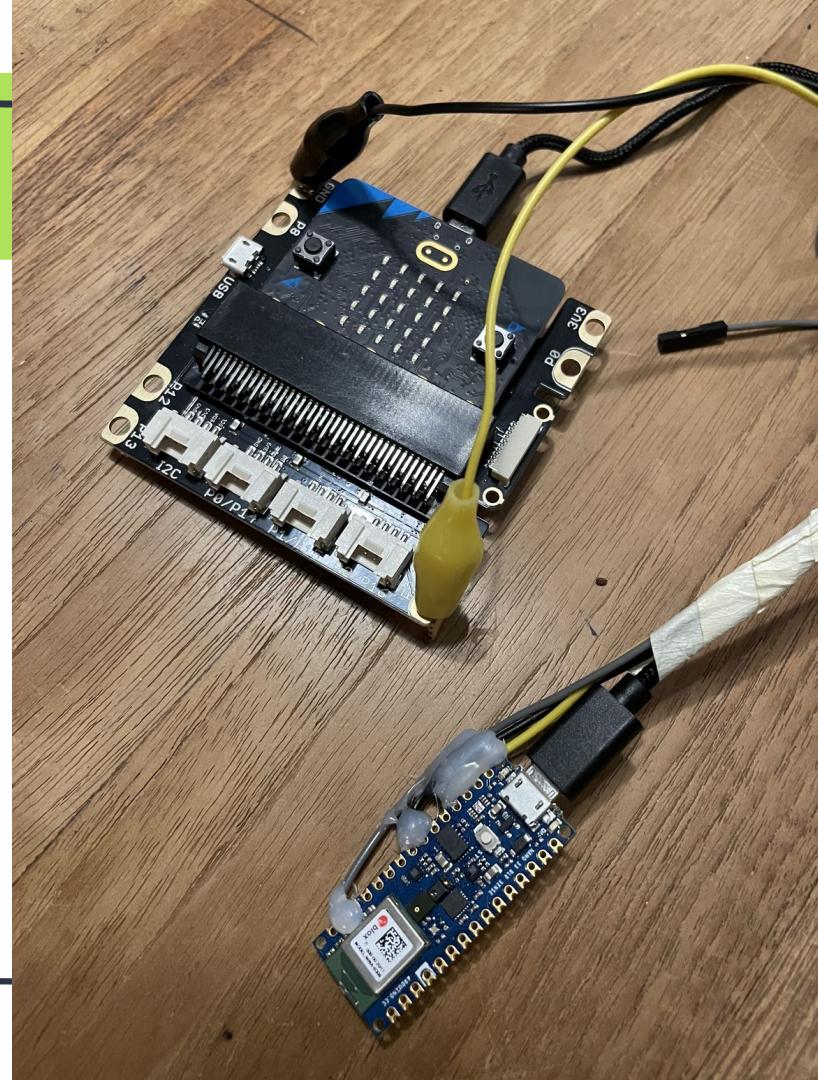
trigger = 0
radio.set_group(88)
trigger = 8
basic.show_string("COMMANDER ")

def on_forever():
    if pins.digital_read_pin(DigitalPin.P2) == 1:
        radio.send_number(trigger)
        basic.show_icon(IconNames.SMALL_HEART)
        soundExpression.giggle.play_until_done()
    elif pins.digital_read_pin(DigitalPin.P1) == 1:
        soundExpression.happy.play_until_done()
        basic.show_icon(IconNames.HEART)
    else:
        basic.show_leds("""
            . . .
            . . # .
            . . .
            . . .
            """)
basic.forever(on_forever)
```

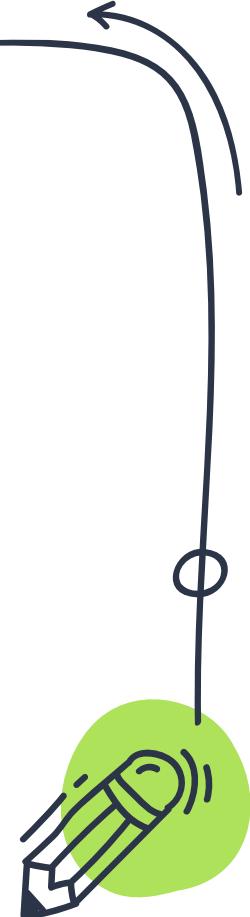
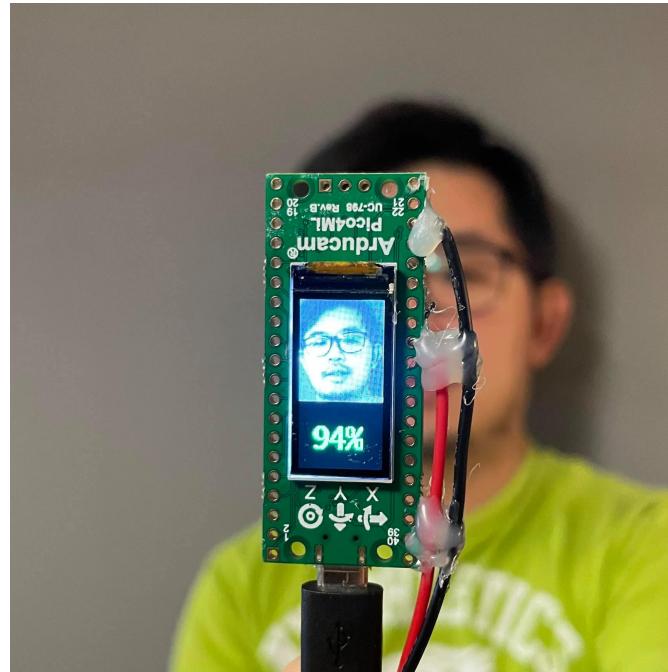
做就對了!



醜但是夠用 :)



先體驗再調整



PERSON HEADS-UP

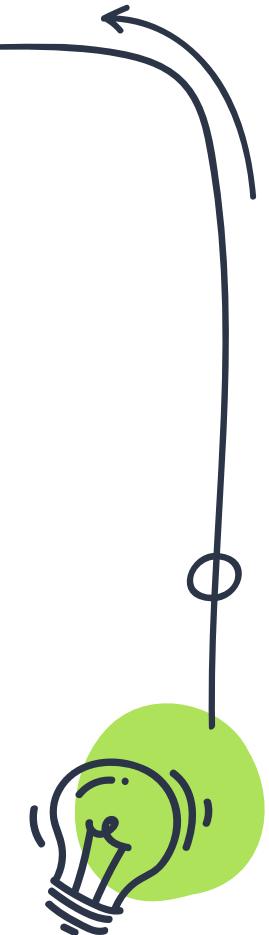
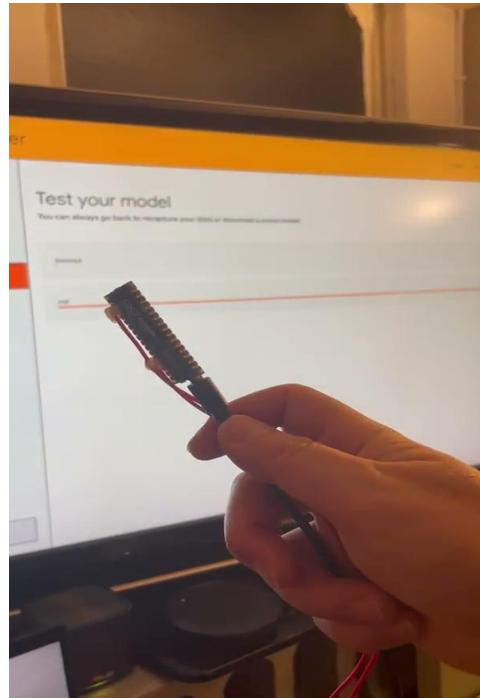
```
// Map the model into a usable data structure. This doesn't involve any
// copying or parsing, it's a very lightweight operation.
const tflite::Model* model = ::tflite::GetModel(g_person_detect_model_data);
if (model->version() != TFLITE_SCHEMA_VERSION) {
    TF_LITE_REPORT_ERROR(&micro_error_reporter,
        "Model provided is schema version %d not equal "
        "to supported version %d.\n",
        model->version(), TFLITE_SCHEMA_VERSION);
}

// Pull in only the operation implementations we need.
// This relies on a complete list of all the ops needed by this graph.
// An easier approach is to just use the AllOpsResolver, but this will
// incur some penalty in code space for op implementations that are not
// needed by this graph.
tflite::MicroMutableOpResolver<5> micro_op_resolver;
micro_op_resolver.AddAveragePool2D();
micro_op_resolver.AddConv2D();
micro_op_resolver.AddDepthwiseConv2D();
micro_op_resolver.AddReshape();
micro_op_resolver.AddSoftmax();

// Build an interpreter to run the model with.
tflite::MicroInterpreter interpreter(model, micro_op_resolver, tensor_arena,
    tensor_arena_size,
    &micro_error_reporter);
```

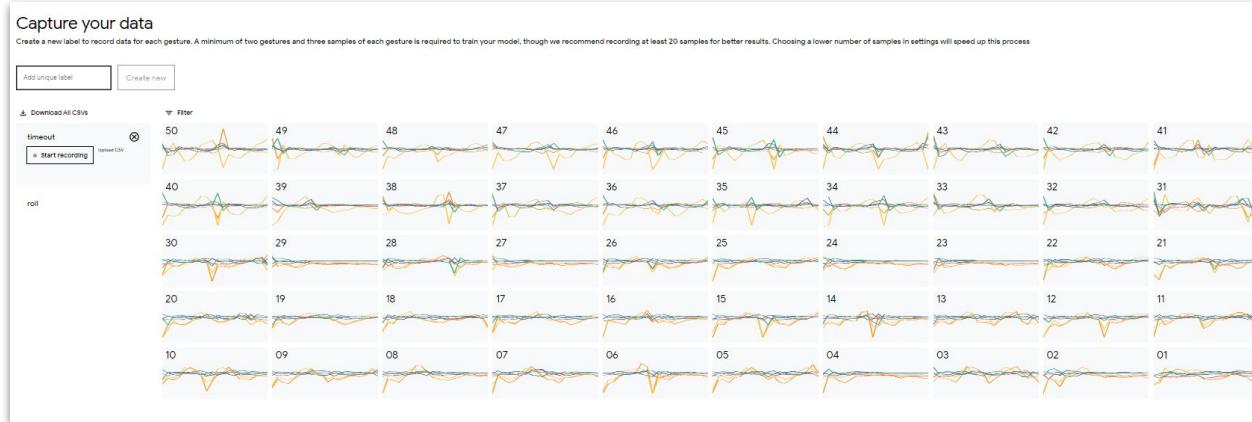
https://github.com/odincodeshen/Hey-Dad-Listen-To-Me/blob/main/rpi_pico/parent_heads_up/person_detection_test.cpp

觸類旁通



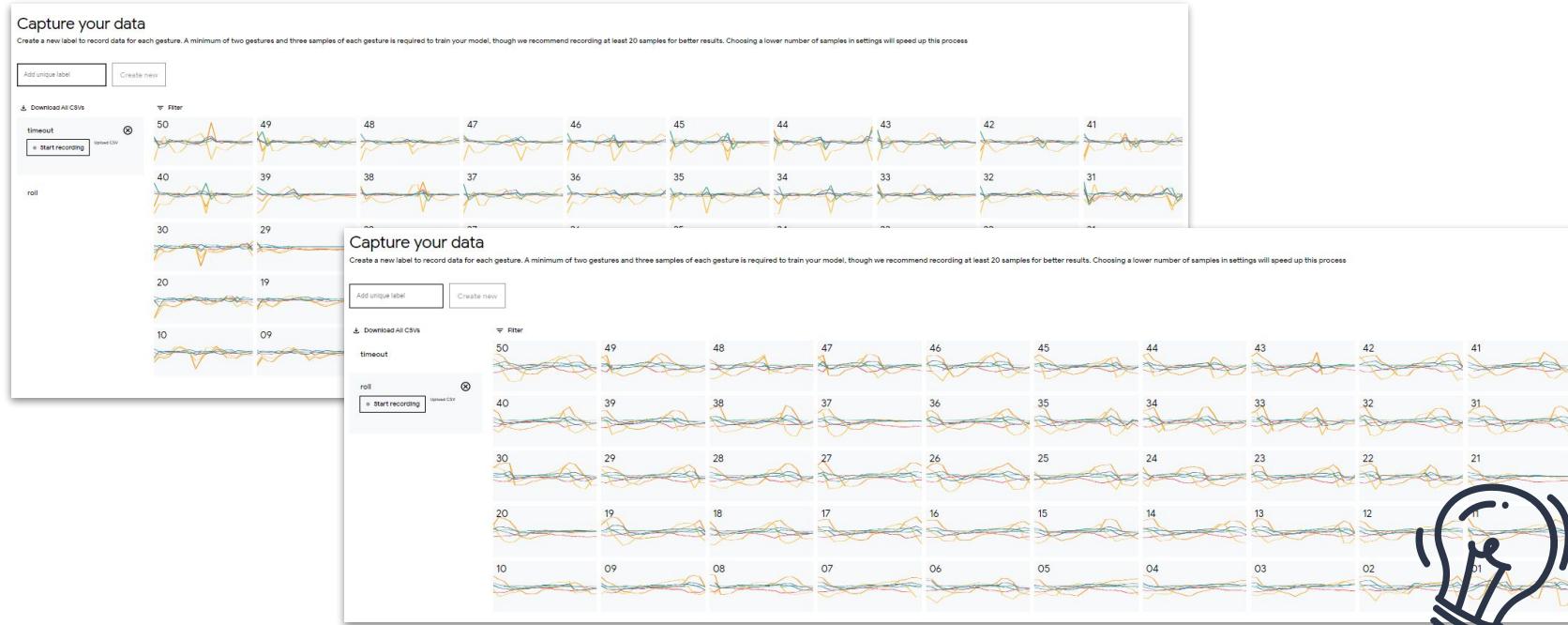
<https://experiments.withgoogle.com/tiny-motion-trainer>

觸類旁通



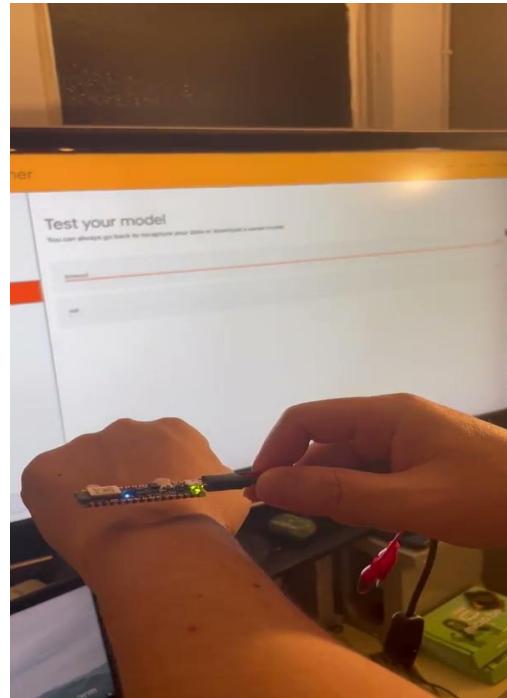
<https://experiments.withgoogle.com/tiny-motion-trainer>

觸類旁通



<https://experiments.withgoogle.com/tiny-motion-trainer>

觸類旁通



<https://experiments.withgoogle.com/tiny-motion-trainer>

TINY-MOTION TRAINER

```
...
while (isCapturing) {
    ...
IMU.readAcceleration(aX, aY, aZ);
IMU.readGyroscope(gX, gY, gZ);

// Normalize the IMU data between -1 to 1 and store in the model's
// input tensor. Accelerometer data ranges between -4 and 4,
// gyroscope data ranges between -2000 and 2000
tf1InputTensor->data.f[numSamplesRead * 6 + 0] = aX / 4.0;
tf1InputTensor->data.f[numSamplesRead * 6 + 1] = aY / 4.0;
tf1InputTensor->data.f[numSamplesRead * 6 + 2] = aZ / 4.0;
tf1InputTensor->data.f[numSamplesRead * 6 + 3] = gX / 2000.0;
tf1InputTensor->data.f[numSamplesRead * 6 + 4] = gY / 2000.0;
tf1InputTensor->data.f[numSamplesRead * 6 + 5] = gZ / 2000.0;

if (numSamplesRead == NUM_SAMPLES) {

    // Run inference
    TfLiteStatus invokeStatus = tf1Interpreter->Invoke();
    ...

    for (int i = 0; i < NUM_GESTURES; i++) {
        float _value = tf1OutputTensor->data.f[i];
        if(_value > maxValue){
            maxValue = _value;
            maxIndex = i;
        }
    }
    Serial.print("Winner: ");
    Serial.print(GESTURES[maxIndex]);

    // GPIO pull-up to trigger micro:bit when maxValue over threshold
}
}
```

<https://github.com/odincodeshen/Hey-Dad-Listen-To-Me/blob/main/TinyMotion-timelup-roll--v2/DaddyHeadsUp/DaddyHeadsUp.ino>

<https://experiments.withgoogle.com/tiny-motion-trainer>



Hey, Dad!
Listen to me.

Credit by Odin Shen

VIVAVIDEO

連結, 全部開源

YouTube



GitHub



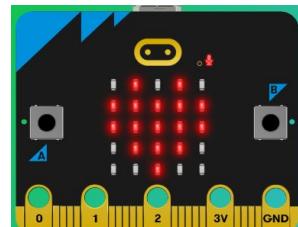
Teachable Machine



Raspberry Pi
Foundation



創意越來越容易被實作是因為 ...



<https://store-usa.arduino.cc/products/arduino-nano-33-ble>
<https://www.raspberrypi.com/products/raspberry-pi-pico/>
<https://microbit.org/>
<https://www.tensorflow.org/lite>

PROJECT-BASED LEARNING



Resources for Schools (K-12)

Our teaching and learning resources help teachers deliver engaging and inspirational lessons in Computing using physical computing devices, such as the micro:bit. Applying the Arm School Program's project-based learning pedagogical approach, the resources encourage learners to develop soft STEM skills, such as creativity and resilience, while gaining the skills and knowledge needed for exam success.

<https://www.arm.com/resources/education/schools/content>

THANKS!

