

Session 3 Part 1

Laundry Challenge

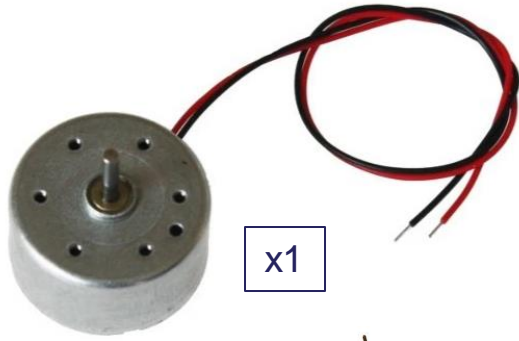


- Generate voltage by blowing on fan to spin motor
- Read voltage using the micro:bit's analog input pin
- Keep track of the highest input value
- Display the highest value on button press

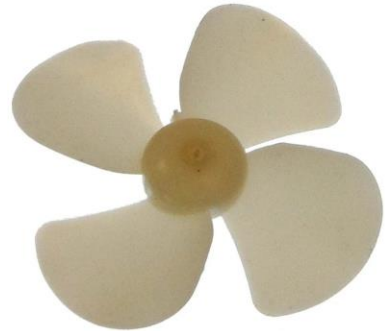
Components



x1



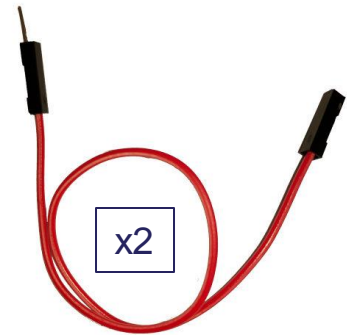
x1



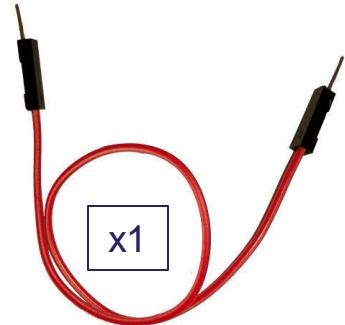
x1



x2

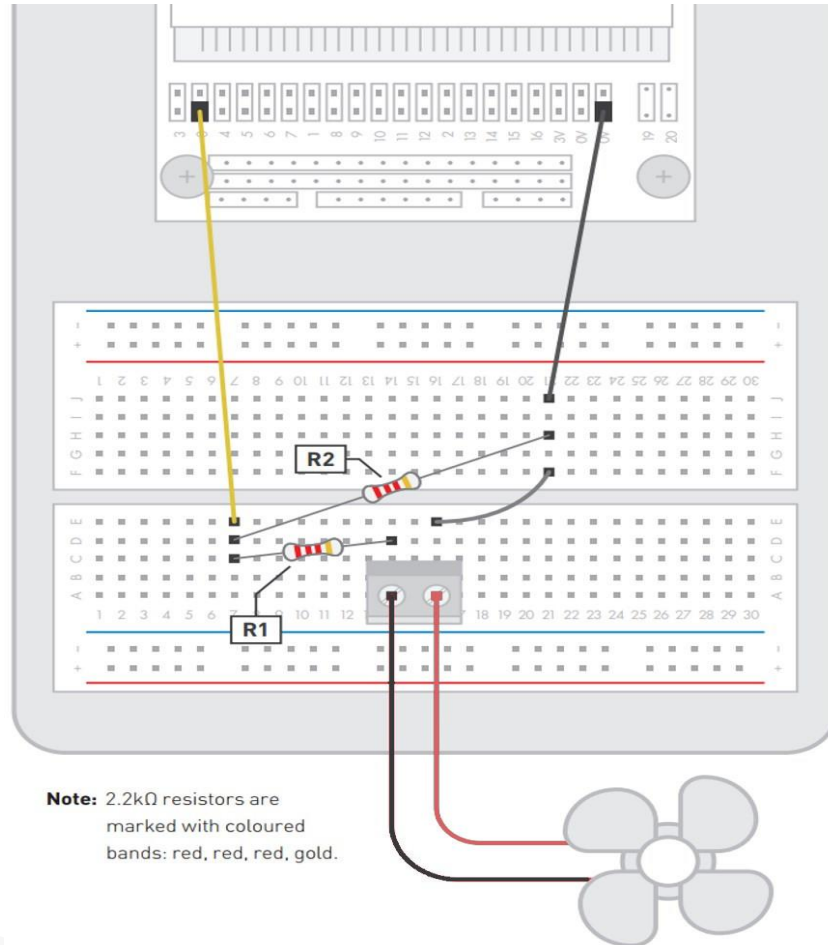


x2



x1

Wiring Diagram



Note: 2.2kΩ resistors are marked with coloured bands: red, red, red, gold.

Instructions

Step 1 – Code and test in simulator

- Read the voltage via the analogue input pin on the micro:bit.
- Keep track of the highest value read.
- Display the highest value on button press.

Step 2 – Wire up the physical micro:bit

- Using the wiring diagram as a guide, connect the physical micro:bit to the breadboard.

Extension activity

- If the wind speed generated reaches optimum drying conditions alert the user that it is time to put the washing out! This can be done by light, sound etc !

Breakout Activity



Possible Solution

```
forever
  set value to analog read pin P0
  if value > highest then
    set highest to value
```

```
on button A pressed
  show number highest
```

Analysing the data

```
on start
  set highest to 0

on button A pressed
  show number highest

forever
  set value to analog read pin P0
  set volt to map value from low 0 high 1023 to low 0 high 3
  if value > highest then
    set highest to value
  serial write value "Wind.highest" = highest
  serial write value "Wind.value" = value
  serial write value "Volt" = volt
```


Analysing the data



```

VOLTS:2.19941348973607
Wind power.highest:1023
Wind power.value:750
volts:2.19941348973607
Wind power.highest:1023
Wind power.value:750
volts:2.19941348973607
  
```

Possible Solution - extension activity

The image displays a Scratch script for a sensor-based extension activity. It consists of two main parts: an 'on start' block and a 'forever' loop.

on start

- show icon (grid icon)
- set perfectDrying to 200

forever

- set value to analog read pin P0
- if value > perfectDrying then
 - show icon (grid icon)
 - digital write pin P1 to 1
 - play sound giggle until done
- else
 - show icon (grid icon)
 - digital write pin P1 to 0

A dark blue starburst callout box contains the text: "When optimum drying conditions are reached you could maybe make a sound, light up an LED or just smile !"

Reflection

