



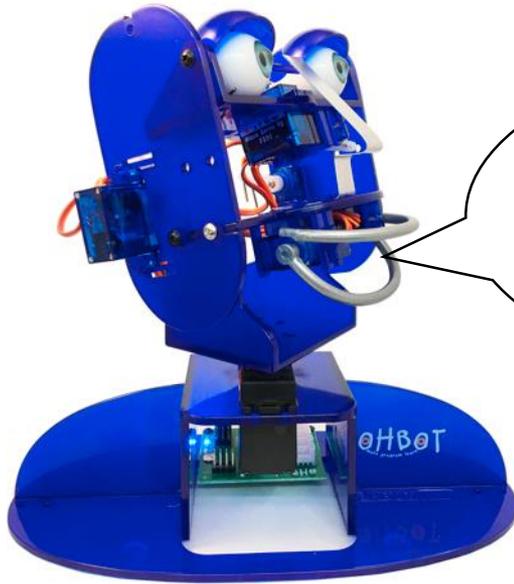
Robopoet





Robopoet

In this project you'll learn to program a robot to generate poetry when it senses movement.



I dance dangerously
I am a fiery football

We've broken the project into steps:

Step 1: Wake up sleepy head

Step 2: Hello Human

Step 3: Lip synching

Step 4: First line

Step 5: Second line

Step 6: Deciding when to perform

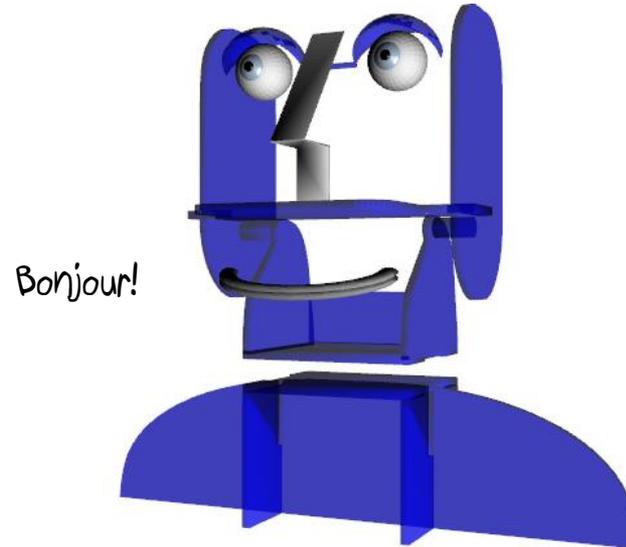
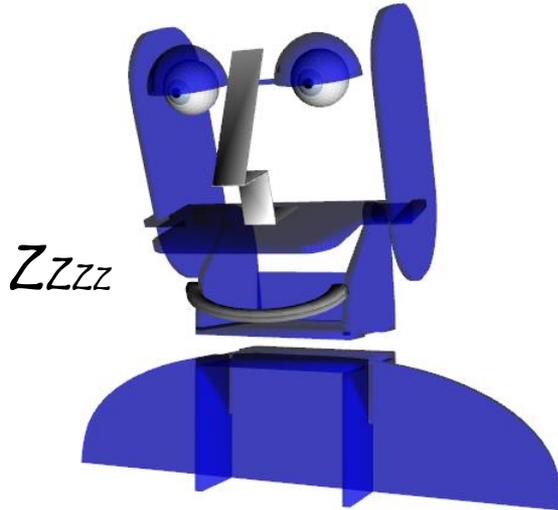
Step 8: Following your movement

Step 9: Going beyond: blinking, smiling and frowning





Step 1: Wake up, sleepy head



1. press Reset (Ohbot should 'sleep') 
2. Add instructions to make Ohbot open its eyelids when the space key is pressed

```

when W key pressed
  set LidBlink to 0
  
```

← Try different values between 0 and 10

3. Add another instruction to make Ohbot lift its head too

```

when W key pressed
  set LidBlink to 0
  set HeadNod to 0
  
```

← Try different values between 0 and 10

Done that?

Can you find a way of making Ohbot open its eyes, wait a second then lift its head?

Can you make Ohbot wake up slowly? Use reset to return Ohbot to its sleeping position.

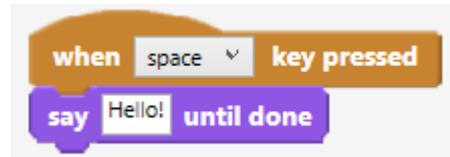


Step 3: Hello Human

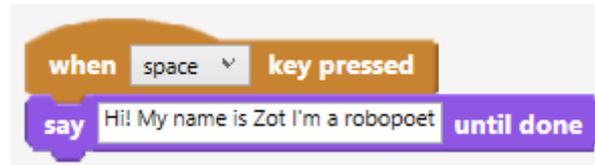
1. From the Sensing tab select the Green Flag event instruction.



2. Click on the Say tab and drag the *say Hello until done* instruction



3. Click and type into the box



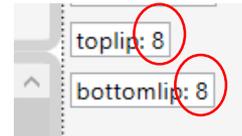
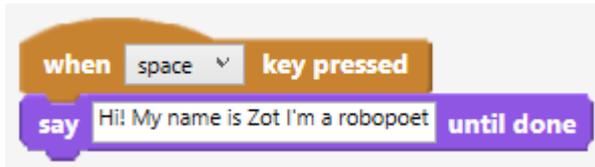


Step 3: Lip synching

1. put a tick in the box next to the sensor variables for the toplip and bottomlip.



2. Now run a say instruction and watch the values for the top lip and bottom lip vary



3. Try the instructions below. This will keep setting the position of lips to the sensor values for the toplip and bottom lip.



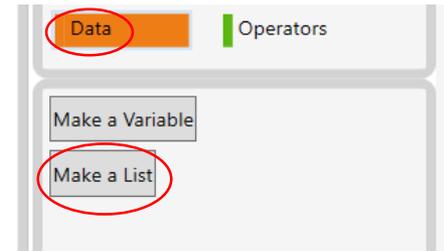
4. To test your program click the Green Flag to start the loop. Then click the space key.



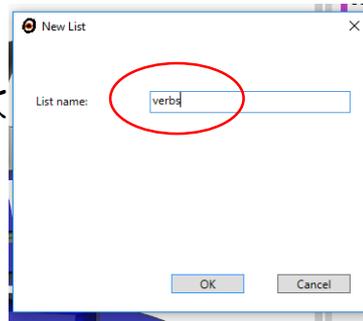


Step 4: First line

1. We need to create a list of verbs for the first line of the poem.
On the data tab click Make a List



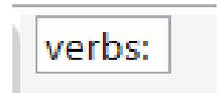
2. Type in the list name 'Verbs' and click OK



3. Put a tick next to the verbs variable box.



4. You should see the list contents (currently empty) displayed in the coding area on the screen like this:



5. Click on the box and enter at least three verbs (action words) Between each word use a | symbol (upper case next to Z on the keyboard)

verbs: sing|dance|laugh



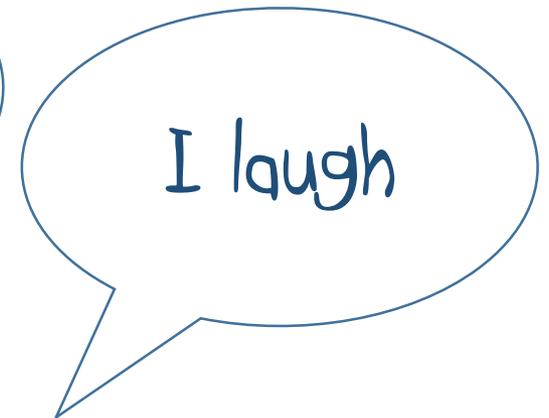


Step 4: First line

1. The first line of your poem will be the word 'I', followed by a random verb from the list. Add these instructions:



2. Test your program several times by clicking Space. Your robot should say a random word from the list each time.

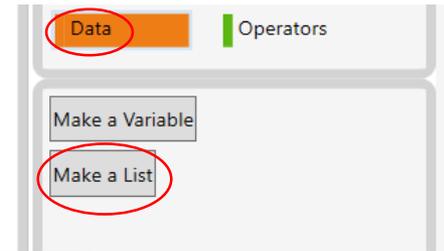




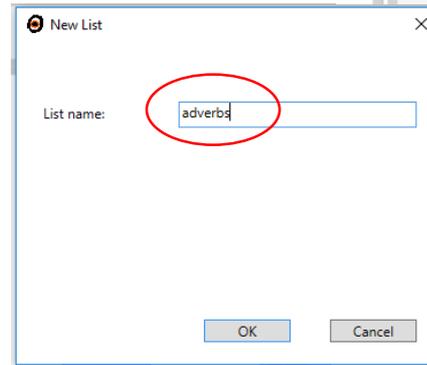
Step 4: First line

1. Let's create a second list, this time containing adverbs.

On the data tab click Make a List



2. Type in the list name adverbs and click OK



3. Put a tick next to the adverbs variable box.



4. You should see the list contents (currently empty) displayed in the coding area on the screen like this:

adverb:

5. Click on the box and enter some adverbs (words that describe actions) Between each word use a | symbol (upper case next to Z on the keyboard)

adverb: joyfully|disasterously|sadly





Step 4: First line

1. The second part of your poem will be a random adverb. Add this code:

```
when space key pressed
say Hi! My name is Zot I'm a robopoet until done
say join | item random of verbs until done
say item random of adverb until done
```

The image shows a Scratch script with four blocks. The first block is a 'when space key pressed' trigger. The second block is a 'say' block with the text 'Hi! My name is Zot I'm a robopoet' and 'until done'. The third block is a 'say' block with a 'join |' block, an 'item random of verbs' block, and 'until done'. The fourth block is a 'say' block with an 'item random of adverb' block and 'until done'.

2. Test your program by clicking Space. Your robot should say a random word from the list the list of verbs followed by a random adverb each time.

I sing
dangerously

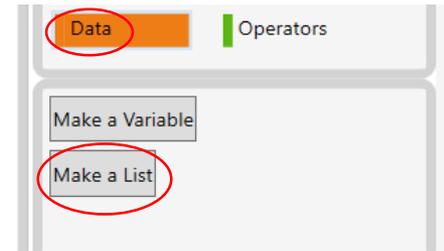
I dance
nervously





Step 5: Second line

1. Let's create two more lists, this time for nouns and adjectives.



2. put ticks next to the variables for the new lists



3. Click on each box and enter some nouns and adjectives into each list. Between each word use a | symbol (upper case next to Z on the keyboard)

adjective: grey|old|purple|amazing|flat

noun: table|mouse|hedgehog|cloud|cauliflower

4. Add further instructions to make your robot select a random adjective then a random noun from the list.





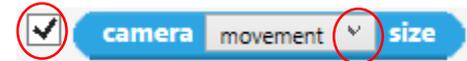
Step 6: Sensing movement

We're going to program Ohbot only to perform when it senses movement

1. On the sensing tab find the *camera face size* variable



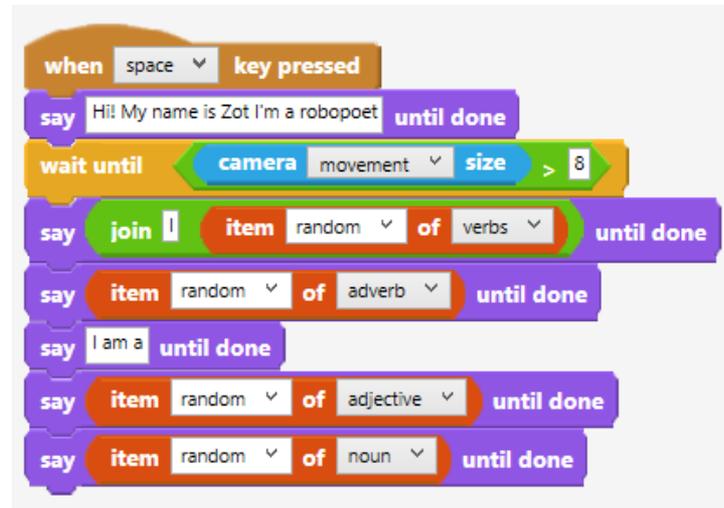
2. From the drop down menu select *movement* and put a tick in the box.



2. Watch the value change when there is movement in front of the camera:



4. Add these instructions.



5. Can you make Ohbot perform whenever it senses movement?



Step 7: Following movement

We're going to program Ohbot only to perform when it senses movement



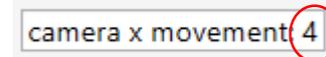
1. On the sensing tab find the *camera x face* variable



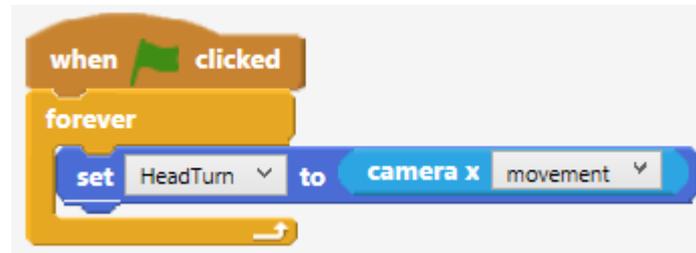
2. From the drop down menu select *movement* and put a tick in the box.



2. Watch the value change when there is movement in front of the camera:



4. Add these instructions.





Step 8: Blinking like you

1. How often do you blink and how long is a blink?
2. Try these instructions to open and close Ohbot's eyelids:



3. Can you make Ohbot blink just like you do?
4. Can you arrange these instructions to make Ohbot blink automatically, just like you?



There's a way of doing it behind here

Done that?

Doesn't look too realistic does it? Nobody blinks every other second for one second! Can you find a way of making Ohbot's blinking more realistic by altering the wait? You could also try using the random instruction:





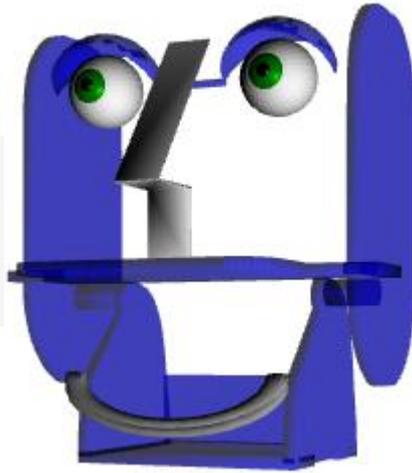
Step 8: Smiling and frowning

1. Make Ohbot smile

```

when U key pressed
  set BottomLip to 10
  set TopLip to 0

```

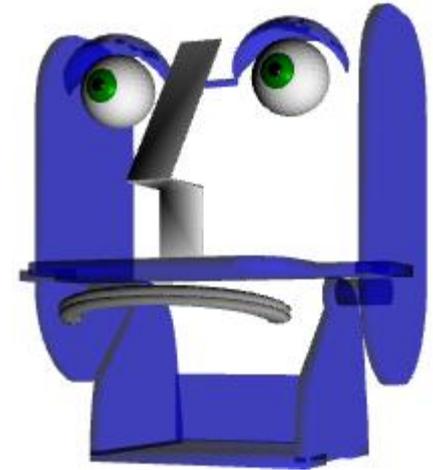


...and frown

```

when N key pressed
  set TopLip to 10
  set BottomLip to 0

```



2. Create a variable

```

Make a Variable
 Lip Sync On
set Lip Sync On to 0
change Lip Sync On by 1

```

```

when clicked
  forever
    if Lip Sync On = 1 then
      set TopLip to toplip
      set BottomLip to bottomlip

```

3. Now you can set the variable to 0 to switch off the lip sync and then set instructions for a smile