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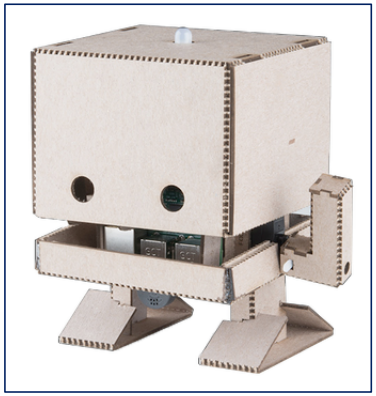
Research Integrated Solutions

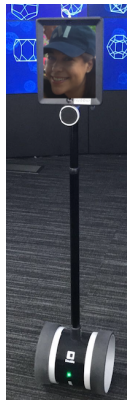


Hour of Code Workshop

Mercy Bodarky, Carlos Fonseca, Edie Fost, Frank Franco,
Colm Malone, Michael Santos, Mark Sobierajski, Abdoulaye Traore

June 28, 2019

Meet our Workshop Team



Mercy Bodarky

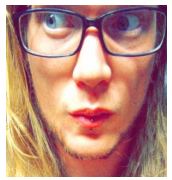
Carlos Fonseca

Edie Fost

Frank Franco

Colm Malone

Michael Santos

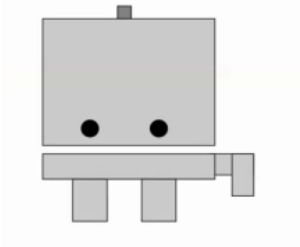


Mark Sobierajski

Abdoulaye Traore

Agenda

TJ Bots Demos



Coding Exercise

Supplies for TJ Bot

Q &A, Raffle

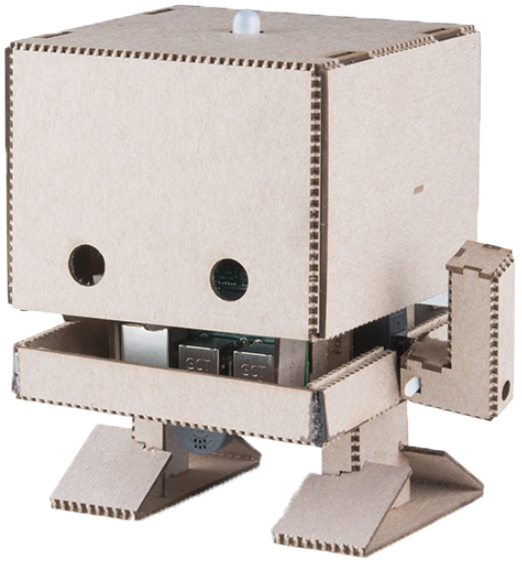
TJBot Demo

https://ibmtjbot.github.io

Hi, my name is TJBot!

I'm an open source project designed to help you use artificial intelligence services in a fun way. You can laser cut or 3D print me, then use one of my recipes to bring me to life!

I can't wait to see what we do together! #TJBot



IBM Watson Services

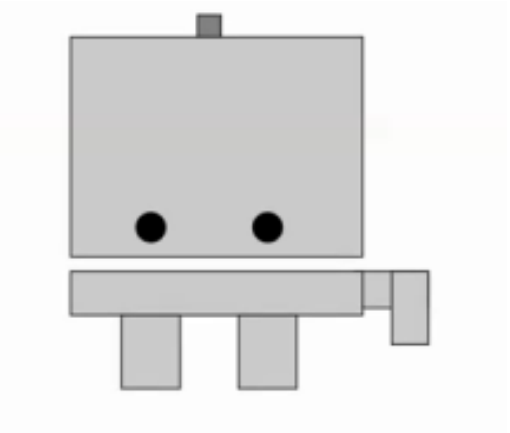
- Sign up for a free IBM Cloud Account

  https://cloud.ibm.com

- Speech to text
- Text to speech
- Assistant (conversation)
- Translator

Activity 1 Instructions

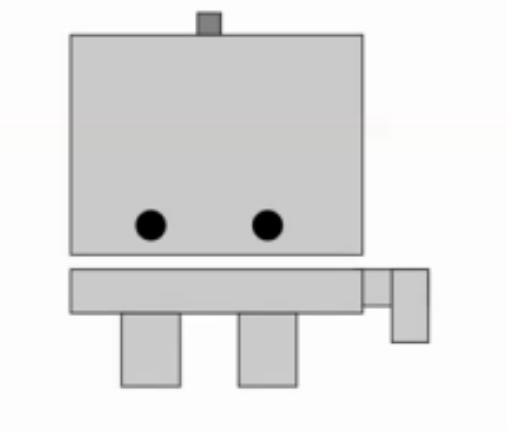
1. Launch Chrome Browser and go to https://my-tjbot.mybluemix.net
2. Click on the .env tab on the upper left. Copy the API keys from the api-keys.txt file on your desktop and paste it in the code box in the simulator
3. Click on the app.js tab in the upper left and then click on the Docs tab in the upper right.
4. Scroll to shine(color) function. Double click on the box below the function to copy the JavaScript code to the editor box
5. Click on the TJBot tab in the upper middle/left.
6. Click on the Run button to see what happens to the robot
7. Clear the editor and try different functions
8. Try combining functions



Activity 2 Instructions

You can skips steps 1-3 if you already completed another activity.

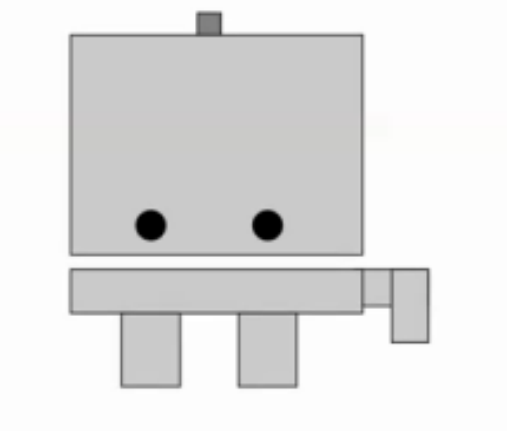
1. Launch Chrome Browser and go to https://my-tjbot.mybluemix.net
2. Click on the .env tab on the upper left. Copy the API keys from the api-keys.txt file on your desktop and paste it in the code box in the simulator
3. Click on the app.js tab in the upper left
4. Click on the Docs tab in the upper right.
5. Scroll to speak(text) function. Double click on the box below the function to copy the JavaScript code to the editor box
6. Change the speak text from “hello” to “Hi, My name is TJBot”
7. Click on the TJBot tab in the upper middle/left.
8. Click on the Run button to see what happens.



Activity 3 Instructions

You can skips steps 1-3 if you already completed another activity.

1. Launch Chrome Browser and go to https://my-tjbot.mybluemix.net
2. Click on the .env tab on the upper left. Copy the API keys from the api-keys.txt file on your desktop and paste it in the code box in the simulator
3. Click on the app.js tab in the upper left.
4. Click on the Docs tab in the upper right.
5. Scroll to listen(cb) function. Double click on the box below the function to copy the JavaScript code to the editor box
6. Click on the Console tab in the upper middle/left.
7. Click on the Run button, say something, and then see the text of what you said in the console window.



Activity 4 Instructions

You can skips steps 1-3 if you already completed another activity.

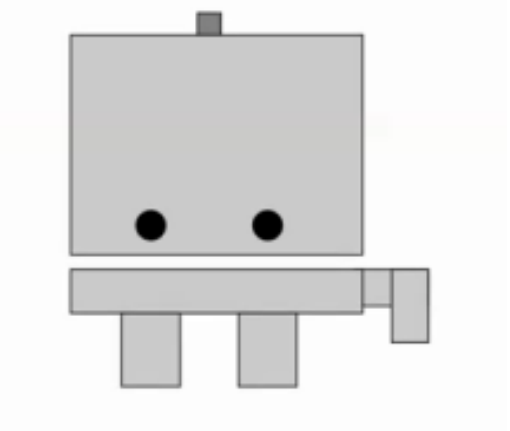
1. Launch Chrome Browser and go to https://my-tjbot.mybluemix.net
2. Click on the .env tab on the upper left. Copy the API keys from the api-keys.txt file on your desktop and paste it in the code box in the simulator
3. Click on the app.js tab in the upper left.
4. Click on the Docs tab in the upper right.
5. Scroll to listen(cb) function. Double click on the box below the function to copy the JavaScript code to the editor box
6. Scroll to the speak(text) function. Copy the code and paste it after the:

```
tj.listen((text) => {
  console.log(text);
```

So it looks like:

```
tj.listen((text) => {
  console.log(text);
  var tj2 = new TJBot(["speaker"], {
      robot: {
        gender: "female"
      },
      speak: {
        language: "en-US"
      }
    },
    {
    text_to_speech: {
      apikey: process.env.TEXT_TO_SPEECH_API_KEY
    }
  });
  tj2.speak(text);
```

7. Click on the Console tab in the upper middle/left.
8. Click on the Run button, say something, and then see what happens.



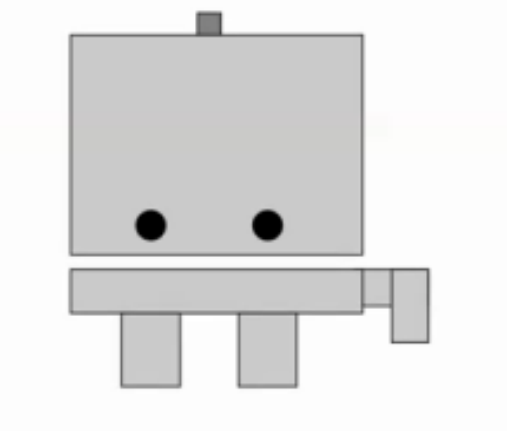
Activity Instructions

- What are all the functions you need to code a TJBot like Johnny?

✓Listen

✓Speak

✓Converse



- Copy the content from the tjbot-example.js on github to the simulator editor and then run it.

JavaScript Overview

- What is JavaScript
- Variables
  - Strings, `var name = "Johnny";`
  - Integers , `var age = 24;`
- Functions,

```
function myFunction(a, b) {
        // do something
}
```

  - Function variables = data passed into a function
  - Function returns = data that the function returns when it's completed.

```
var x = myFunction(4, 3);   // Function is called, return value will end up in x


function myFunction(a, b) {
   return a * b;               // Function returns the product of a and b
}
```

- Objects
  - Variables
  - Functions
- Formatting and Semicolon ; ; ; ; ; ; ; ; ;

TJ Bot Supply List

Raspberry Pi 3 + SD card preloaded with NOOBS.
This is a required component to make TJBot work! 🤖

USB Microphone.
Other brands of USB microphones should also work.

Mini Bluetooth Speaker.
Any small speaker with either a 3.5mm audio jack or Bluetooth will work. Note that if you are using the 3.5mm audio jack, you may wish to add a USB Audio Adapter to avoid audio interference with the LED.

Servo Motor.
Note that the red (middle) wire is 5v, the brown wire is ground, and the orange wire is data.

NeoPixel RGB LED (8mm).
If you are using other kinds of LEDs, you may need to add a resistor; this LED doesn't require one.

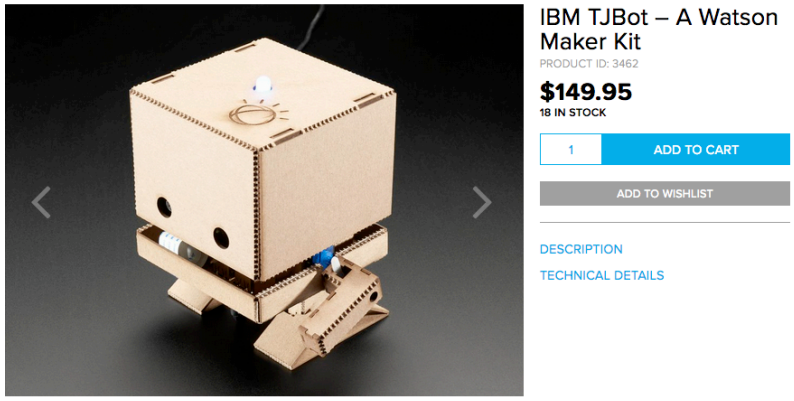
Female-to-female + female-to-male jumper wires.
TJBot will only need 3 of each type, so you'll have extra.

Raspberry Pi Camera. Either the 5MP or 8MP camera will work.

Note: Not all of these are required for all recipes.

TJ Bot Watson Maker Kit

https://www.sparkfun.com/products/14515 $125.00



https://www.adafruit.com/product/3462

Note: Not all of these are required for all recipes.

Links & Information

- TJBot Hour of Code

- IBM TJ Bot (3d Print TJ Bot, Code, recipes and more)

Thank you for visiting
IBM TJ Watson Research Center

