

# TESSEL

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*Programming microcontrollers with node.js*

# WHAT IS THE TESSEL?

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- Comes with a number of modules with various functionalities.

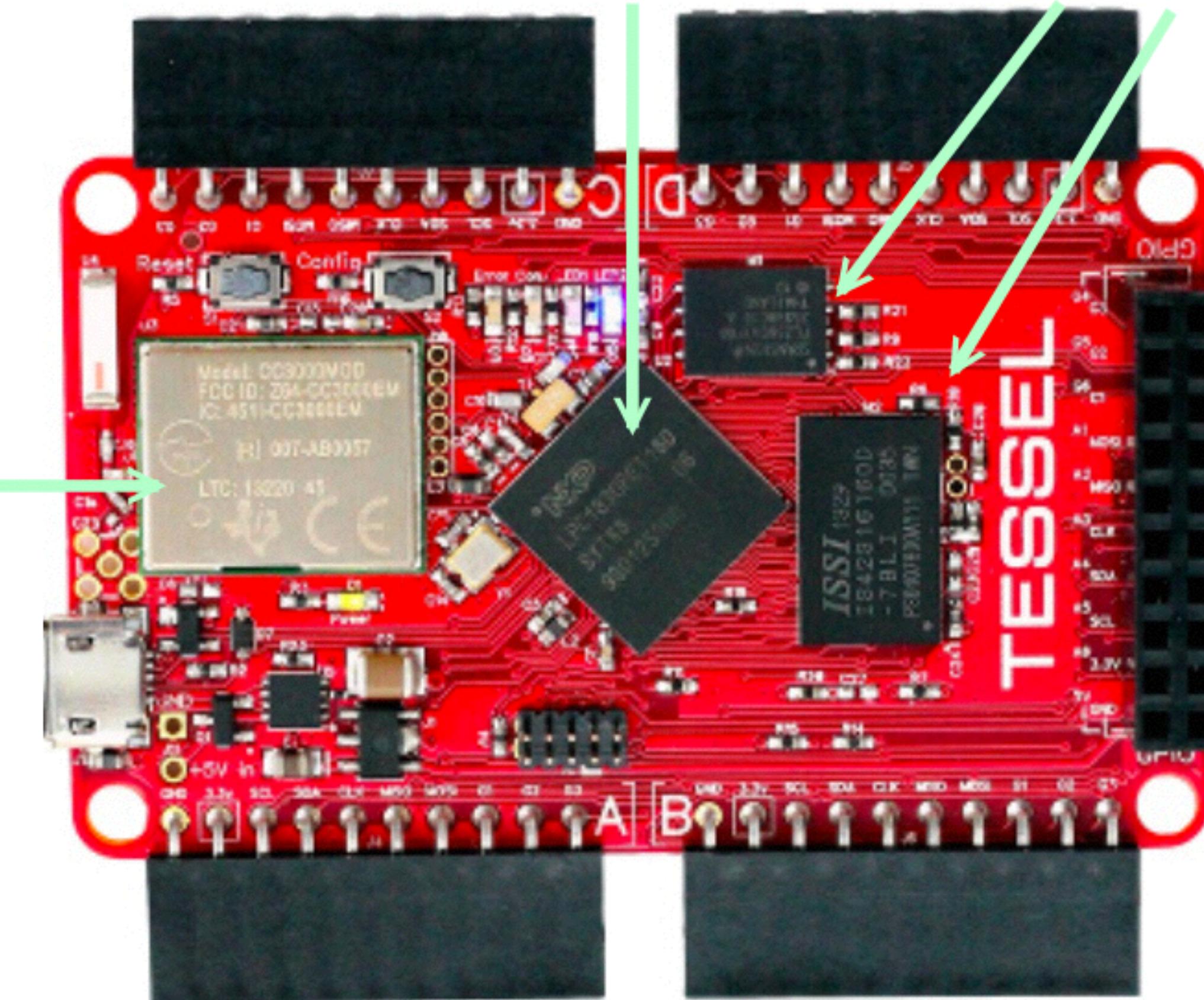
# WHAT IS THE TESSEL?

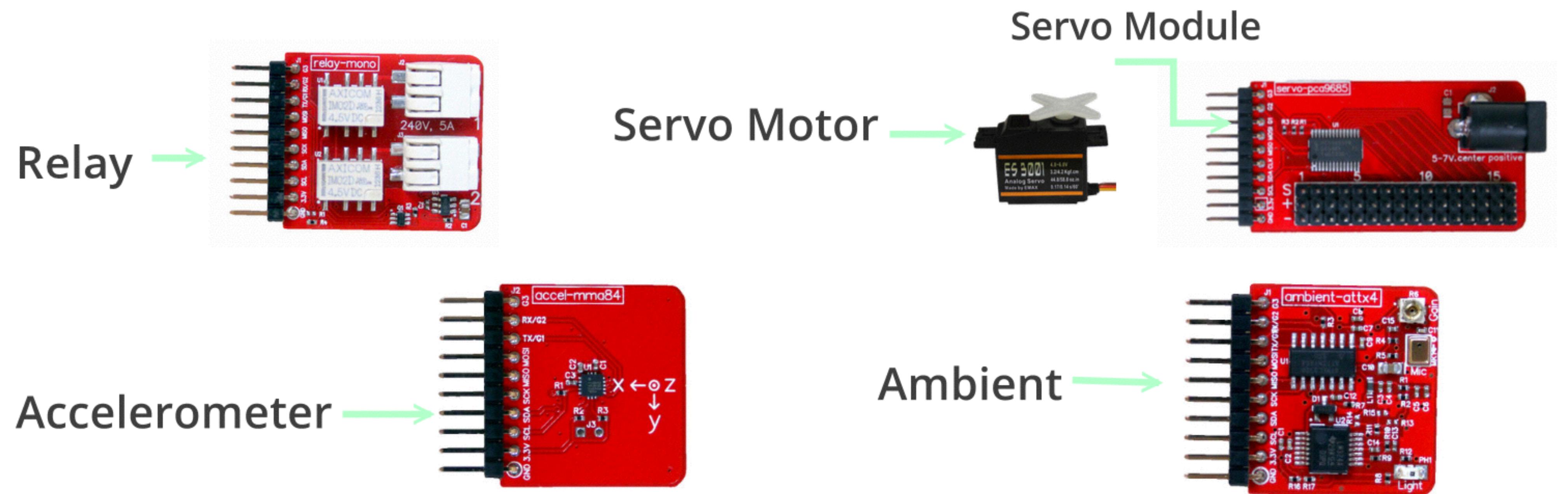
- **Multi-purpose microcontroller that runs node.js natively.**
- **Comes with a number of modules with various functionalities.**
- **Allows for the building of programs that interface with the real world.**

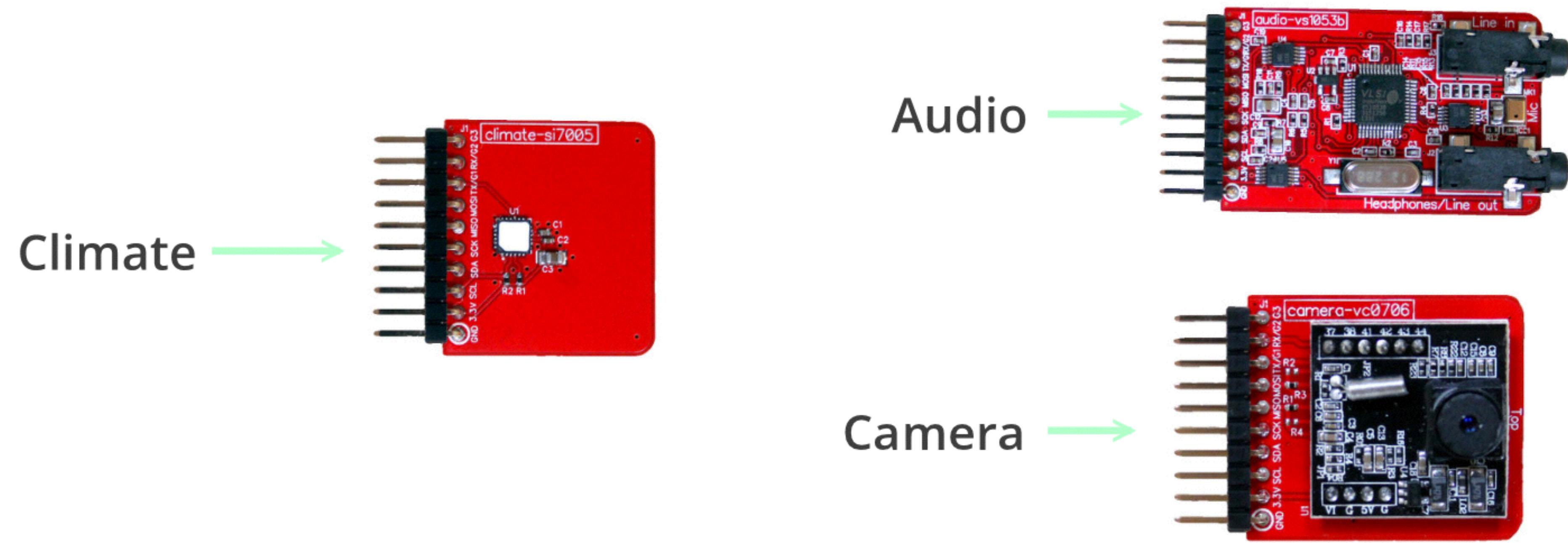
The Internet

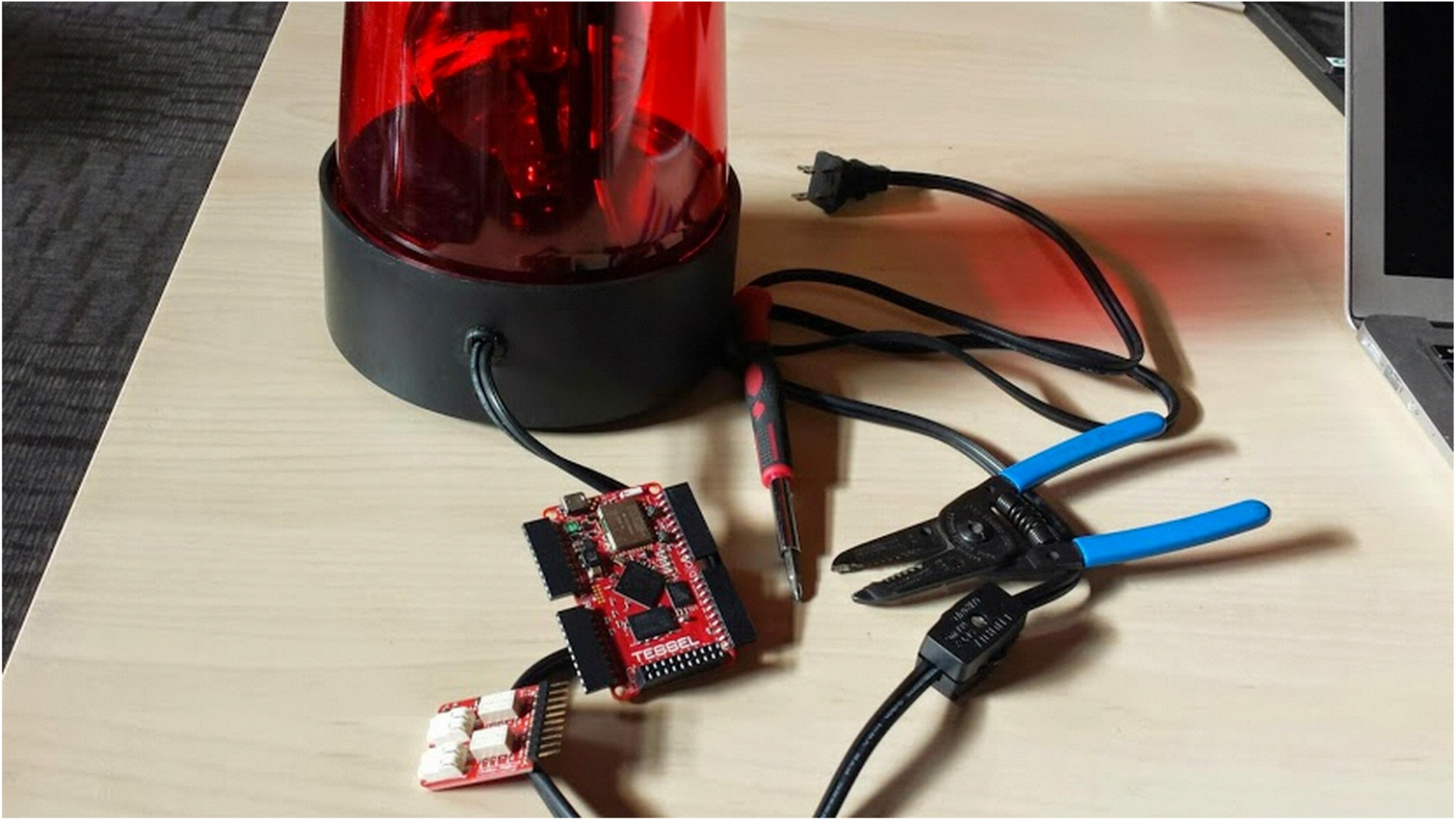
The Brain

Memory











# Building a Sleep Tracker for Your Dog Using Tessel and Twilio



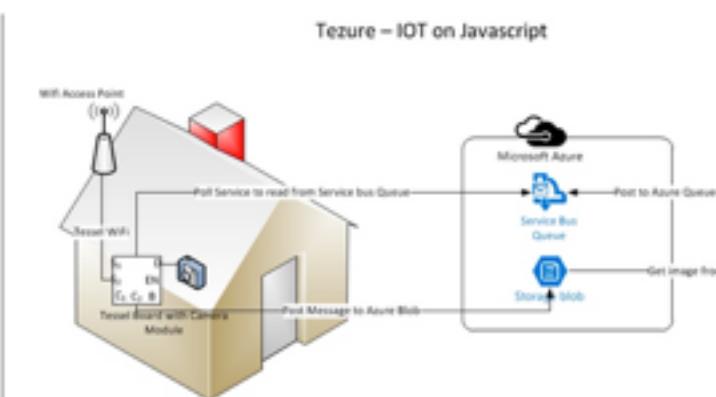
## YOLOGRAM!!!!!!

**YOLOGRAM** is a super amped up script that crushes a rocking yogram when you yolo your tessel into the air. It then tweets your image on the @tesseltweet account. [Sample Twitter](#)

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Project Title

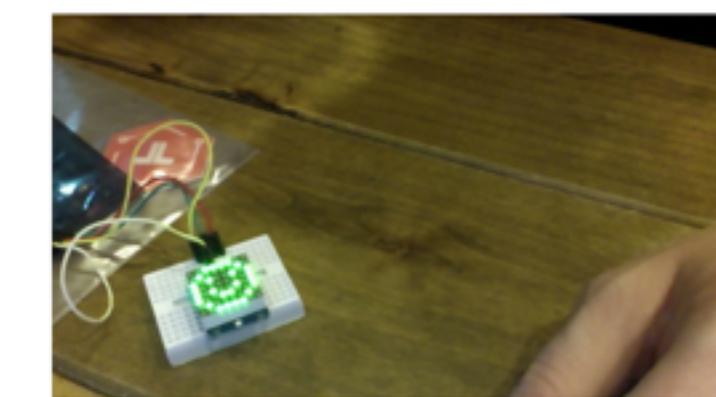
Filter by modules:



### Tezur Spycam

spbreed

276 views



### backpack-ht16k33

adkron

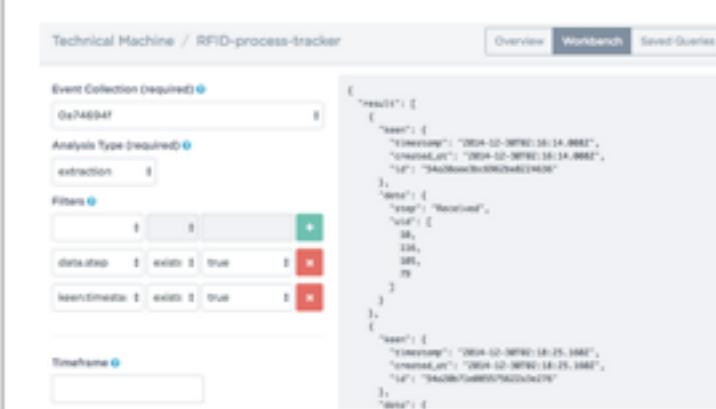
214 views



### Coffee Profile

adkron

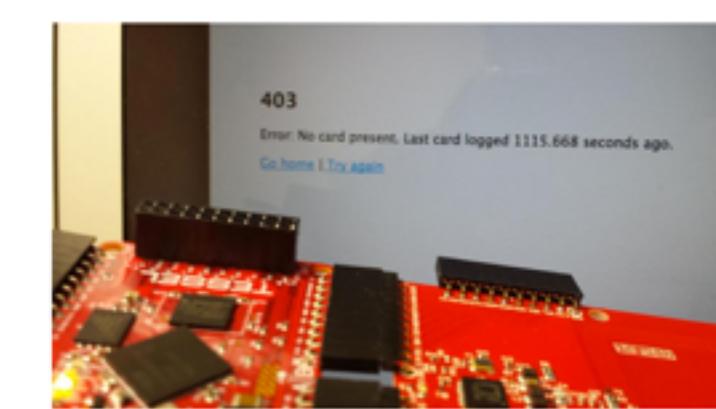
770 views



### RFID Process Tracker

ifoundthemeaningofo life

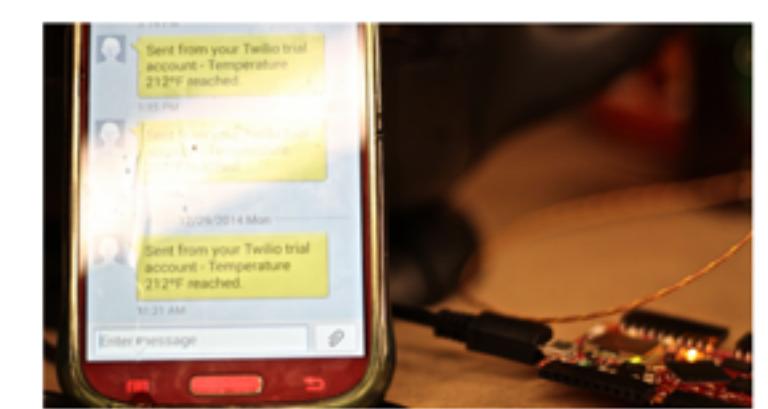
827 views



### RFID Webapp Authorization

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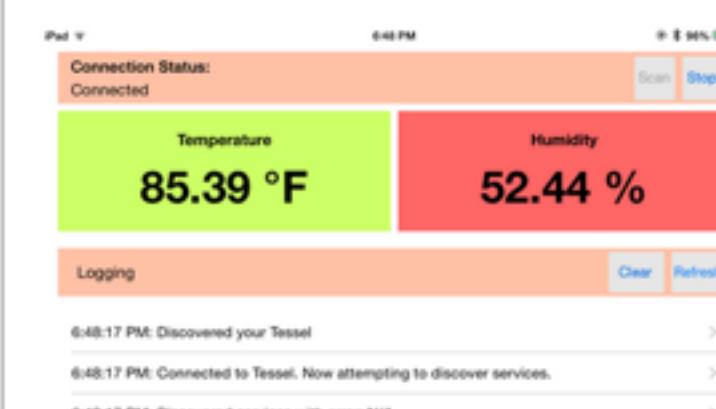
571 views



### "Hot Enough" Text

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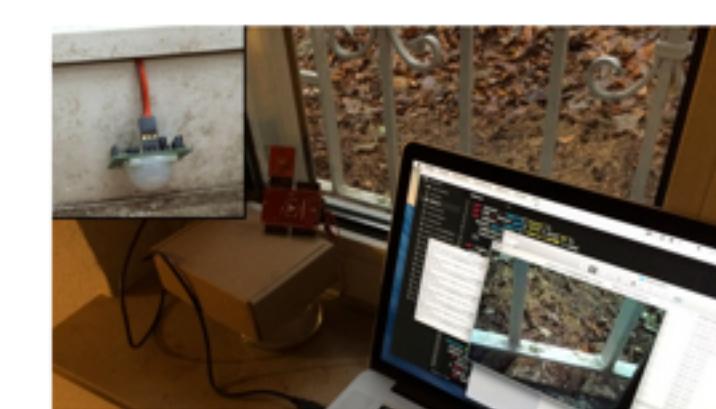
1039 views



### iOS App with Climate + BLE Module integration

rbobbins

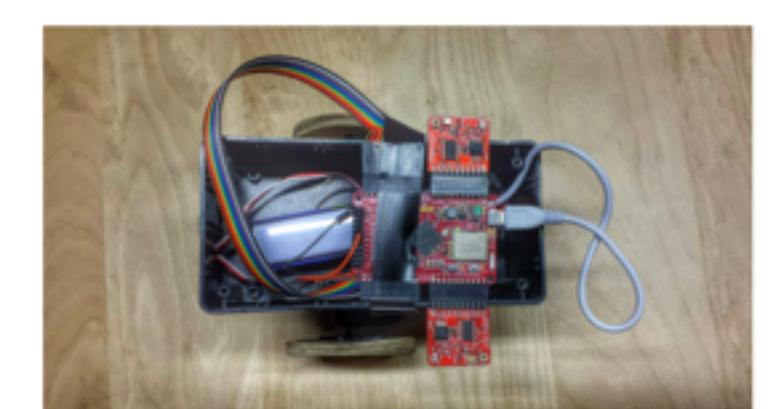
713 views



### phototrap with PIR

nikolaibibo

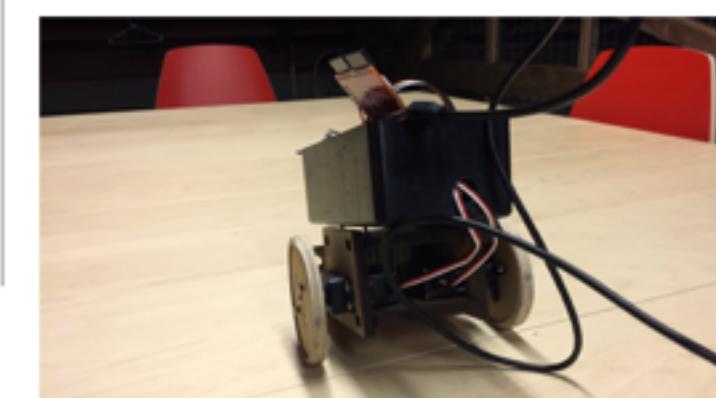
664 views



### Sound-Reactive "Flinching" Robot

ifoundthemeaningofo life

346 views



Devices in view:

208.85.197.81.249.244

56.121.22.46.120.184

105.105.60.123.235.203 Myo



# TESSEL HACK DAY

- All participants will be broken into competing teams.
- Each team is assigned a fellow as a project manager.
- Each team is given a pre-packaged assortment of modules – think Chopped but computery.
- With given modules (civilized bartering is acceptable), produce the coolest project of the day!

**<— GRAB BAG!**



# MOST INTERACTIVE

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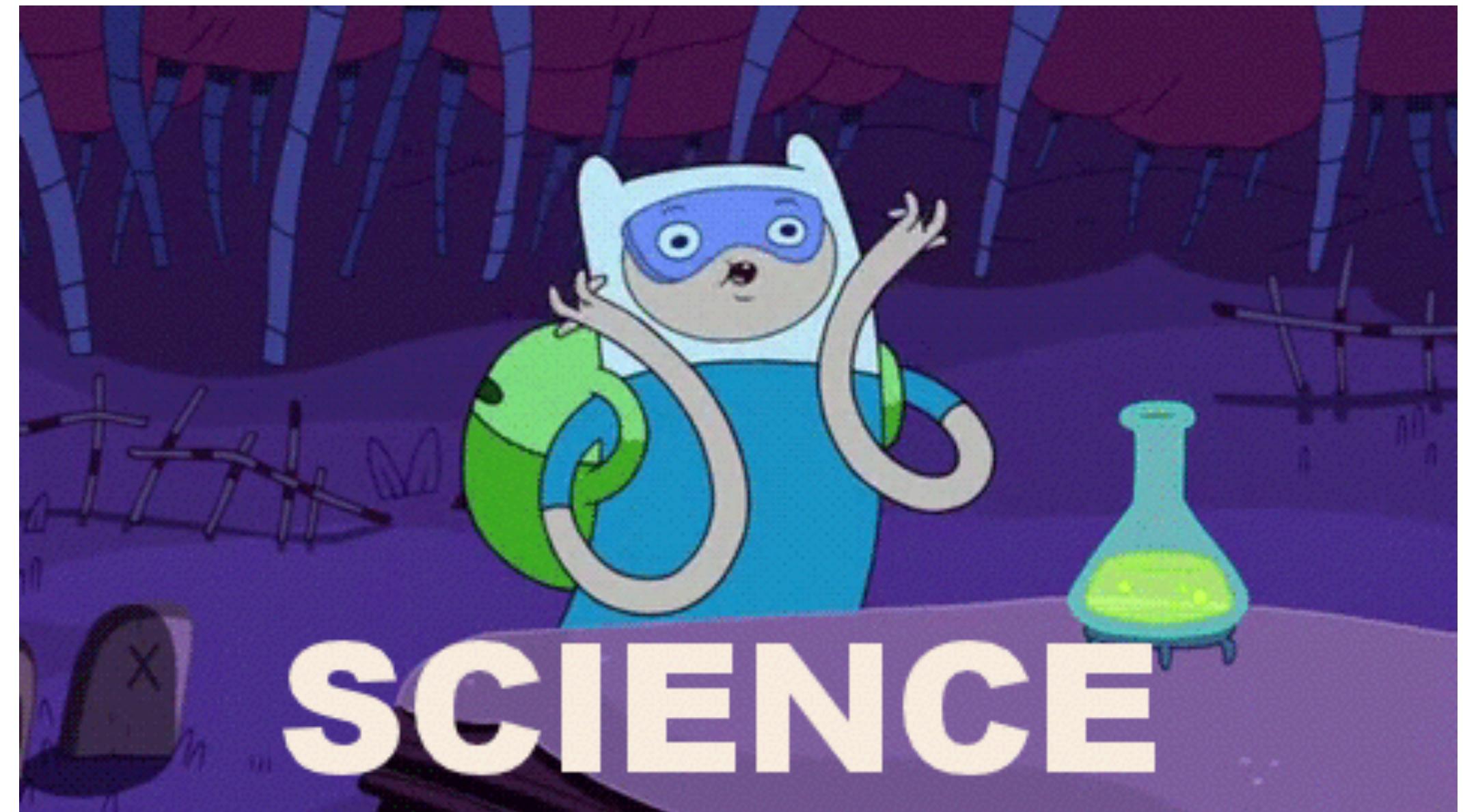
*Project that displays amazing ways  
Javascript can interact with the real  
world*



# HIGHEST CREATIVE CHARGE

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*Most novel solution to a problem  
nobody knew about, especially if no  
problem existed in the first place*



# BEST CAMPUS SOLUTION

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*Awesome project that solves a  
problem specifically for Fullstack  
Academy campus*



# JUDGING

- **Joe, Scott, Omri**
- **Will begin at 5PM (set an alarm for 4:30PM!)**
- **“Science Fair” style**
- **Awards announced before 6PM**

# WORKING WITH YOUR TEAM

- **Problem:** Only 1 Tessel to a team of 4-5 people.
  
- **Solutions:**
  - Divide the work!
  - Pair/mob program.
  - Ask your fellow for guidance.

# WORKING WITH THE TESSEL

- **Unfortunately, you need to run node < v4.0**
  - Get nvm if you don't already have it, install and use 0.12
- **Offload as much processing as possible**
- **Do not install libraries other than what you need for the physical modules**
  - Build a raw require('http').createServer(), don't use Express!
- **Have your tessel send network requests to a node process you have running on a laptop**
  - ifconfig | grep inet      <— run this to find the right IP address

# WORKING WITH THE TESSEL

- **Get good at “rebooting” the Wifi:**
  - `tessel wifi -d` (*deletes current connection*)
  - Power cycle the machine
  - `tessel wifi -l` (*lists available connections and signal strengths*)
  - `tessel -n 'Fullstack' -p 'Fullst@ck'` (*Reconnect to network*)
  - Run your program
- **Usually an error mentioning a “tcp socket” means your wifi is not working. Reboot it!**

# TIMELINE

- Now: Introduction
- Now - 4:45PM – Hacking!
- 5:00PM – Judging!
- <6:00PM – Prize Awards!

**Team 1: Nirmohi**

- Julie Opperman
- Lily Jen
- Alan Johnson
- Lester Echem
- Jungho Son

**Team 2: Nick**

- John Lenehan
- John McGowan
- Zack Elias
- Tiffany Wang
- Vivie Wen

**Team 3: Karen**

- Michal Novemsky
- Kat Mello
- Jess Park
- Sunil Unka
- Philip Ng

**Team 4: Austin**

- Sam Narisi
- Seth Bailey
- Daniel Thorne
- Matt Thiery
- Luis Martin

**Team 5: Karen**

- Yustynn P.
- Jon Schumacher
- Uma Chandran
- Sarah Edkins

**Team 6: Nick**

- Andrew Morrison
- A. Jon Perez
- Daniel Chen
- Nick VanVoor...
- Danny Somekh

**Team 7: Mark**

- Rafiel Pastor
- Matthew Kim
- Sri Sardd
- Josh Mazen
- Silvia Chen

**Team 8: Ryan**

- Nate Maddrey
- Jon Horn
- Matthew Bryan
- David Scherban
- Anup Bhujle

**Team 9: Jon Pedigo**

- Robert Muldoon
- David Reeve
- Shafiq Marediya
- Michael DeNatale

**Team 10: Mark**

- Emily Chesler
- Nicole Siegel
- Nick Palenchar
- Tom Kelly
- Mike Ingber

**Team 11: Jon Pedigo** Brian Dunn, Victor Hom, Everett Ross, Daniel Peach, David Kim