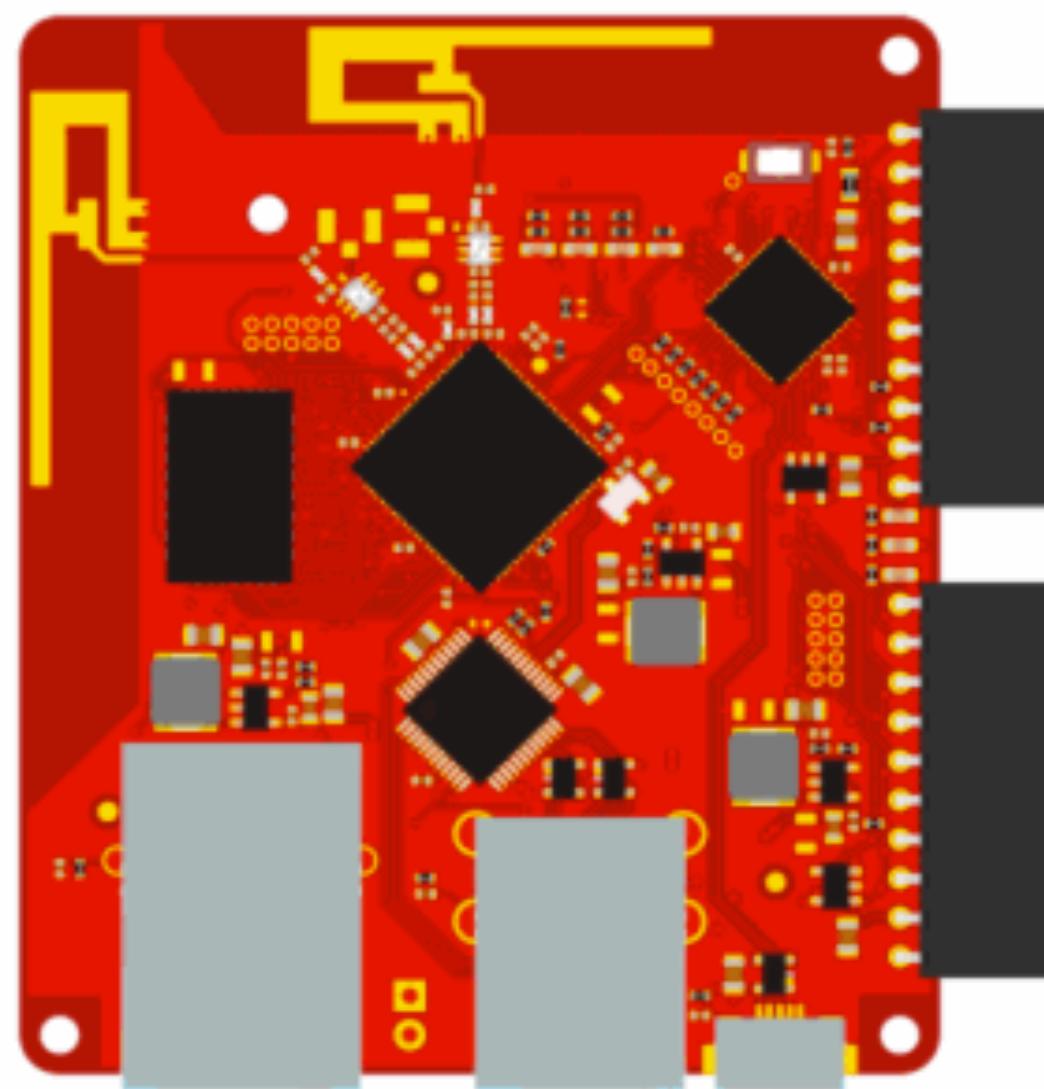


TESSEL

Programming microcontrollers with node.js

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.**



TESSEL 2 FEATURES

EVERYTHING YOU NEED TO GET UP AND RUNNING.

2 Tessel Module ports

add sensors and actuators in one step

2 USB ports

use peripherals like cameras and 3G/4G dongles

802.11bgn Wifi

connected out of the box and wirelessly programmable

Ethernet

an ultra-reliable, wired connection

580MHz Mediatek MT7620n

execute your program faster

64 MB DDR2 RAM & 32 MB Flash

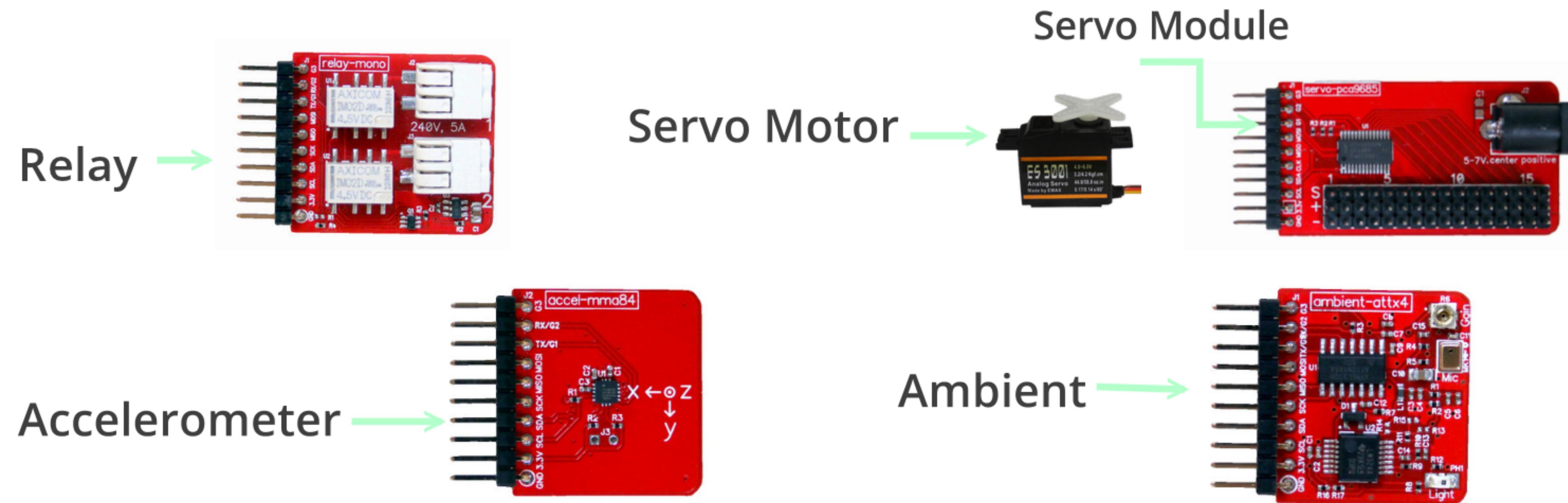
plenty of space for your code

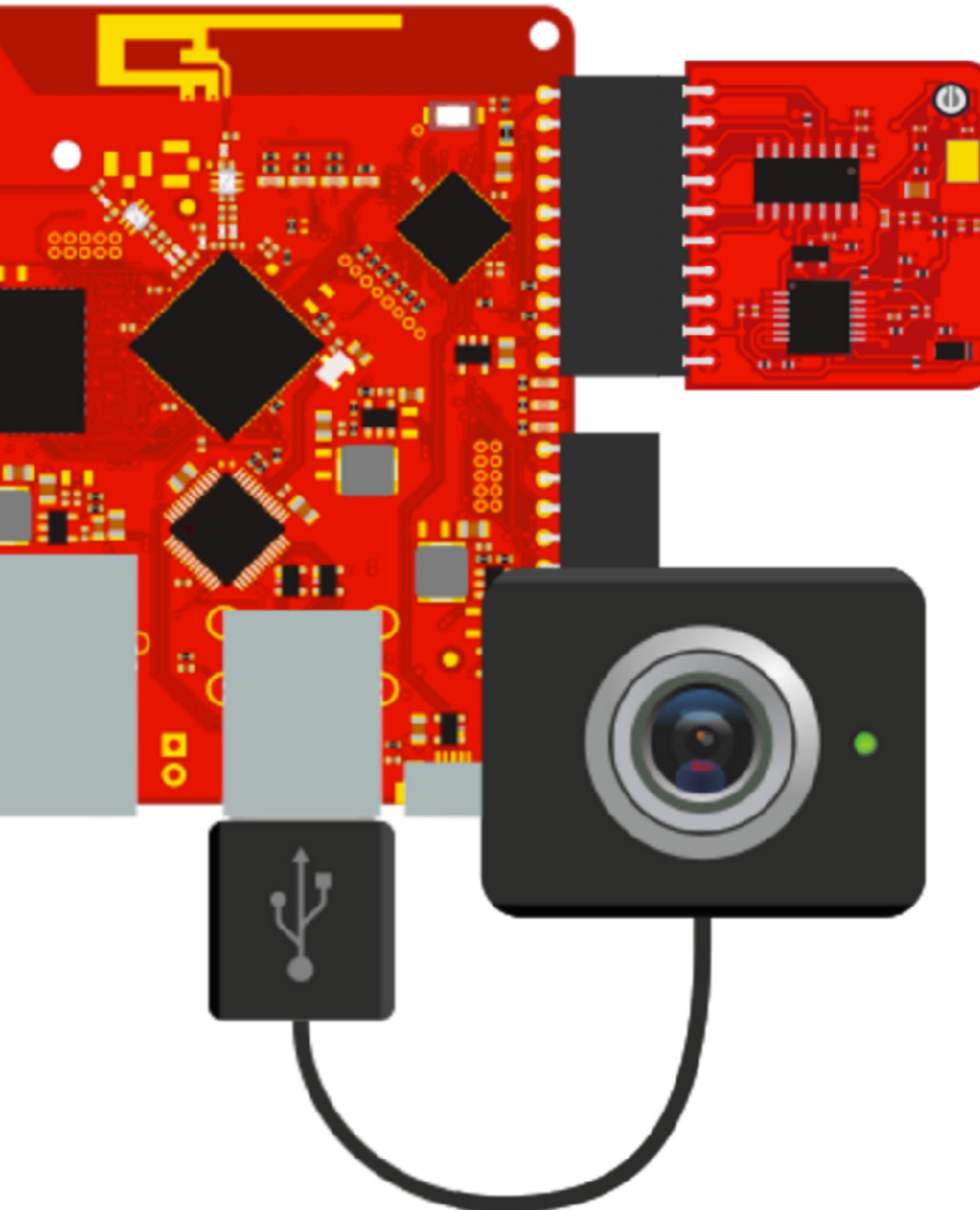
48MHz Atmel SAMD21 coprocessor

realtime I/O and better power management

microUSB

power and tethered programming





JavaScript

Python

Rust

```
/* ambient-camera.js example */
// this example records video from a camera
// when a certain sound level is reached
var tessel = require('tessel');
var http = require('http');
// set up camera
var cameralib = require('camera-usb');
// set up ambient sensor on port A
var ambient = require('ambient-attx4').use(tessel.port['A']);

// set a sound trigger
ambient.setSoundTrigger(0.6);

cameralib.find(function(camera) {
  // stream some video when sound is sensed
  ambient.on('sound-trigger', function(){
    var req = http.request({
      hostname: 'example.com',
      port: 80,
      path: '/video'
    });
    req.end();
  });
});
```





Building a Sleep Tracker for Your Dog Using Tessel and Twilio



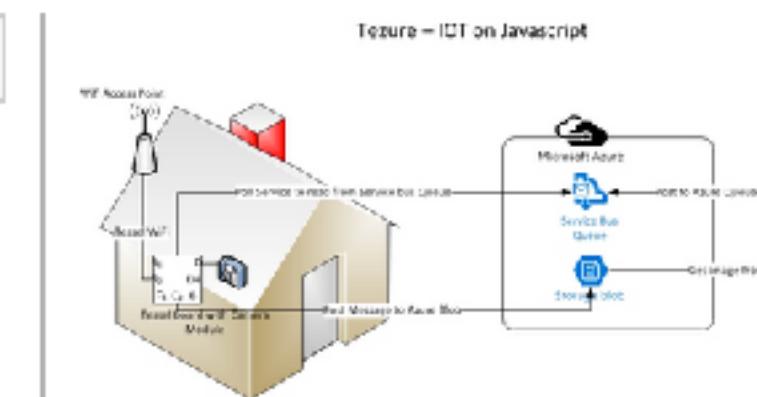
YOLOGRAM!!!!!!

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](#)

...
...

Project Title

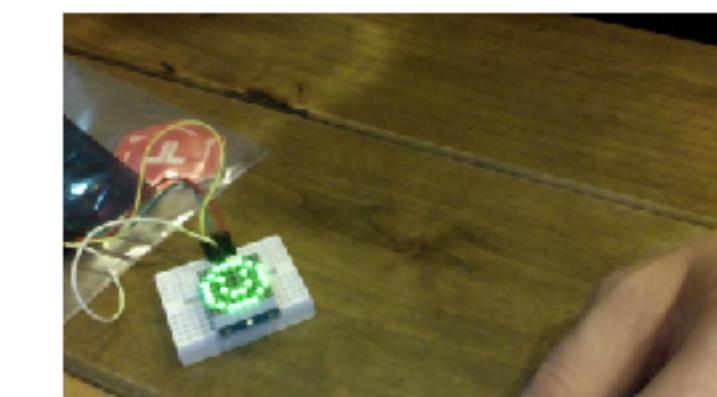
Filter by modules:



Tezur Spycam

spbreed

276 views



backpack-ht16k33

adkron

214 views



Coffee Profile

adkron

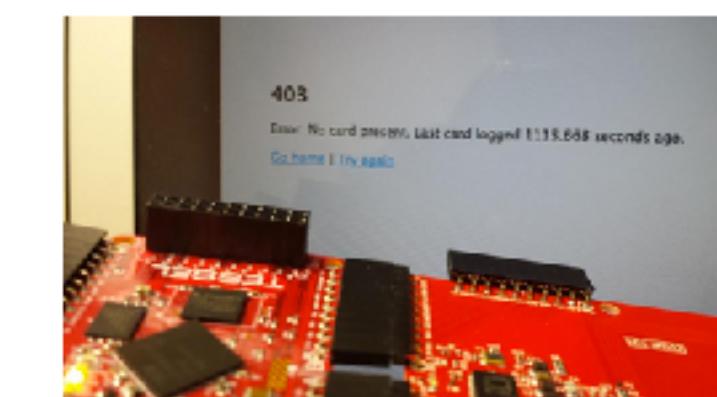
770 views



RFID Process Tracker

ifoundthemeaningofigife

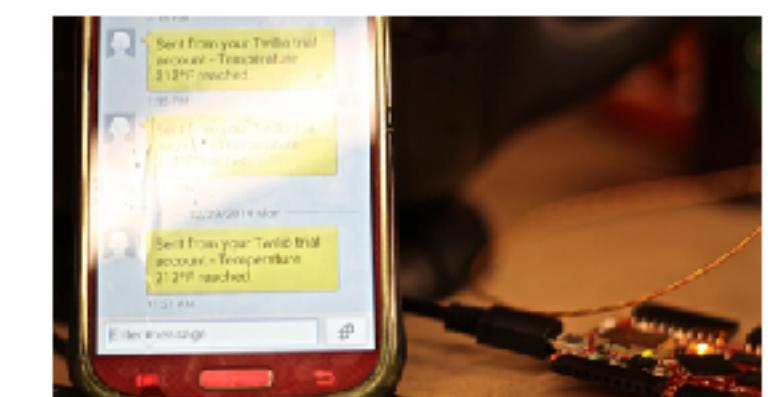
827 views



RFID Webapp Authorization

ifoundthemeaningofigife

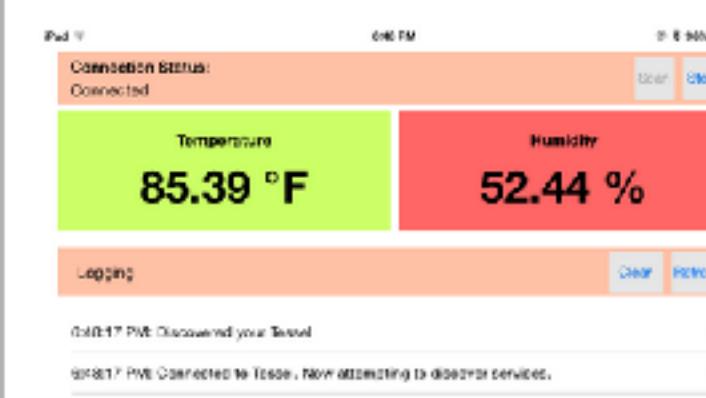
571 views



"Hot Enough" Text

ifoundthemeaningofigife

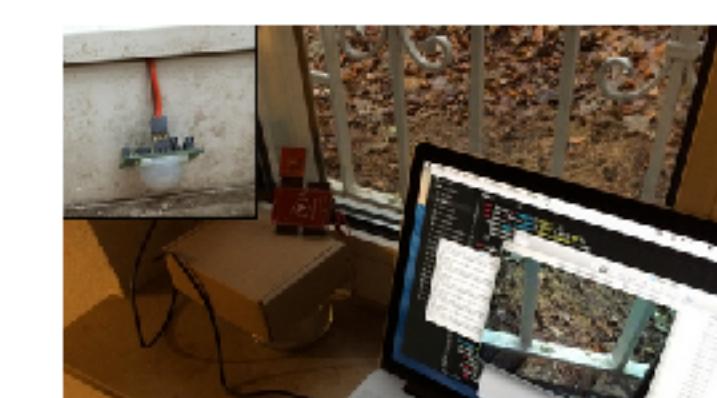
1039 views



iOS App with Climate + BLE Module integration

rbobbins

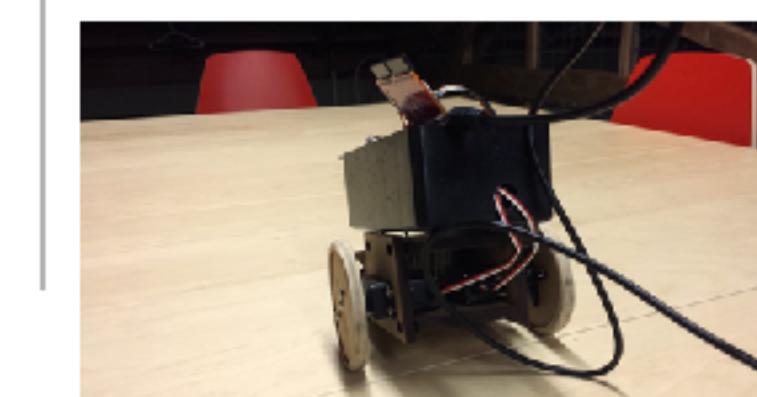
713 views



phototrap with PIR

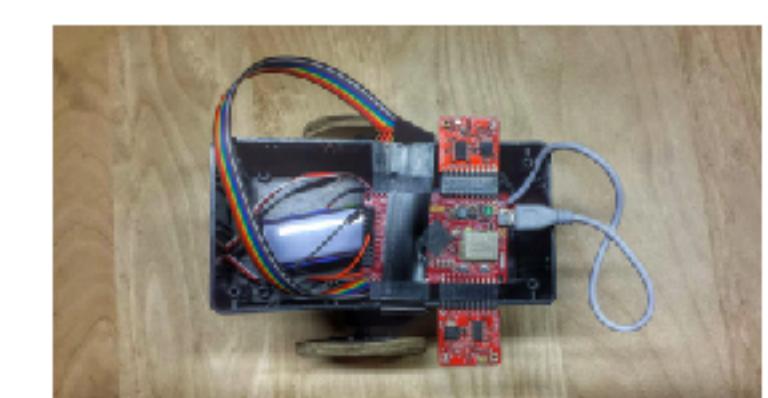
nikolalbibo

664 views



Devices in view:

208.85.197.81.249.244
56.121.22.46.120.184
105.105.60.123.235.203 Myo



Sound-Reactive "Flinching" Robot

ifoundthemeaningofigife

346 views



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 Iron Chef.
- With given modules (civilized bartering is acceptable), produce the coolest project of the day!

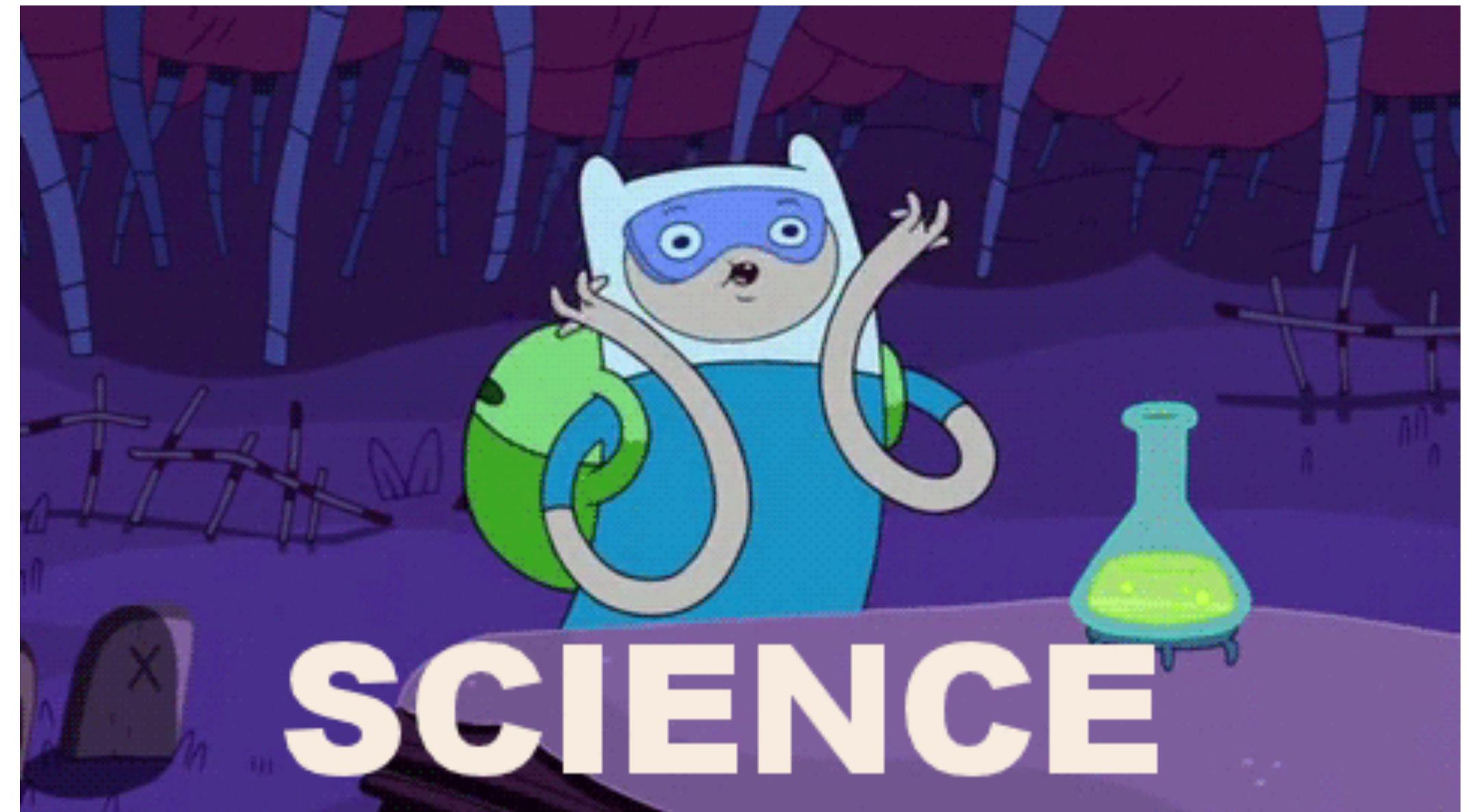
MOST INTERACTIVE

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



HIGHEST CREATIVE CHARGE

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



BEST CAMPUS SOLUTION

Awesome project that solves a problem specifically for the Fullstack or Grace Hopper campuses



LET'S CODE!

WORKING WITH THE TESSEL

- We're not sure how much computing muscle it has!
- To be safe, try to offload as much to other processes on the network as possible.
- Limit node libraries (like Express, etc) as much as possible

WORKING WITH THE TESSEL (CONTINUED)

- **Don't bother doing the “provision” stuff that you may find online.**
- **Internet not working? Do the power cycle dance.**
- **Try a different network.**
 - 5G networks are not compatible
- **Still spotty? Consider running a hotspot on a phone.**

WORKING WITH YOUR TEAM

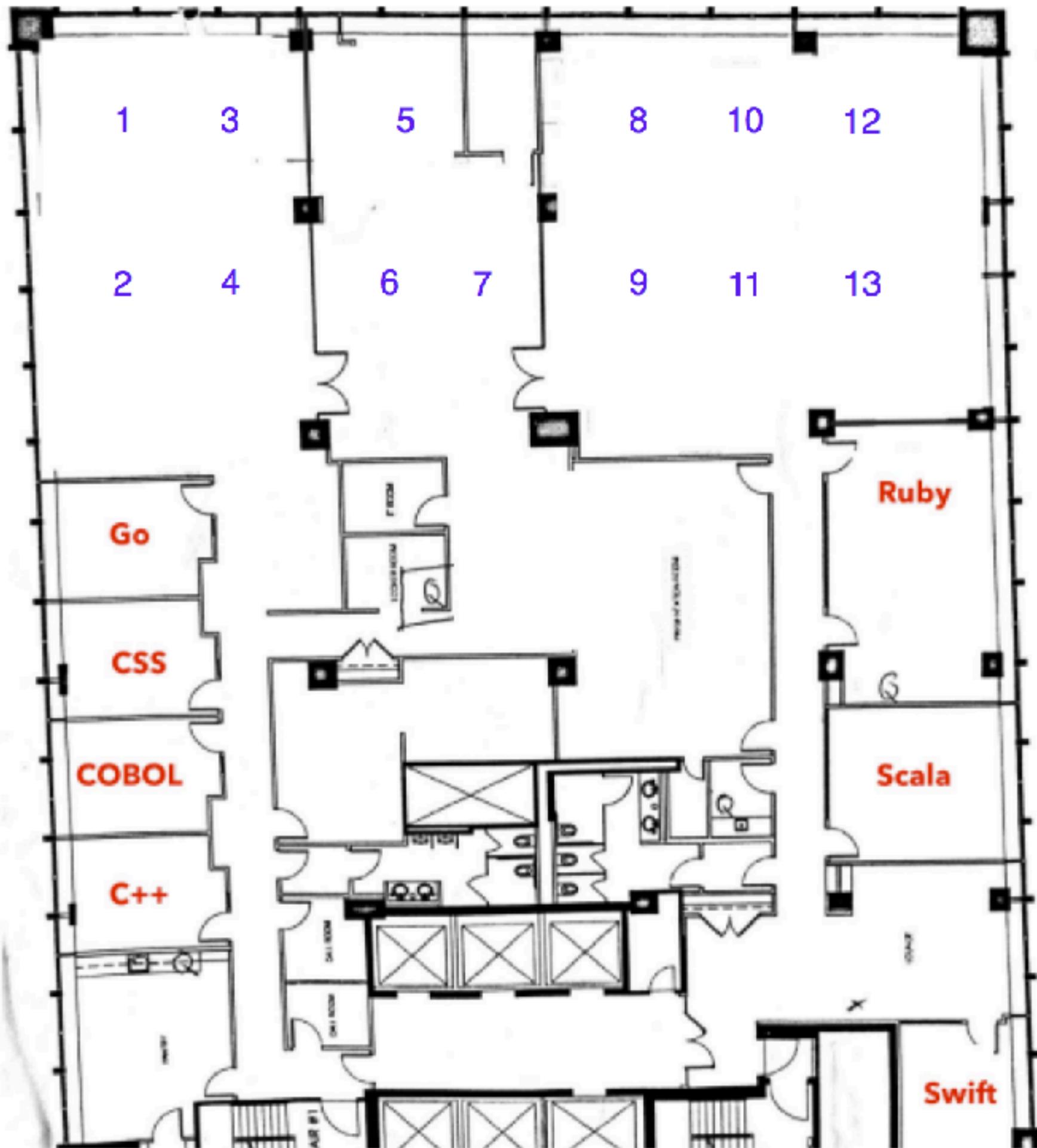
- **Problem:** Only 1 Tessel to a team of 3-4 people.

- **Solutions:**
 - Divide the work!
 - Pair/mob program.
 - Ask your fellow for guidance.

WORKING ON THE CAMPUS

- Try to keep your work clean from the get-go, please!
- Use your assigned area and respect the space!
- When you are done, put all the pieces of your Tessel back into the brown bag!

TIMELINE



- Now: Introduction and Getting Started Walkthrough
- 2:30PM - 5:00PM — Hacking!
- 5:15PM — Present to judges!
- 6:00PM — Awards!
- It is *Fresh* Monday!