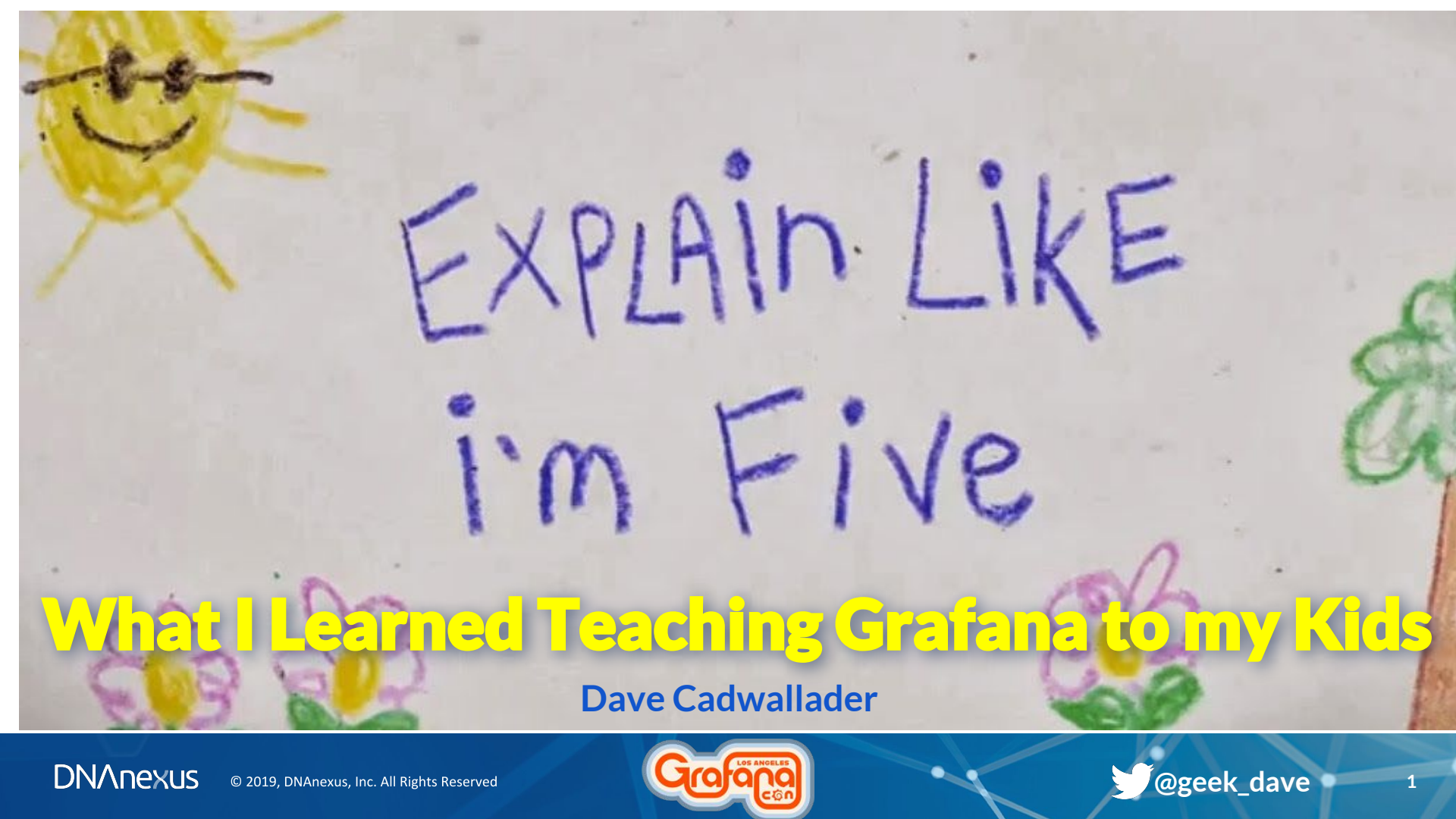




EXPLAIN LIKE
i'm Five

What I Learned Teaching Grafana to my Kids

Dave Cadwallader



Dave Cadwallader

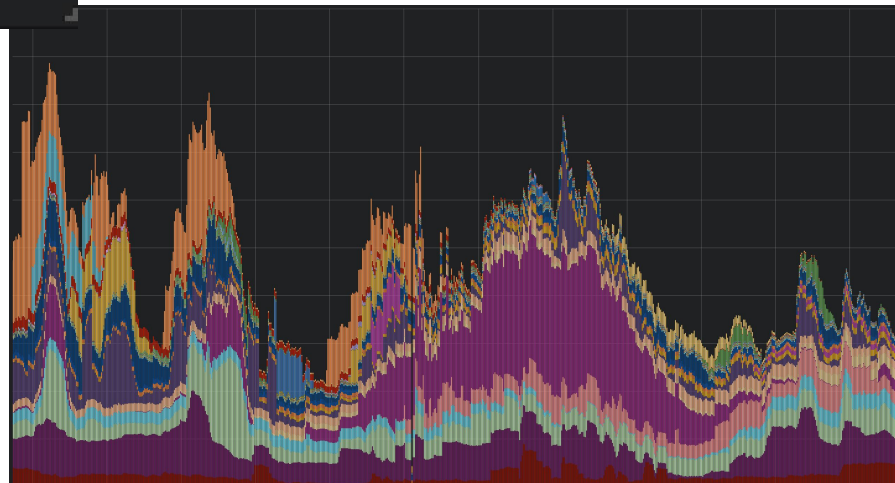
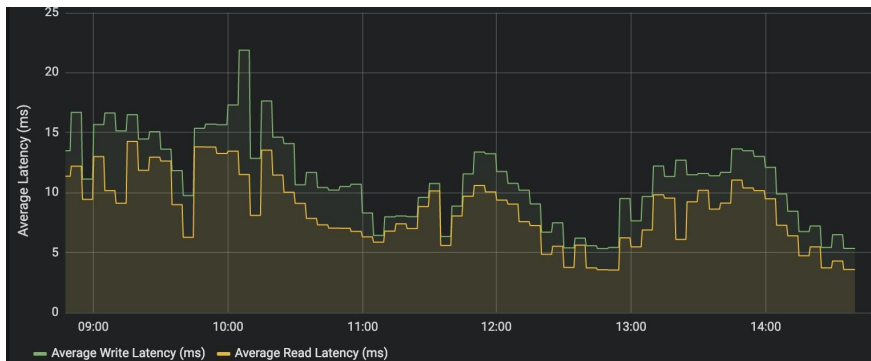
Site Reliability Architect at

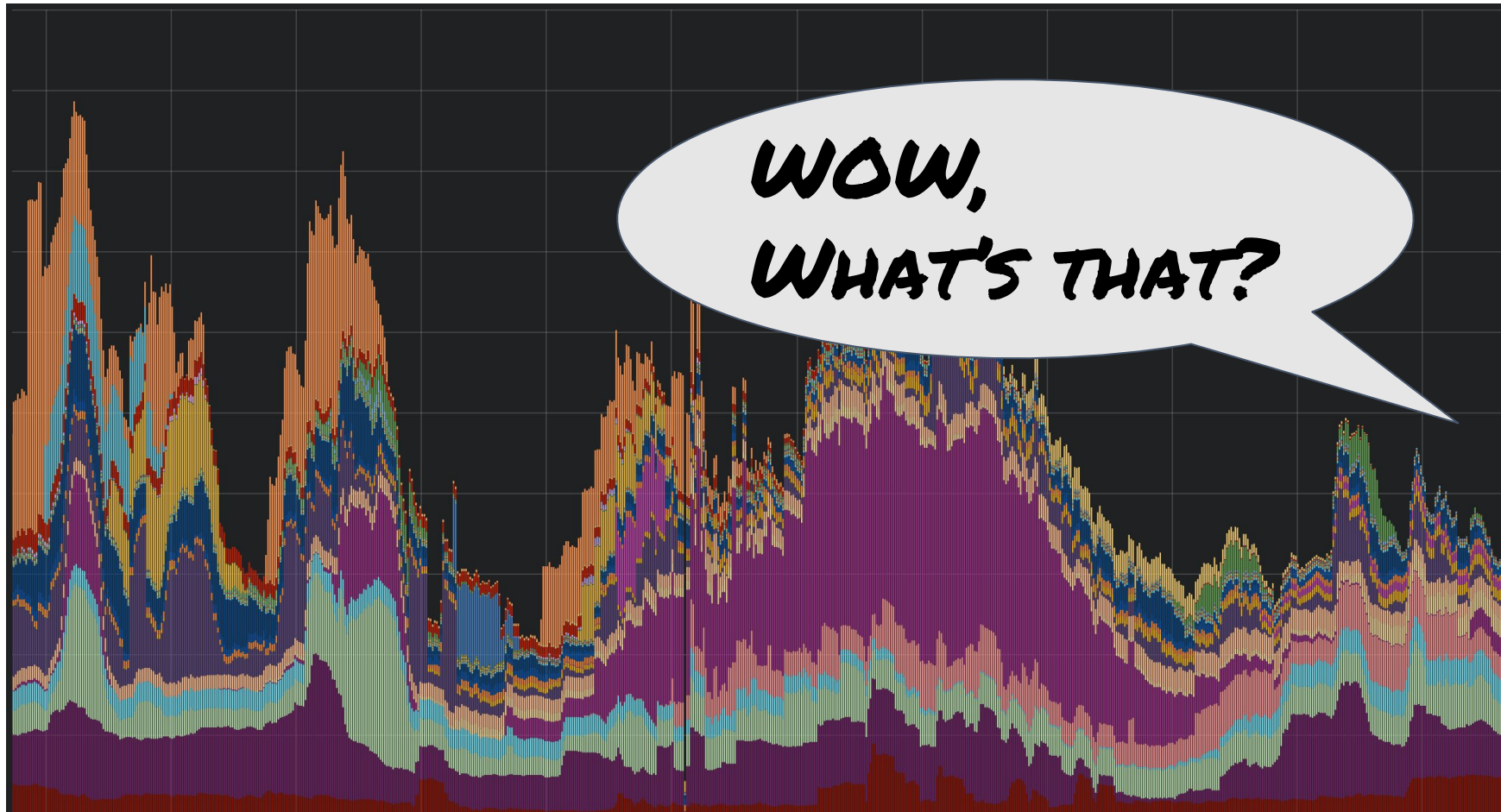
DNAnexus

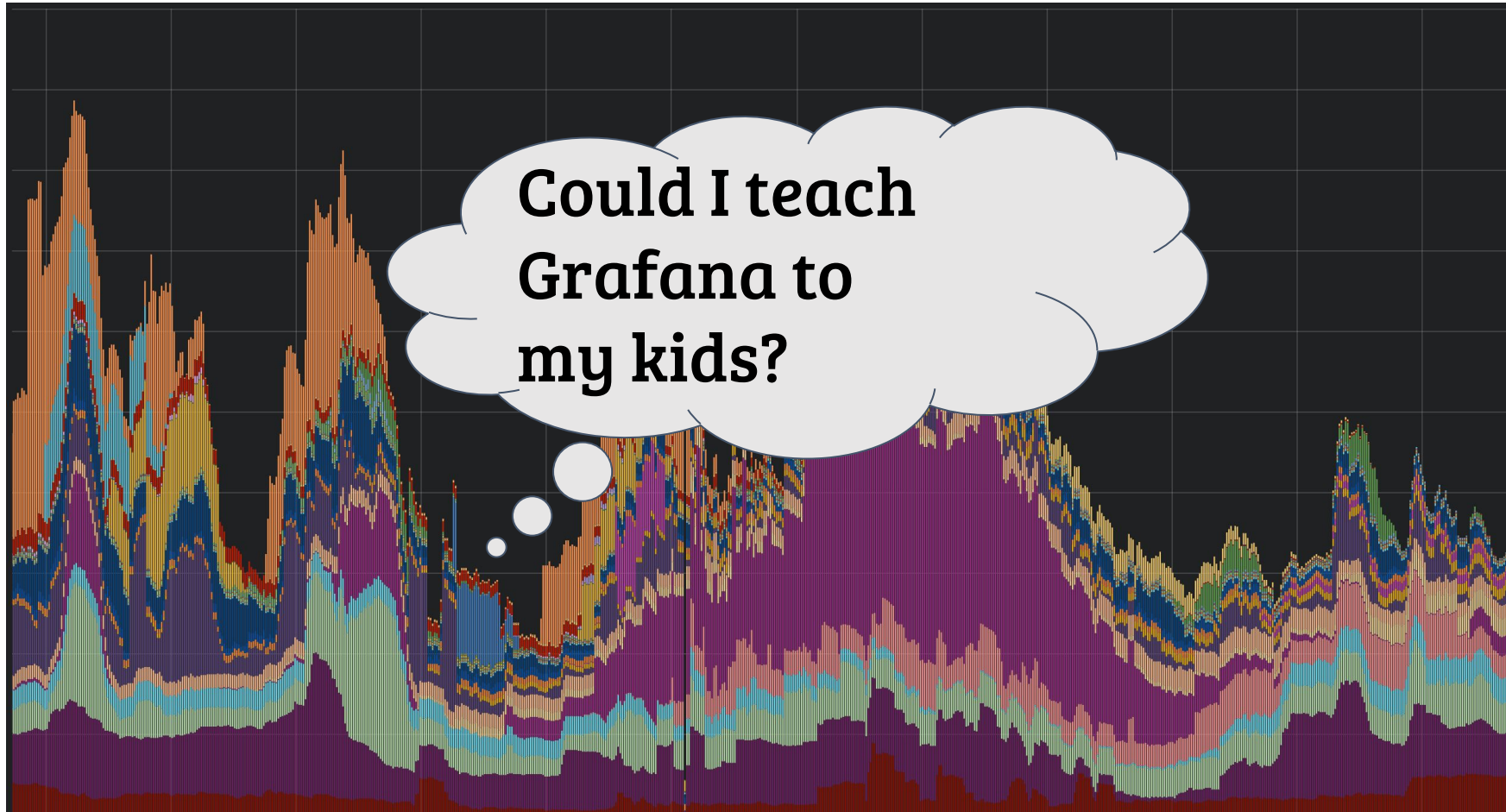
<https://www.dnanexus.com/job-board>



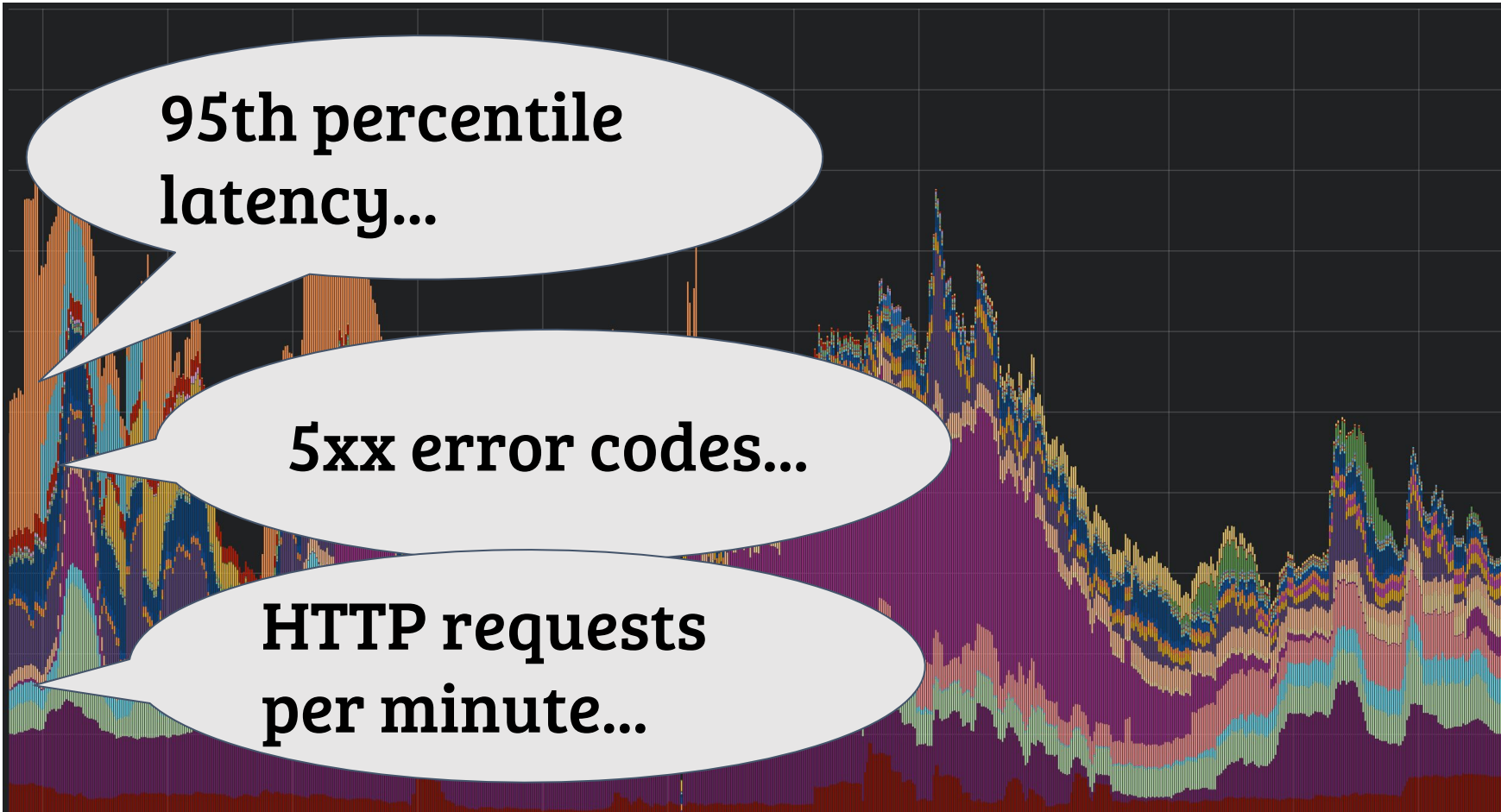
Probe Duration Over Time







**Could I teach
Grafana to
my kids?**

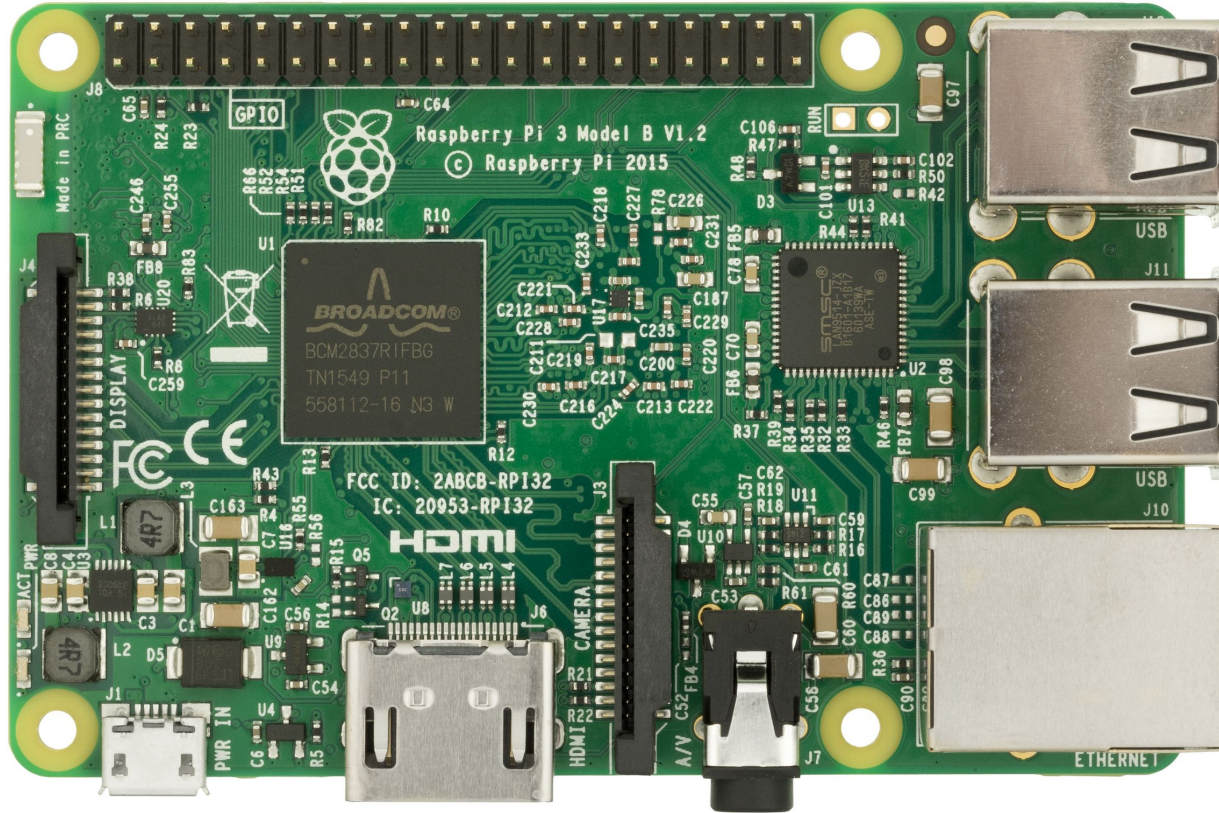


**95th percentile
latency...**

5xx error codes...

**HTTP requests
per minute...**









Roll over image to zoom in

AcuRite 06002M Wireless Temperature and Humidity Sensor

by [AcuRite](#)



[724 customer reviews](#) | [205 answered questions](#)

List Price: ~~\$12.99~~

Price: **\$10.83** ✓prime

You Save: **\$2.16 (17%)**

Pay ~~\$10.83~~ \$0.00 after using available Amazon Rewards Visa Card Points.

Note: Available at a lower price from [other sellers](#), potentially without free Prime shipping.

Style Name: **Outdoor/indoor**

Indoor

~~\$12.99~~

✓prime

Outdoor/indoor

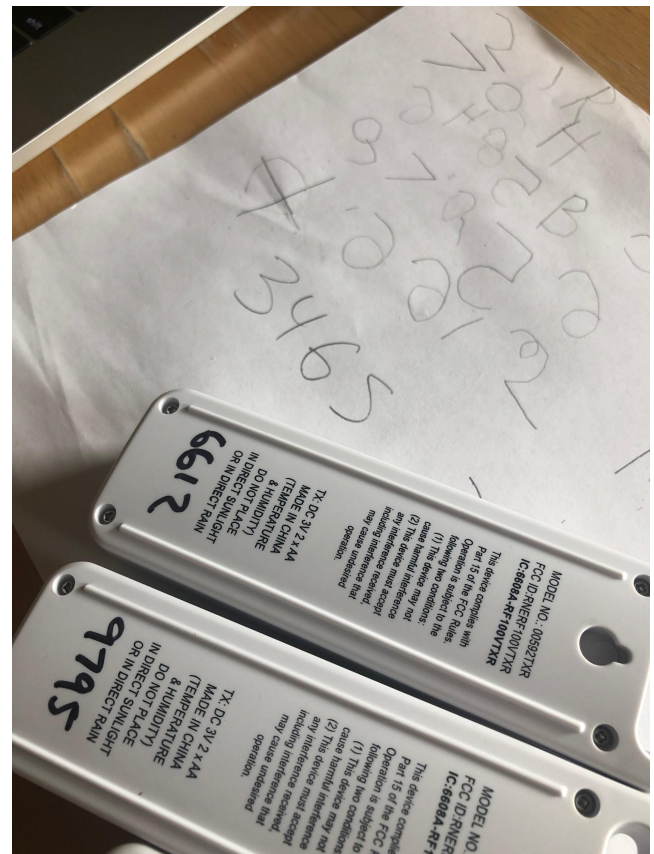
\$10.83

✓prime

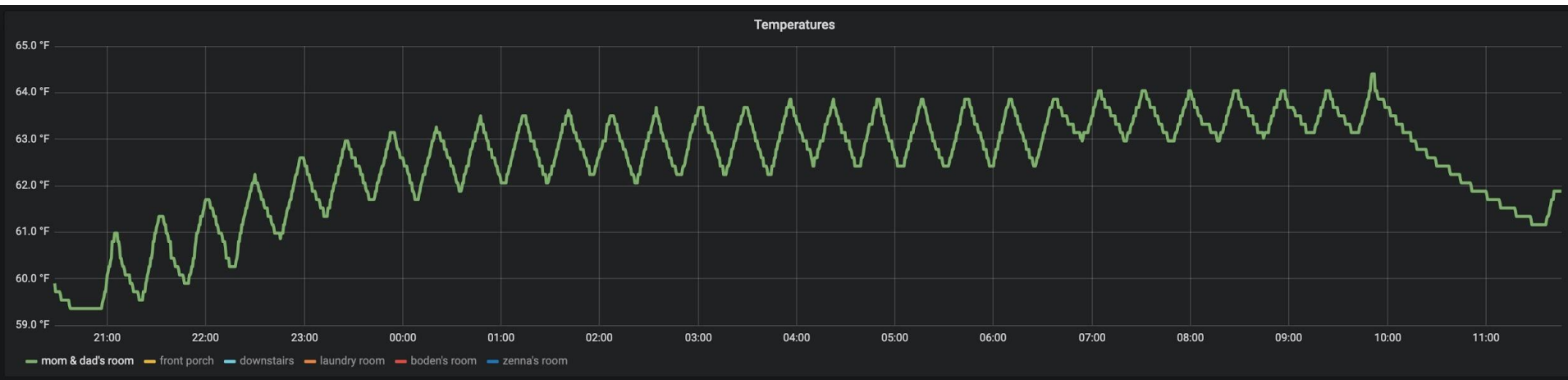





```
"sensor_id" : 6612, "channel" : "A", "temperature_F" : 65.300,  
"sensor_id" : 6485, "channel" : "A", "temperature_F" : 65.300,  
"sensor_id" : 6485, "channel" : "A", "temperature_F" : 65.300,  
"sensor_id" : 6485, "channel" : "A", "temperature_F" : 70.160,  
"sensor_id" : 9795, "channel" : "A", "temperature_F" : 70.160,  
"sensor_id" : 9795, "channel" : "A", "temperature_F" : 70.160,  
"sensor_id" : 9795, "channel" : "A", "temperature_F" : 72.500,  
"sensor_id" : 9795, "channel" : "A", "temperature_F" : 72.500,  
"sensor_id" : 6612, "channel" : "A", "temperature_F" : 72.500,  
"sensor_id" : 6612, "channel" : "A", "temperature_F" : 65.300,  
"sensor_id" : 6612, "channel" : "A", "temperature_F" : 65.300,  
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"sensor_id" : 6485, "channel" : "A", "temperature_F" : 70.160,
```







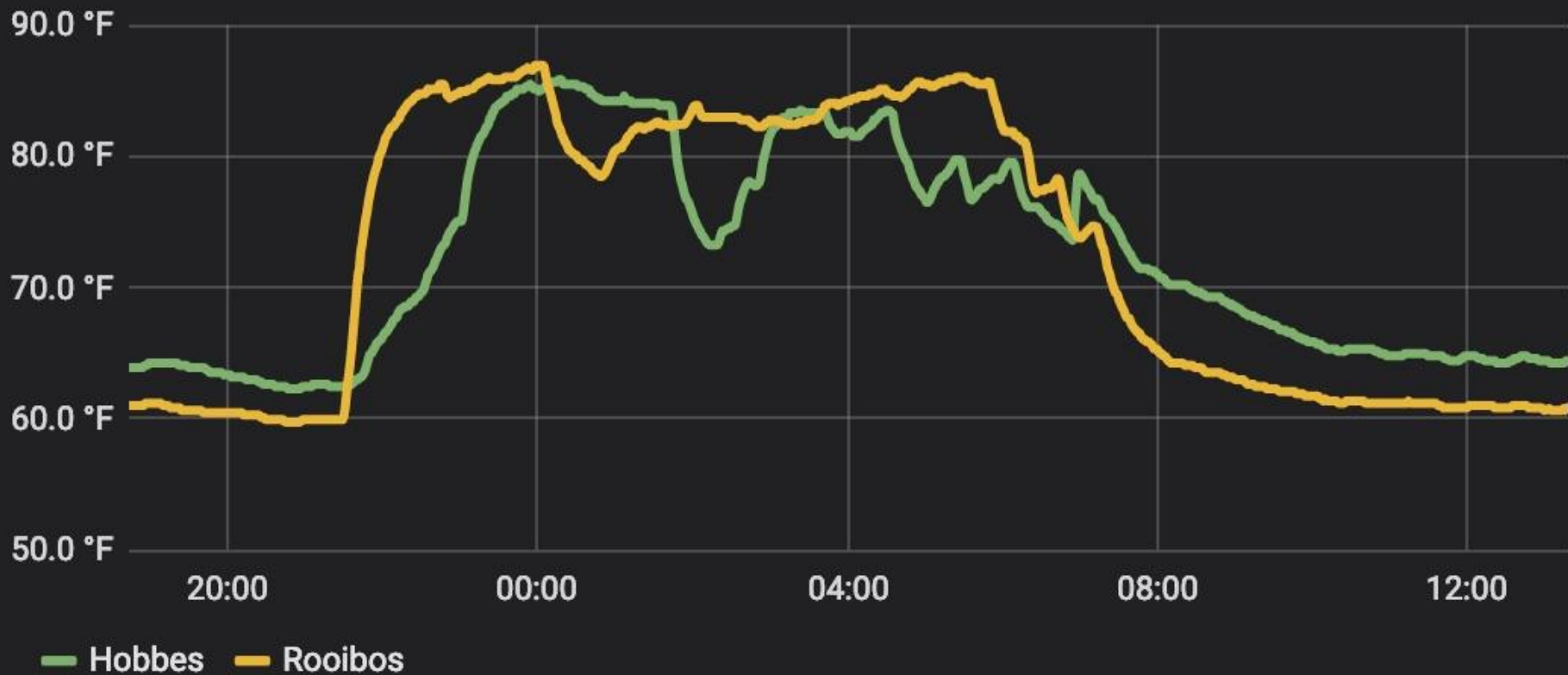
Hobbes



Rooibos

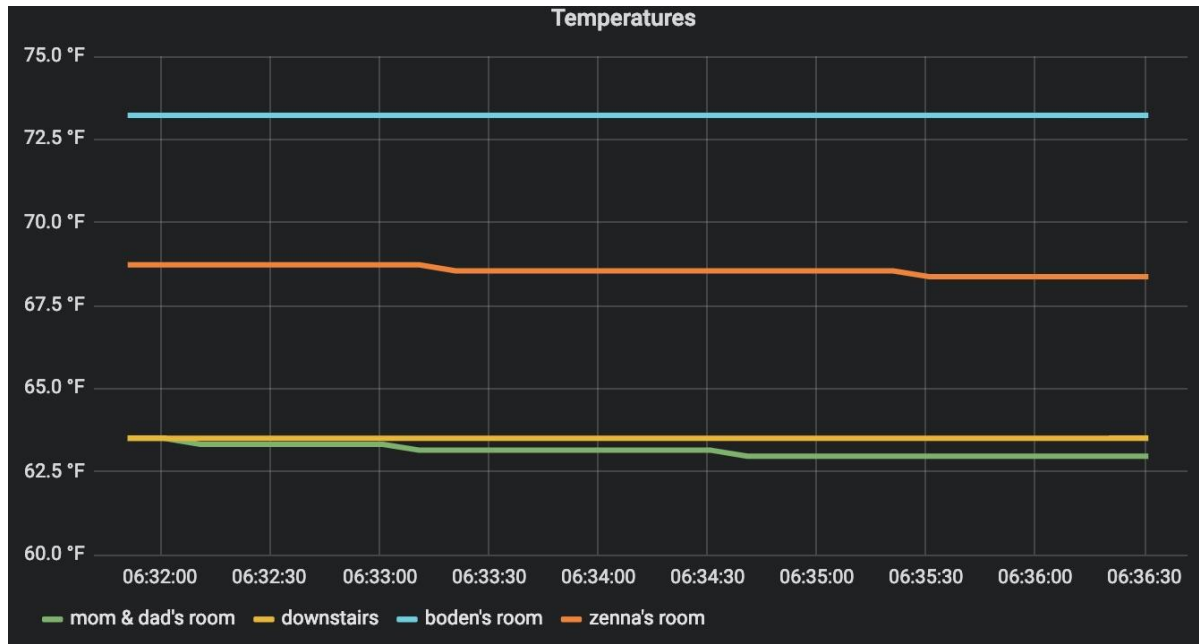


Temperatures



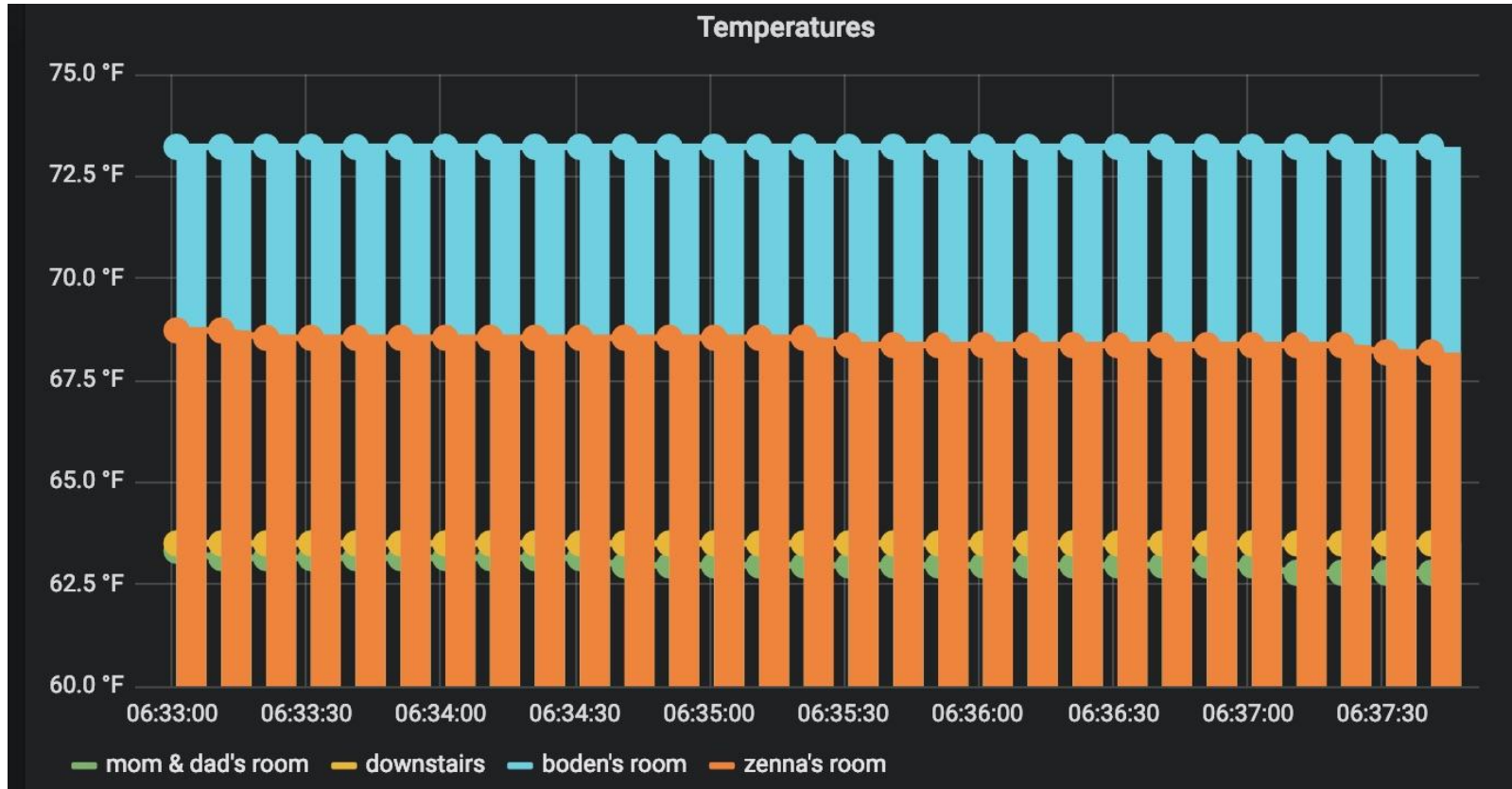






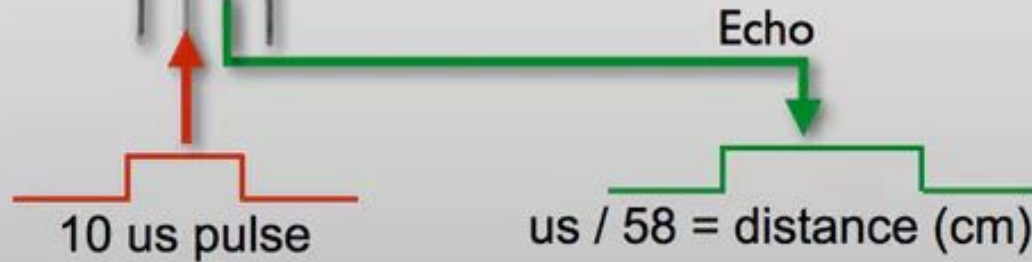
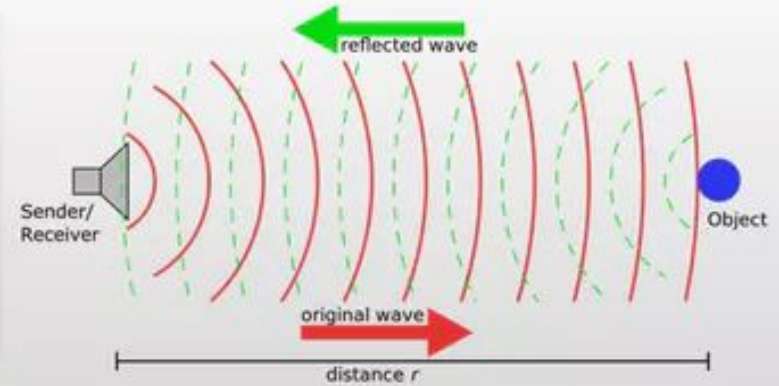
Draw Modes

Bars	☒
Lines	☒
Points	☒

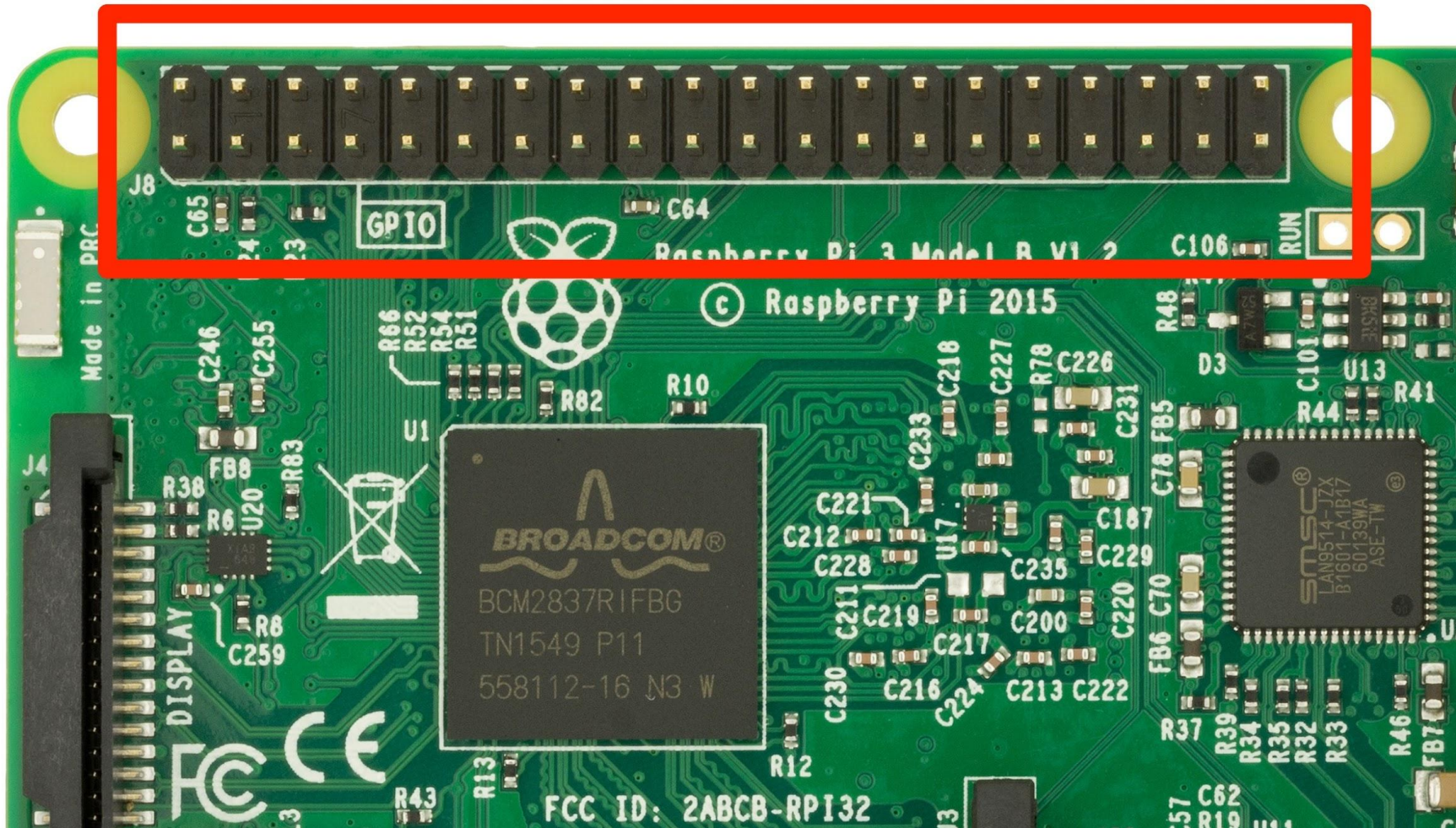




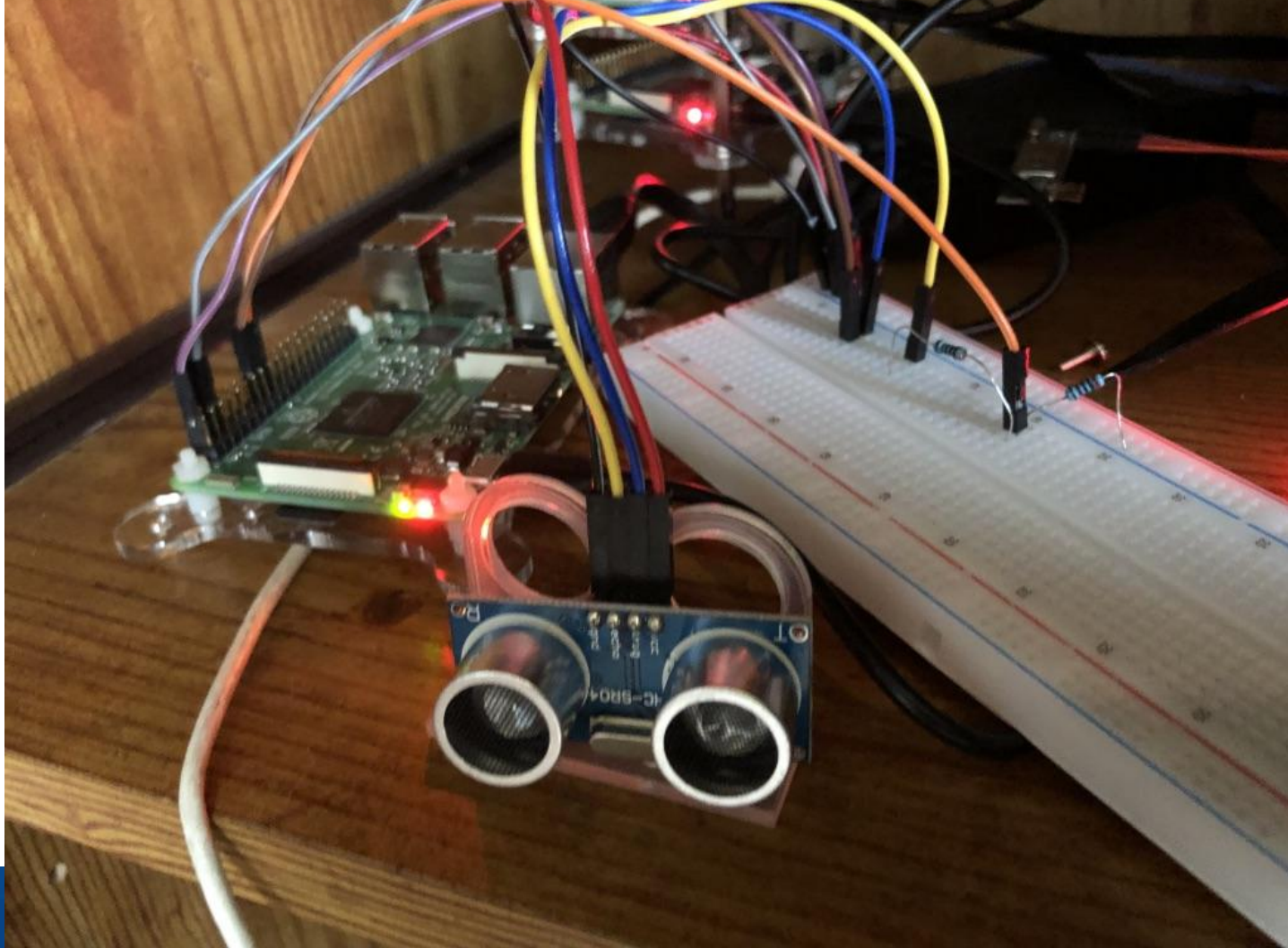




Distance = (Roundtrip time × velocity of sound (340M/S) / 2)

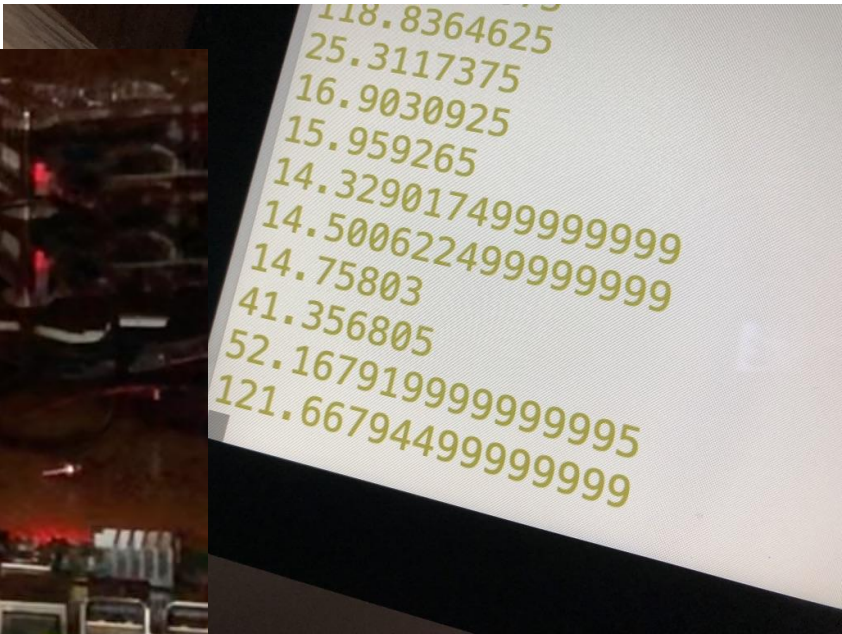






```
const trigger = new Gpio(23, { mode: Gpio.OUTPUT });  
trigger.trigger(10, 1)
```

```
const echo = new Gpio(24, { mode: Gpio.INPUT, alert: true });  
echo.on('alert', (level, tick) => {  
  if (level == 1) {  
    startTick = tick;  
  } else {  
    const endTick = tick;  
    const diff = (endTick >> 0) - (startTick >> 0);  
    const distanceCM = diff / 2 / MICROSECONDS_PER_CM
```

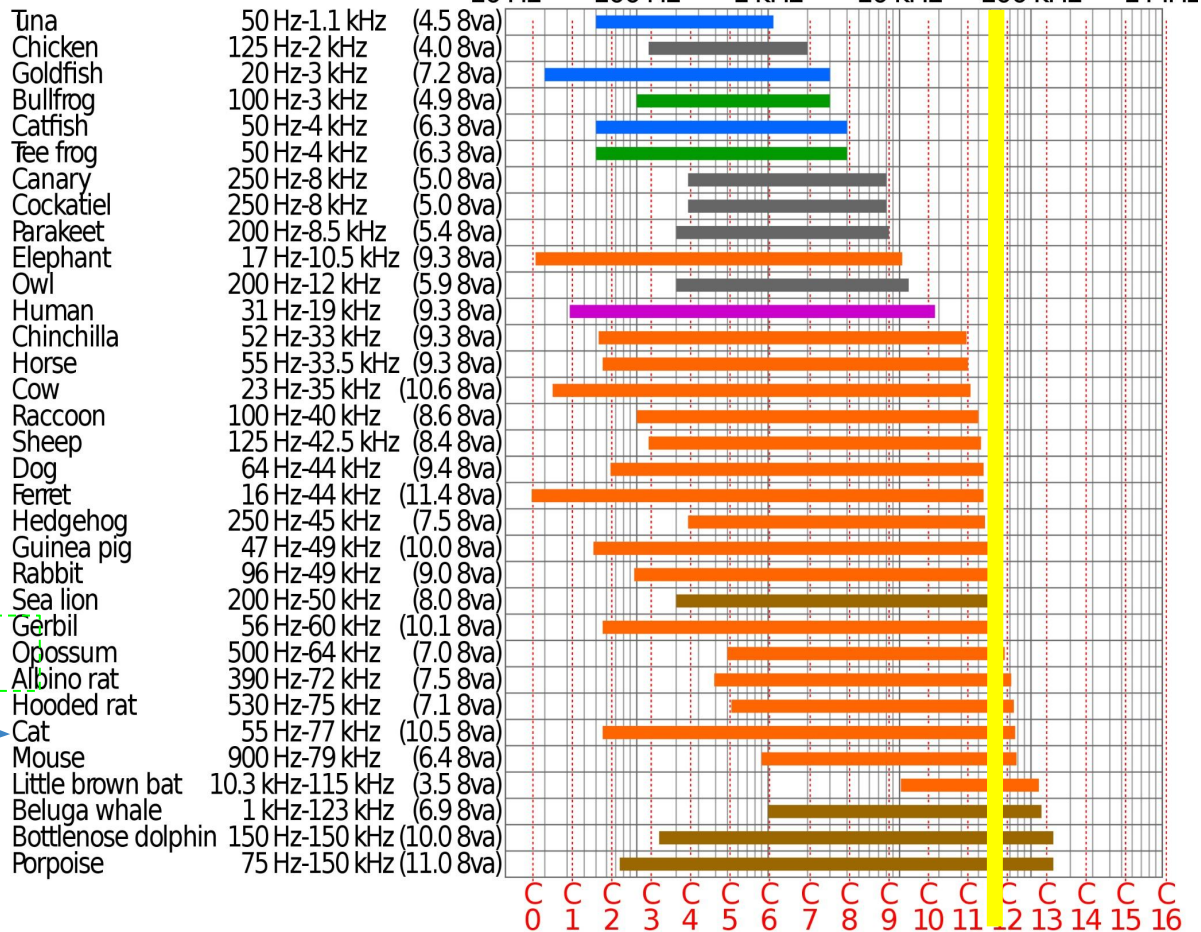



Cat and sensor



20 Hz to 20 kHz

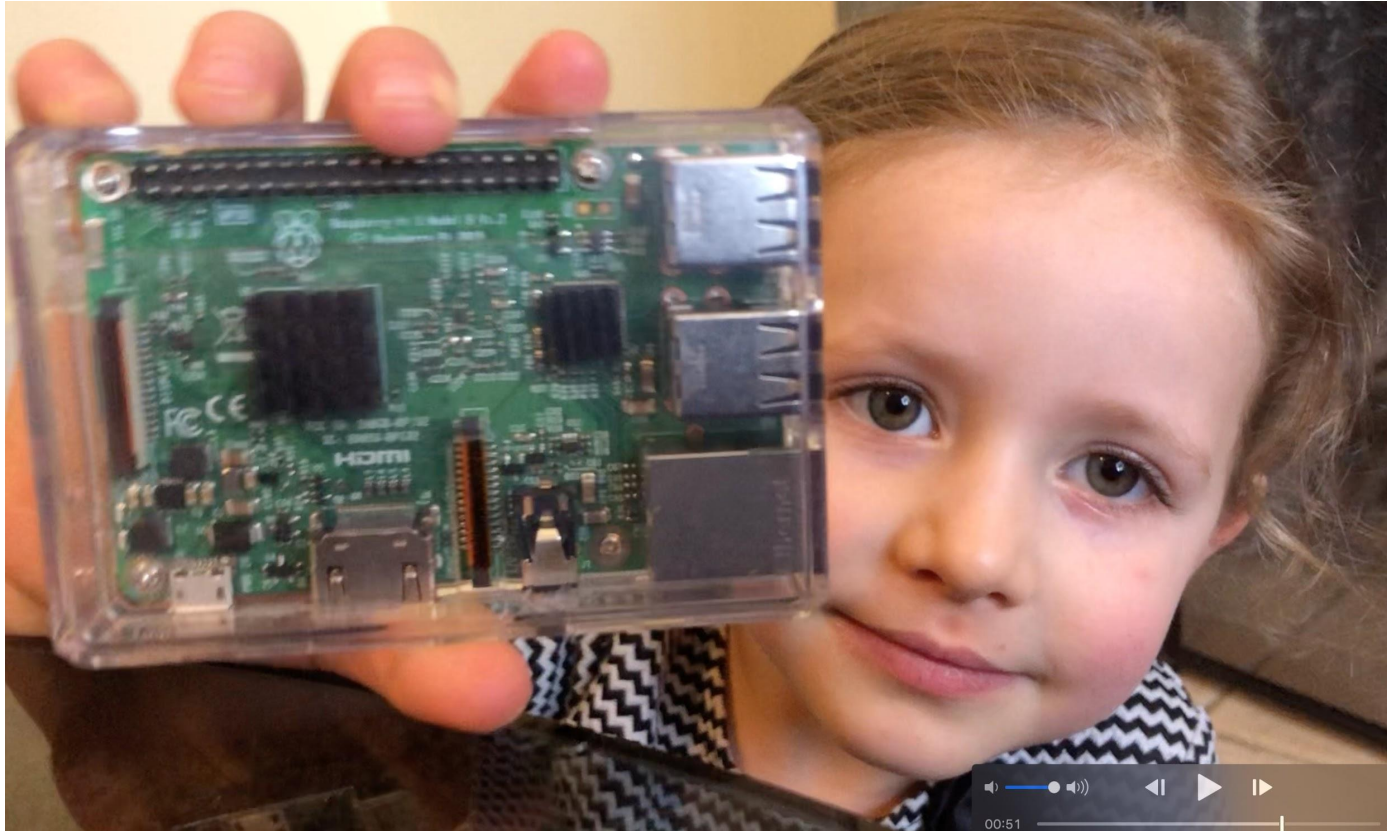
48 Hz to 85 kHz



**WHAT'S THE
GRAPH GOING TO
LOOK LIKE?**

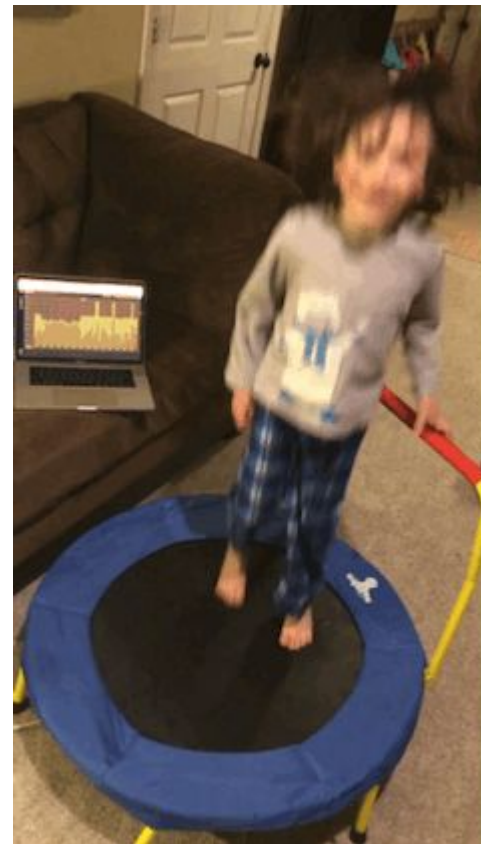
A SAWTOOTH!

Hardware Design Demo - Zenna

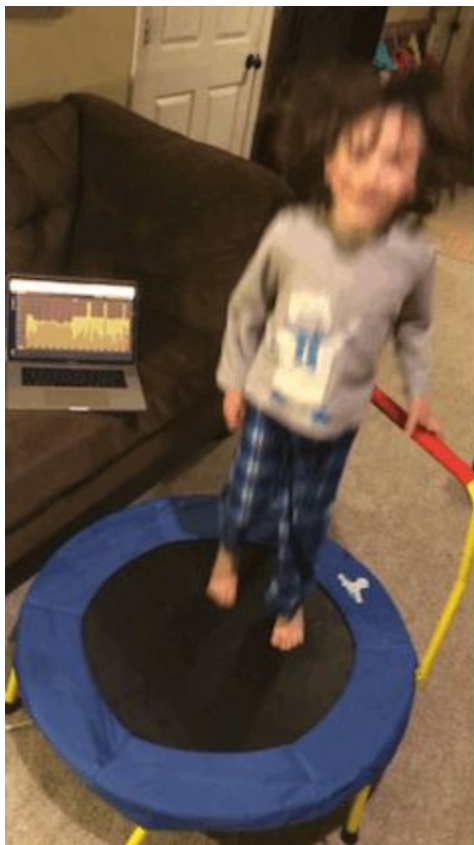


Boden

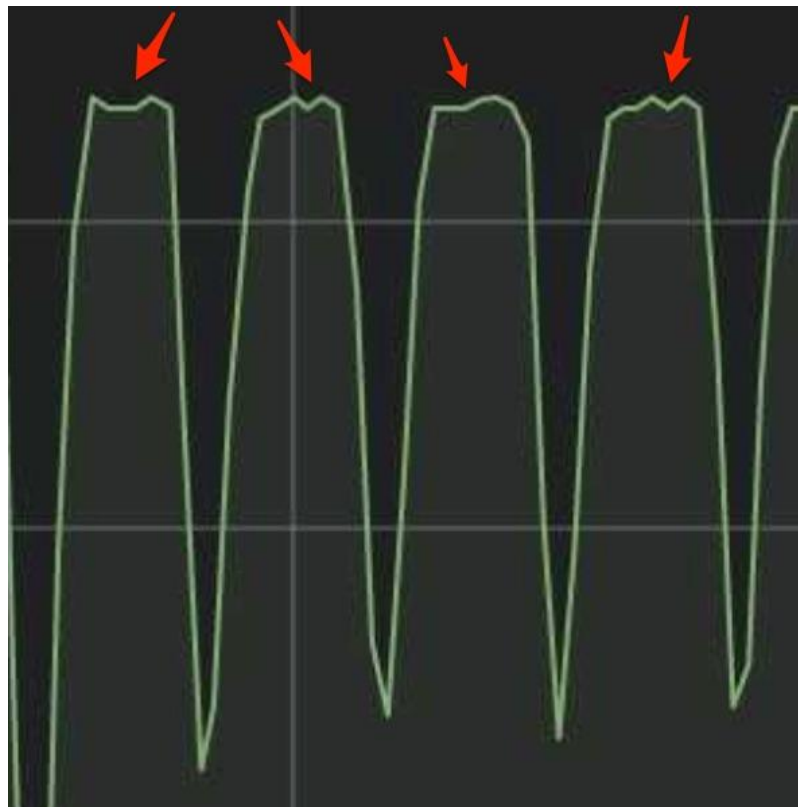
Lead Metrics Engineer





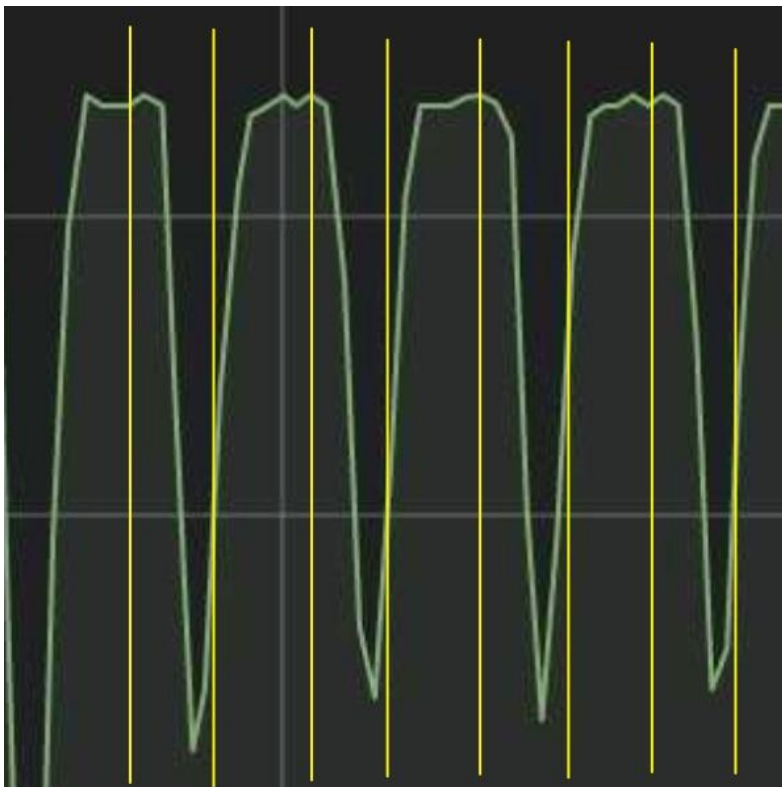


How to count jumps?

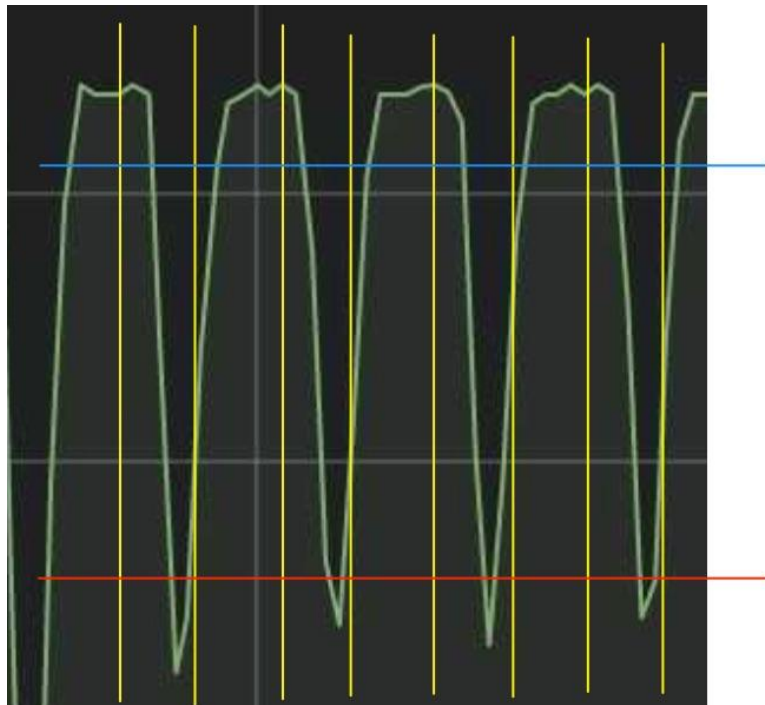


Sampling





Minimum 50ms
between checks

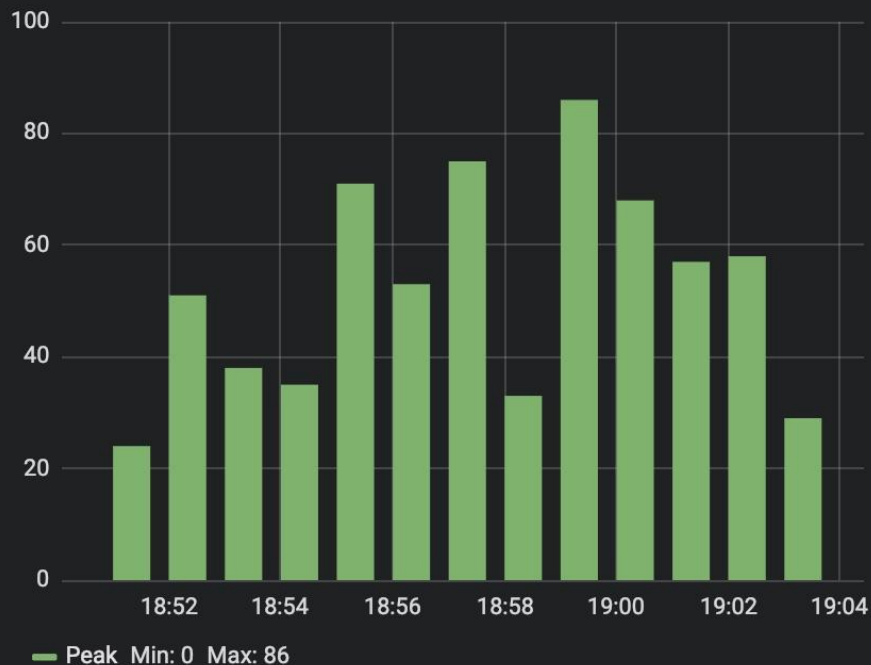


Count a peak when
cross upper threshold

Count a valley when
cross lower threshold



Jumps Per Minute



High
Score

86

Jumps Per Minute

Total

678

Jumps



Search or jump to...



Pull requests

Issues

Marketplace

Explore

 **geekdave / trampoline**

 Watch ▾

 **Code**

 Issues **0**

 Pull requests **0**

 Actions

 Projects **0**

 Wiki

 Insights

a NodeJS app for measuring trampoline jumps using a Raspberry Pi and an HC-SR04 ultrasonic sensor

[Manage topics](#)

 **2 commits**

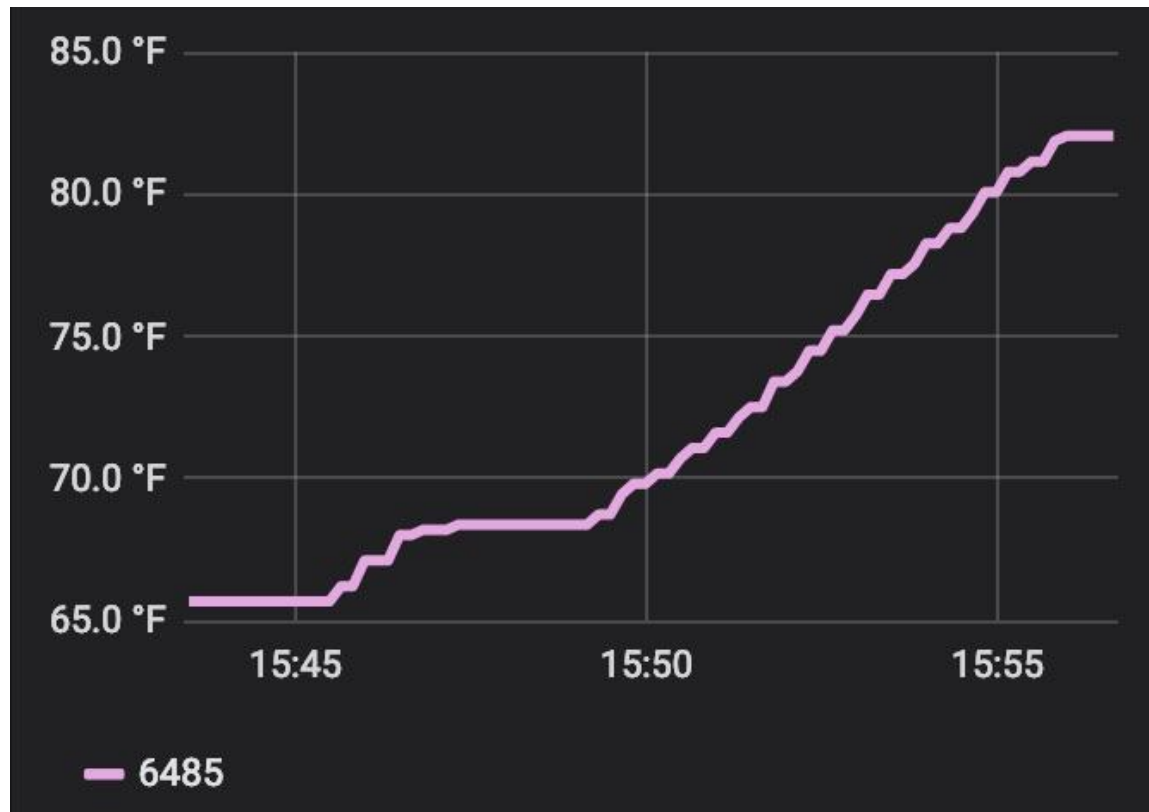
 **1 branch**

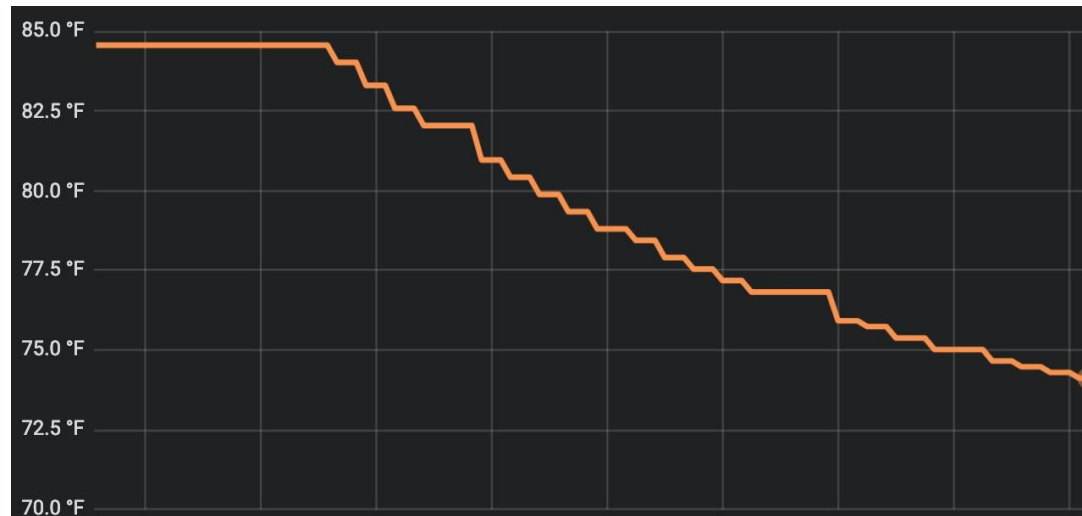
 **0 releases**

 **1 contributor**

Favorite Moments

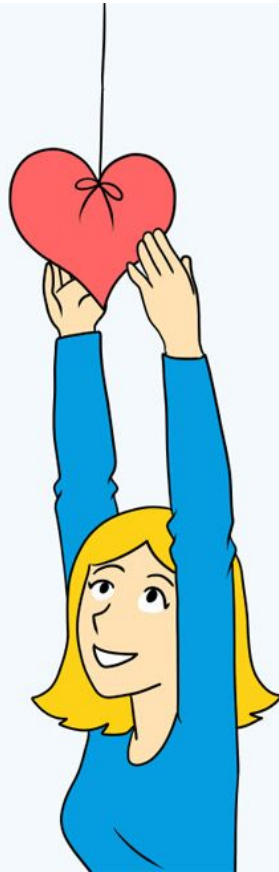








Intrinsic Motivation

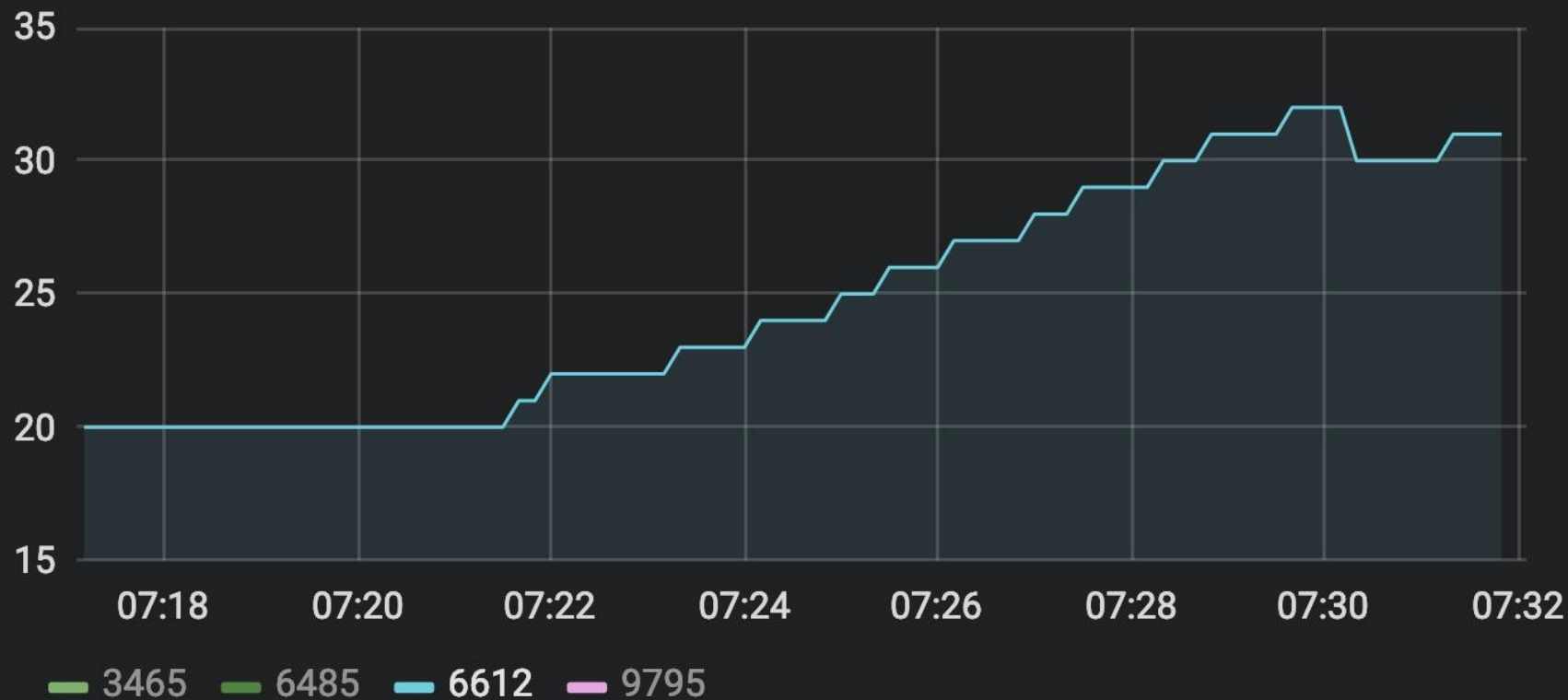


Extrinsic Motivation

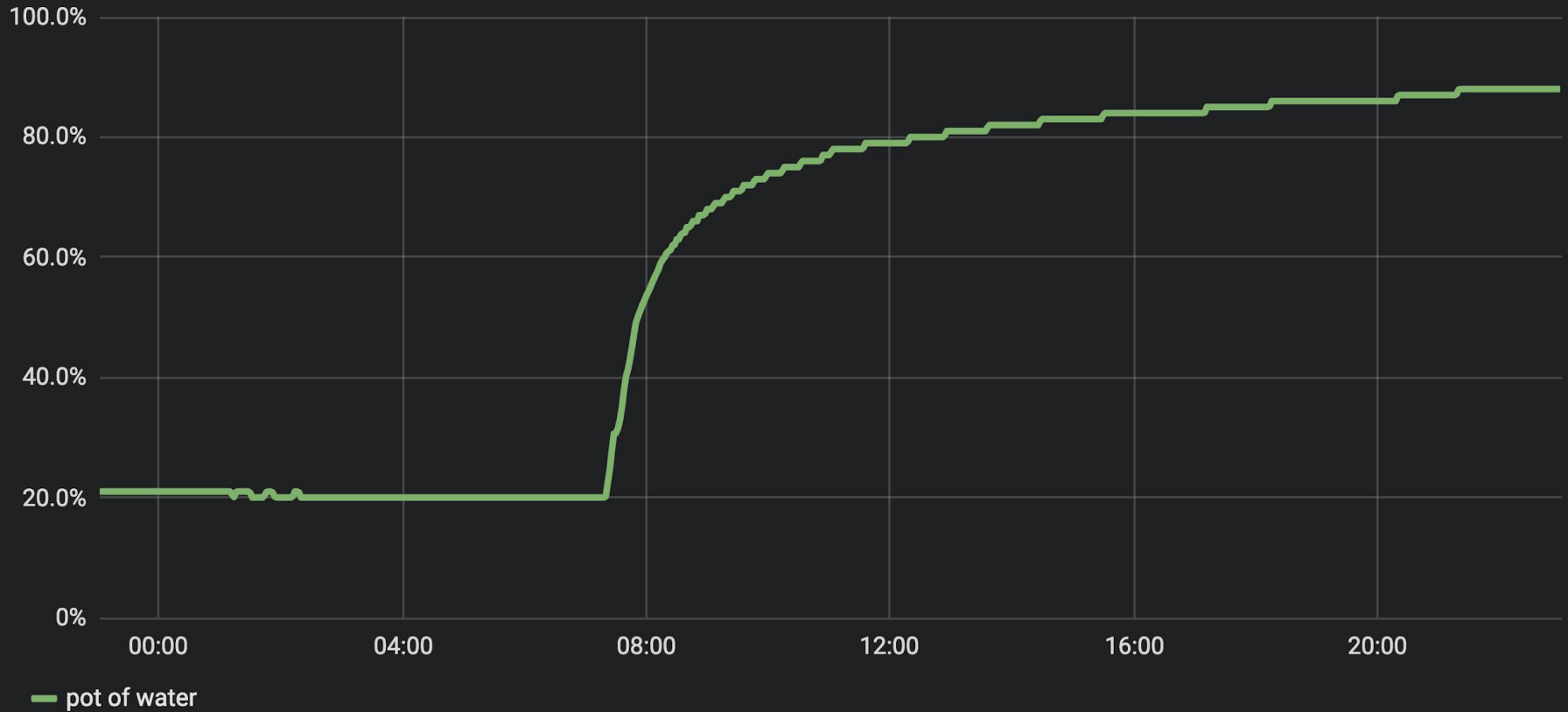


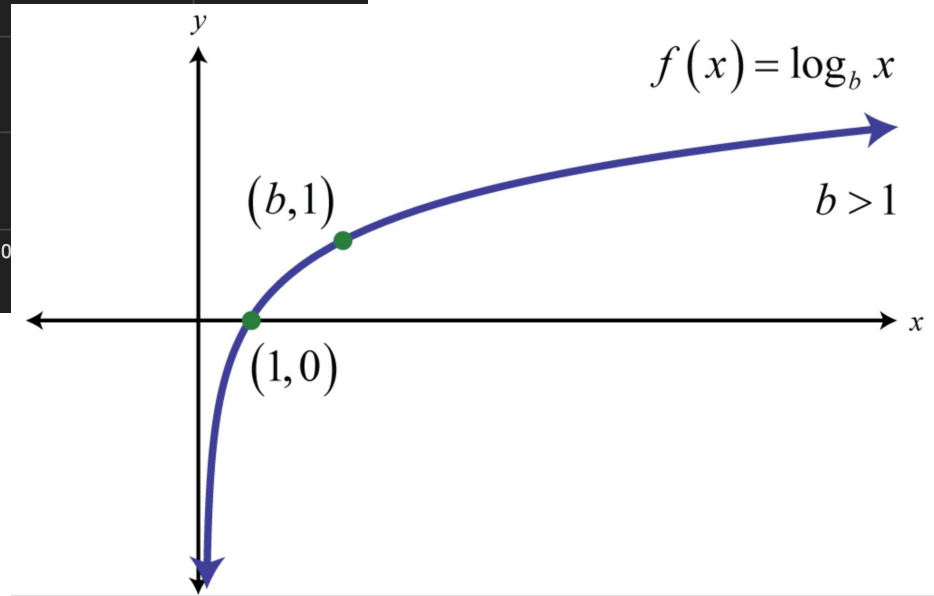
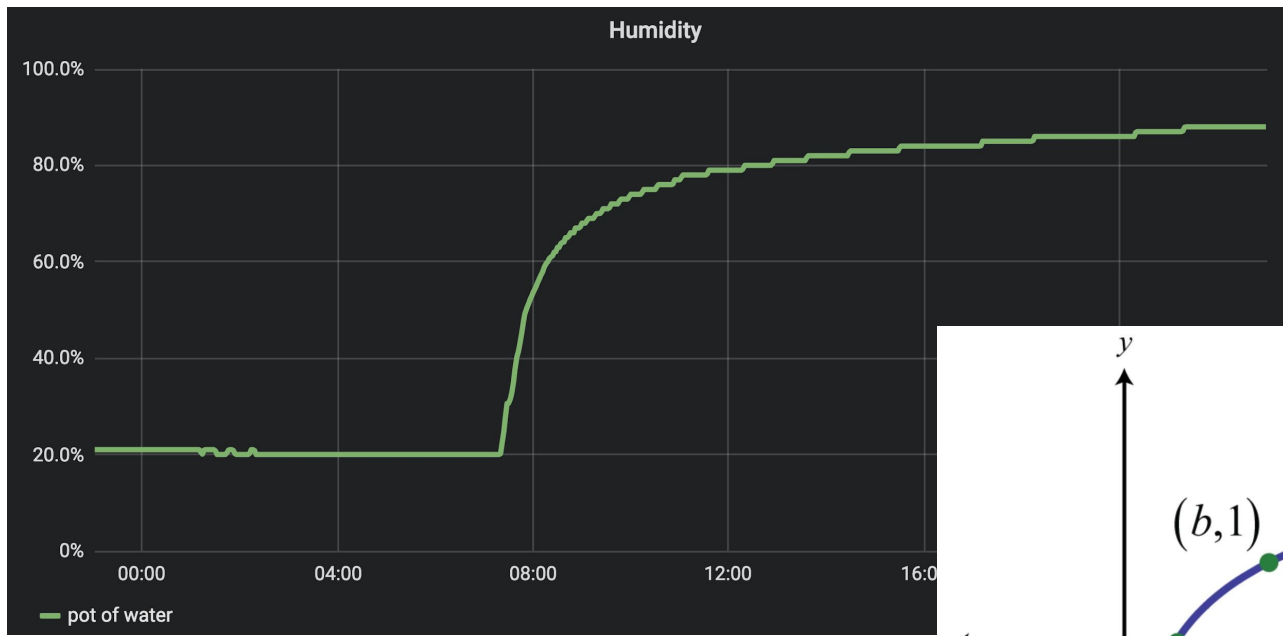


Humidity



Humidity





Bringing the fun back to work

Game Day!

```
~ sudo /sbin/shutdown now
```



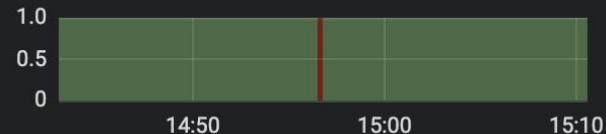
Prometheus BOT Dec 12, 1:46 PM

@all : FIRING : HTTP probe failing: [http://\[redacted\]/alive](#)

Probe sent to [http://\[redacted\]](#) alive of job http_probe has been failing for more than 1 minute. [View connection logs](#)



Probe Success Over Time

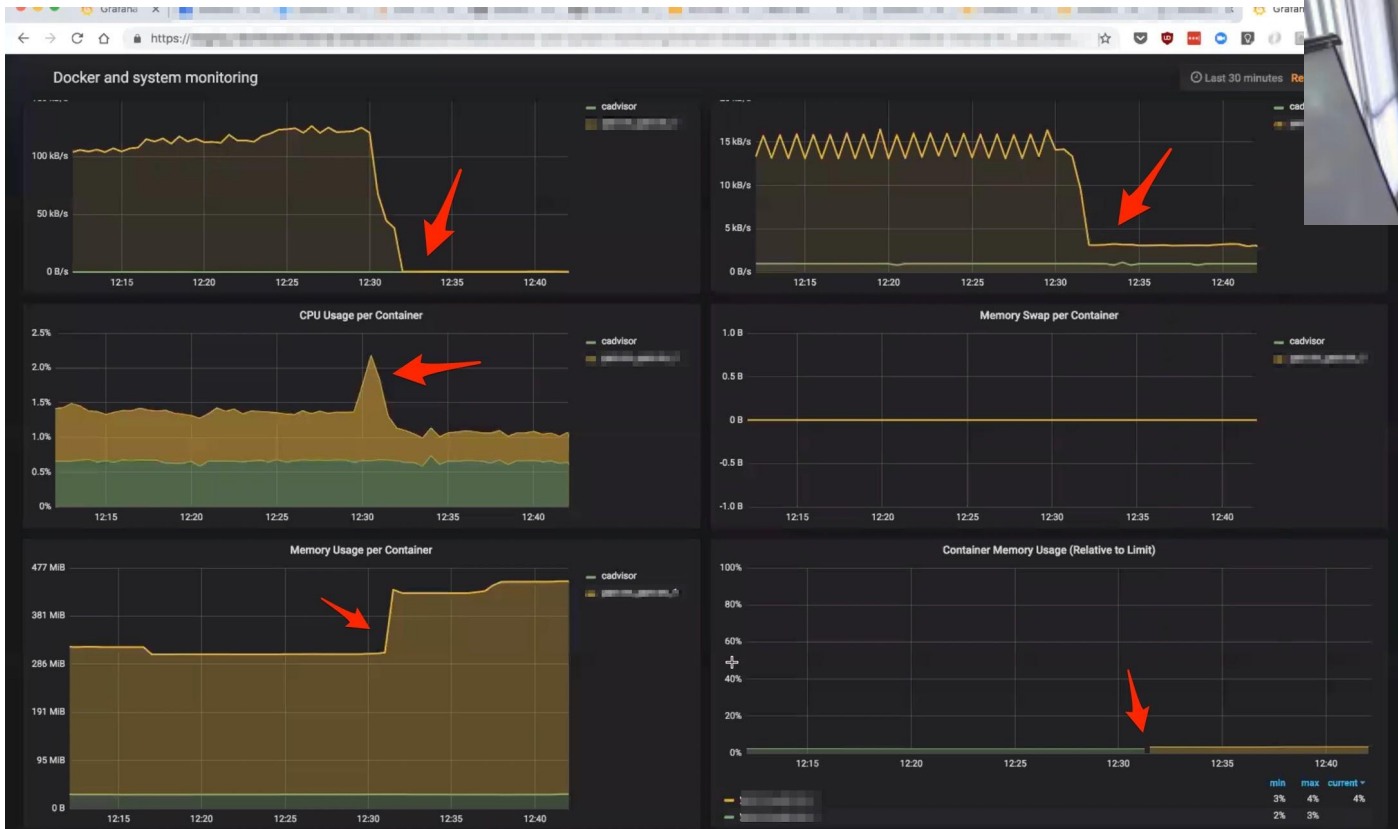


Probe Success Over Time

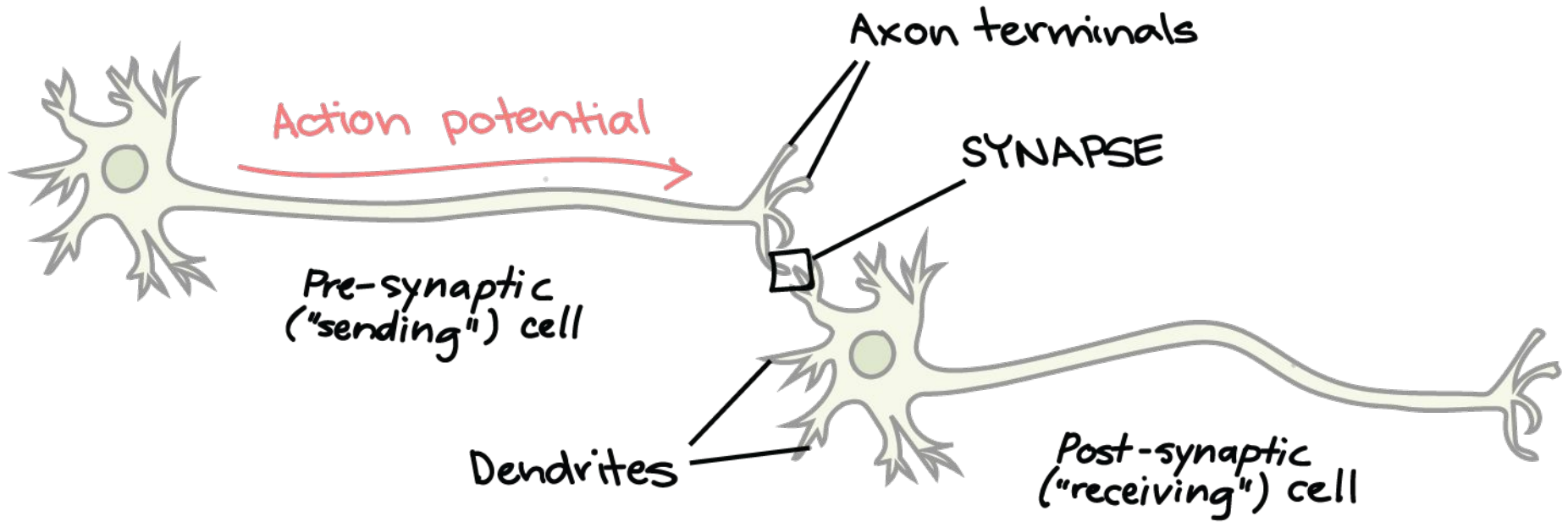


Probe Success Over Time

Game Day!



Science Behind Learning



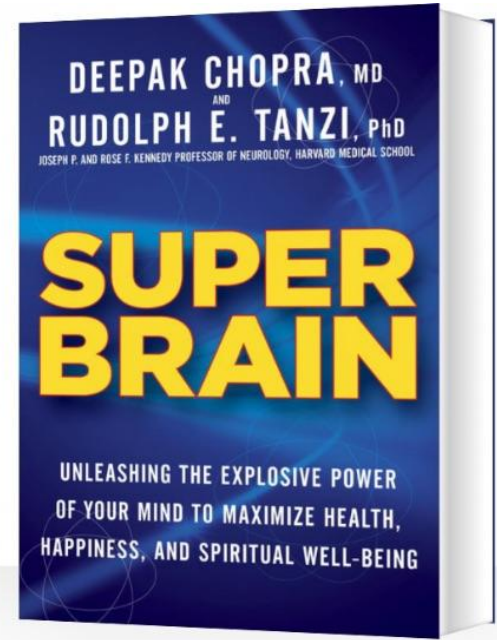
<https://www.khanacademy.org/science/biology/human-biology/neuron-nervous-system/a/the-synapse>

neuroplasticity

the ability of the brain to form and reorganize synaptic connections, especially in response to learning...

Learning + Emotion = Improved Neuroplasticity

When you become passionate and excited about learning again, the way children are, new dendrites and synapses will form, and your memory can once again be as strong as it was when you were younger.



Takeaways From Today

Takeaway #1:

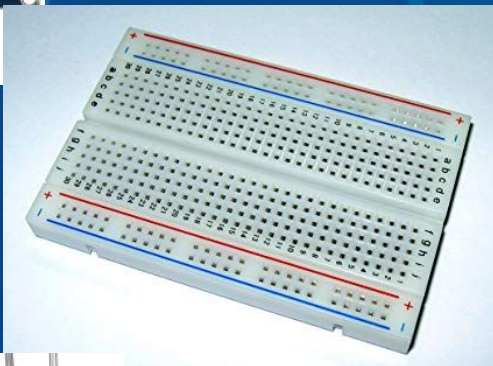
**Explain like they're five;
Learn like you're five.**

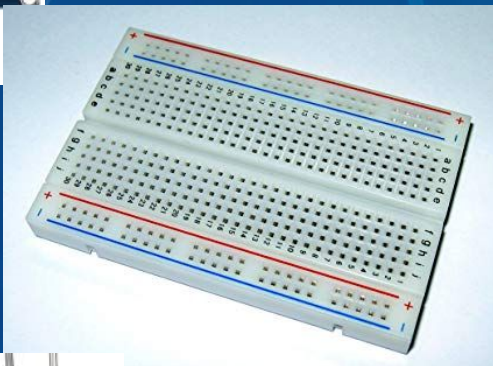
Takeaway #2:

Don't just observe your environment, manipulate it!

Takeaway #3:

Share the excitement at home!





follow me:

@geek_dave

geekdave.io



follow me:

@geek_dave

geekdave.io

THANK YOU!

