

EXPLAIN LIKE  
i'm Five

# What I Learned Teaching Grafana to my Kids

Dave Cadwallader



# Dave Cadwallader

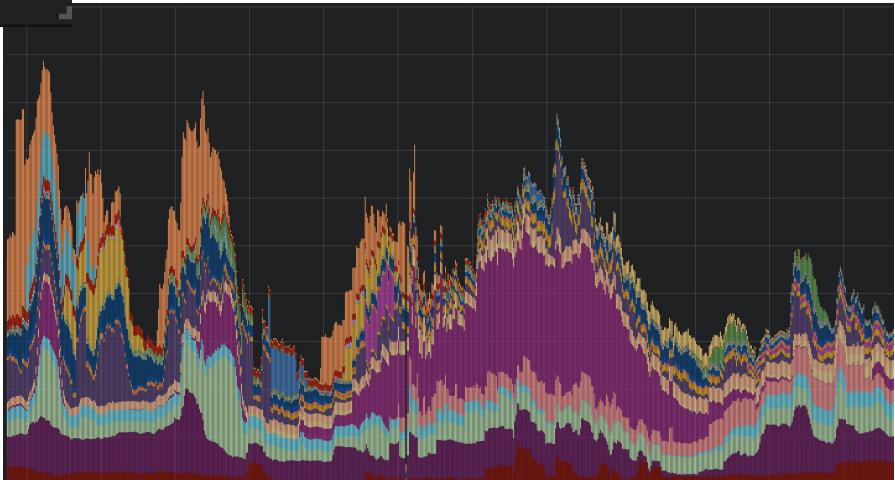
## Site Reliability Architect at

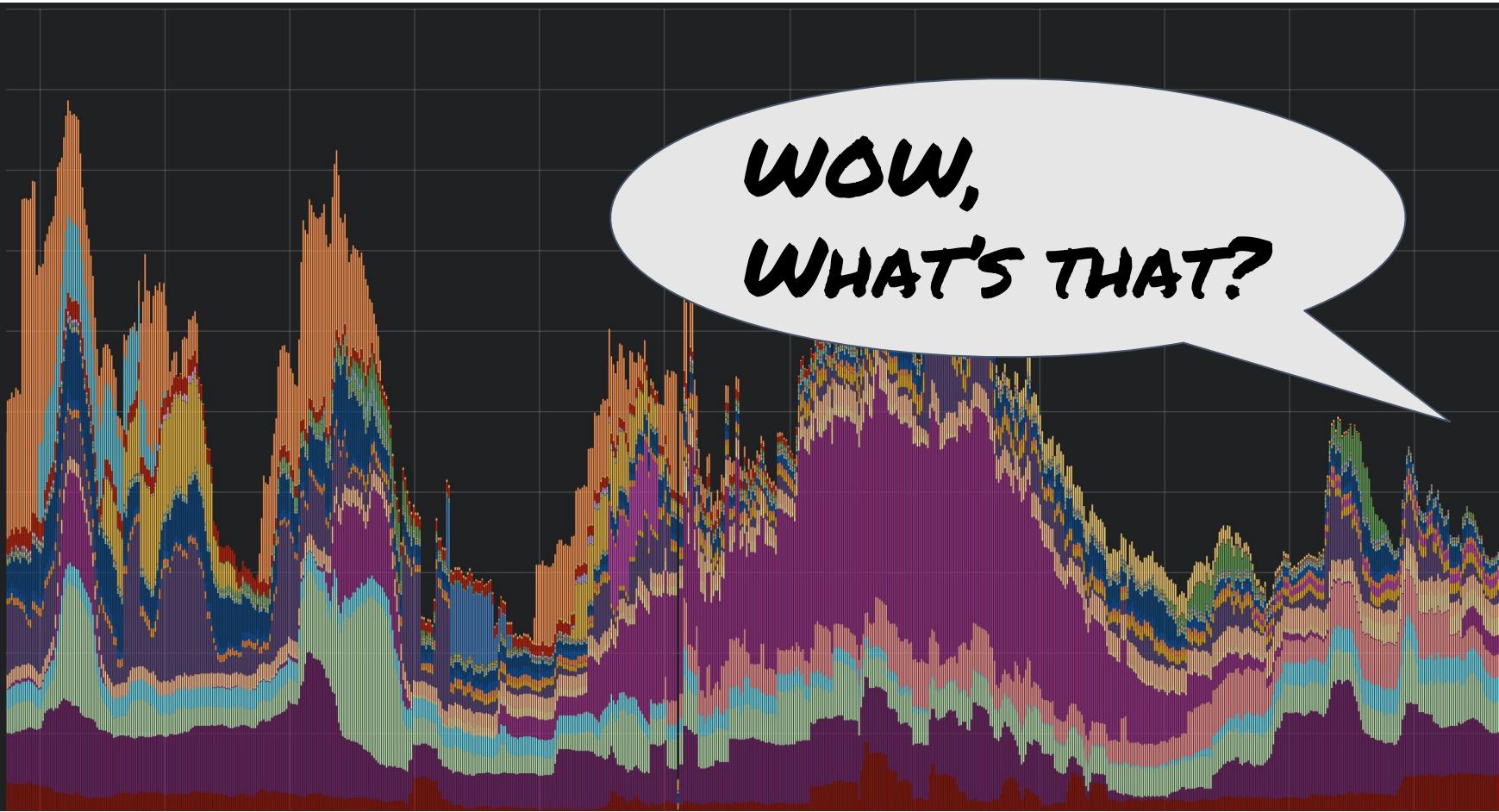
DNA**n**exus

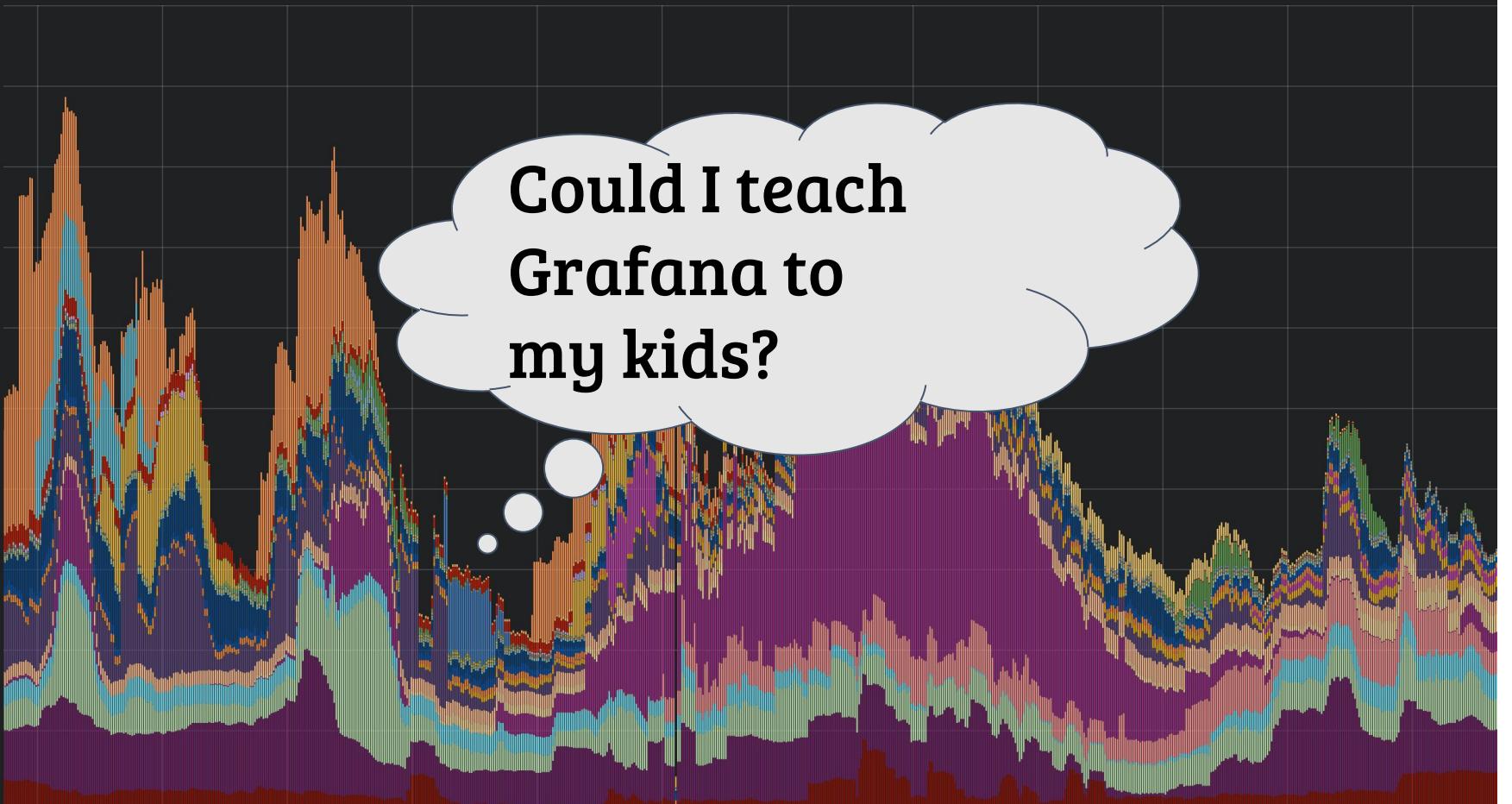
<https://www.dnanexus.com/job-board>



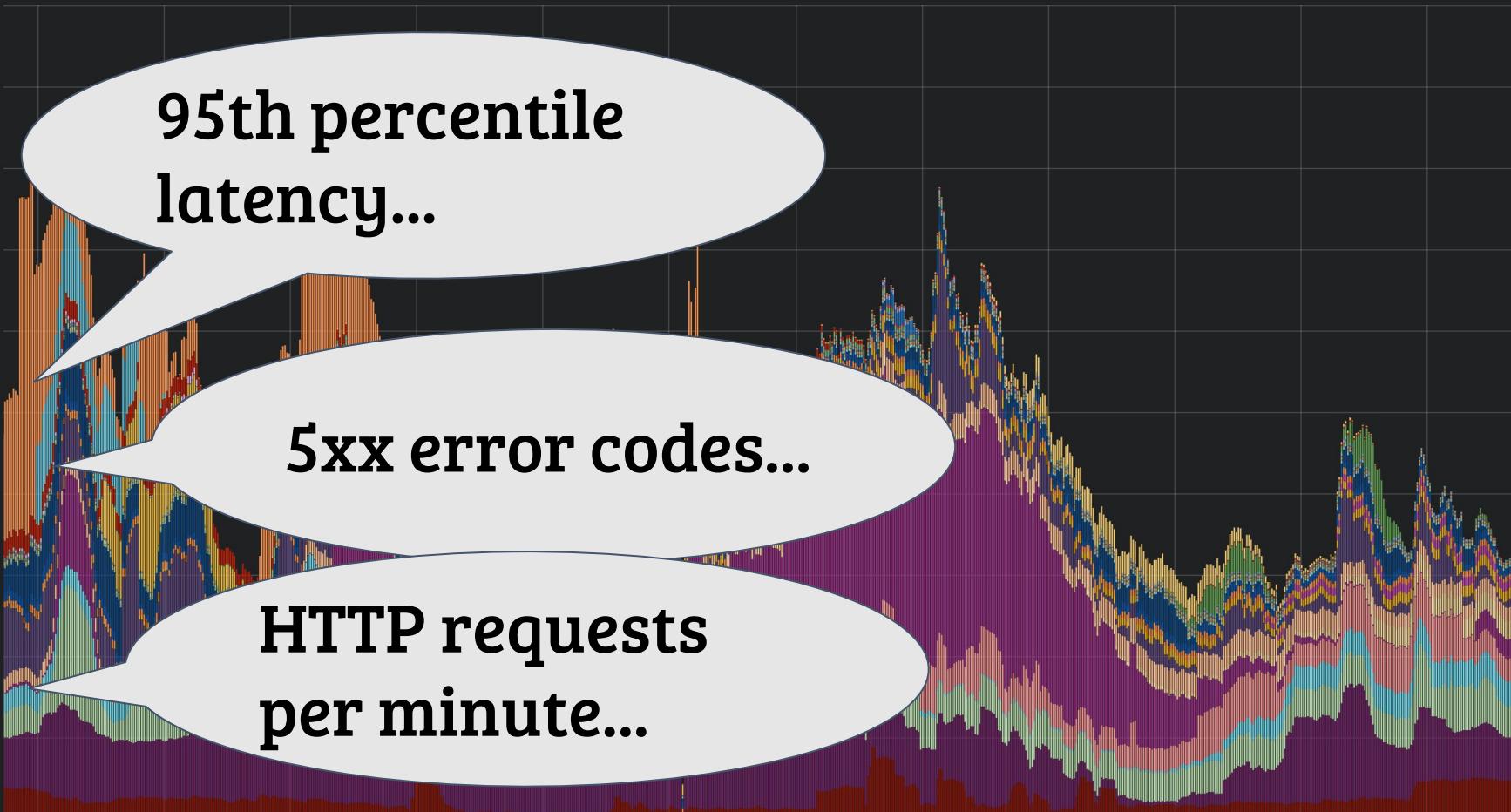
### Probe Duration Over Time







Could I teach  
Grafana to  
my kids?

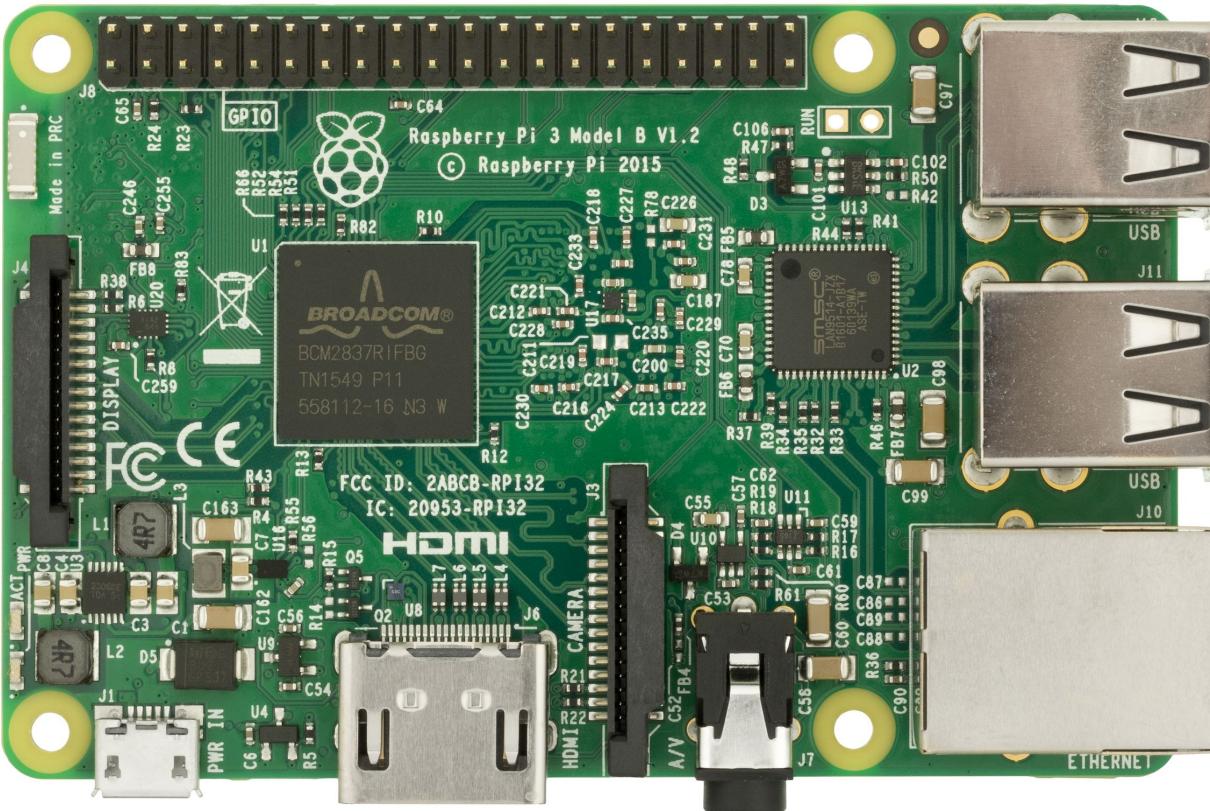


**95th percentile  
latency...**

**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

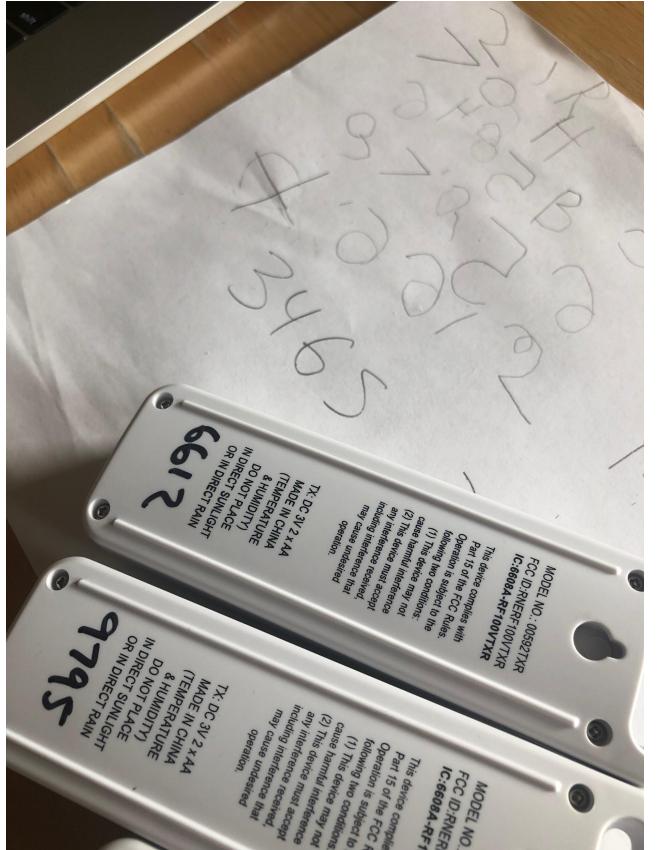




```

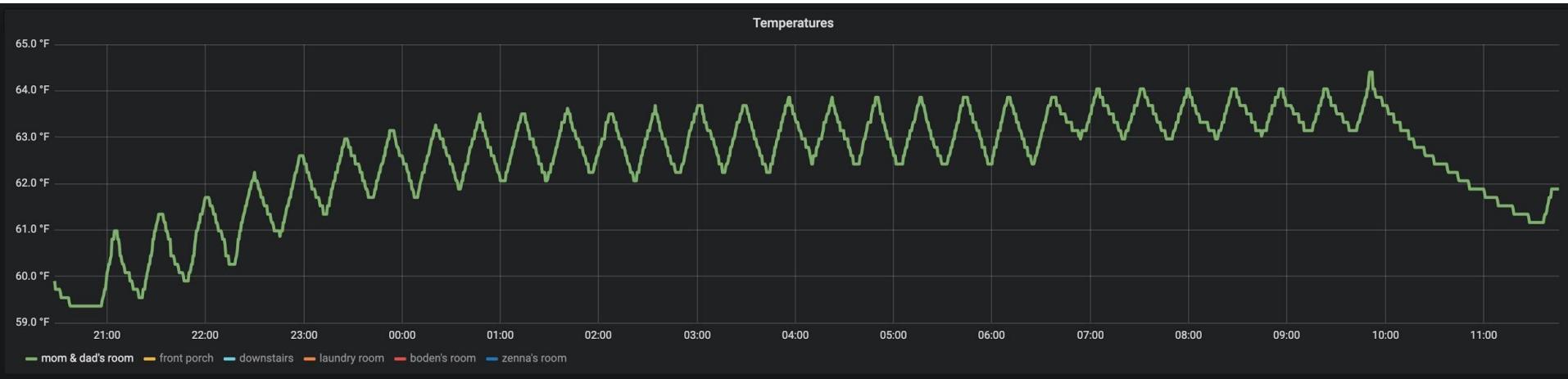
    "sensor_id" : 6612, "channel" : "A", "temperature_F" : 65.300,
    "sensor_id" : 6485, "channel" : "A", "temperature_F" : 65.300,
    "sensor_id" : 6485, "channel" : "A", "temperature_F" : 65.300,
    "sensor_id" : 6485, "channel" : "A", "temperature_F" : 70.160,
    "sensor_id" : 9795, "channel" : "A", "temperature_F" : 70.160,
    "sensor_id" : 9795, "channel" : "A", "temperature_F" : 70.160,
    "sensor_id" : 9795, "channel" : "A", "temperature_F" : 70.160,
    "sensor_id" : 9795, "channel" : "A", "temperature_F" : 70.160,
    "battery" : "OK", "temperature_F" : 62.420}
    6612, "channel" : "A", "temperature_F" : 72.500,
    6485, "channel" : "A", "temperature_F" : 65.300,
    6485, "channel" : "A", "temperature_F" : 65.300,
    6485, "channel" : "A", "temperature_F" : 65.300,
    6485, "channel" : "A", "temperature_F" : 70.160, "p

```





# Sawtooth



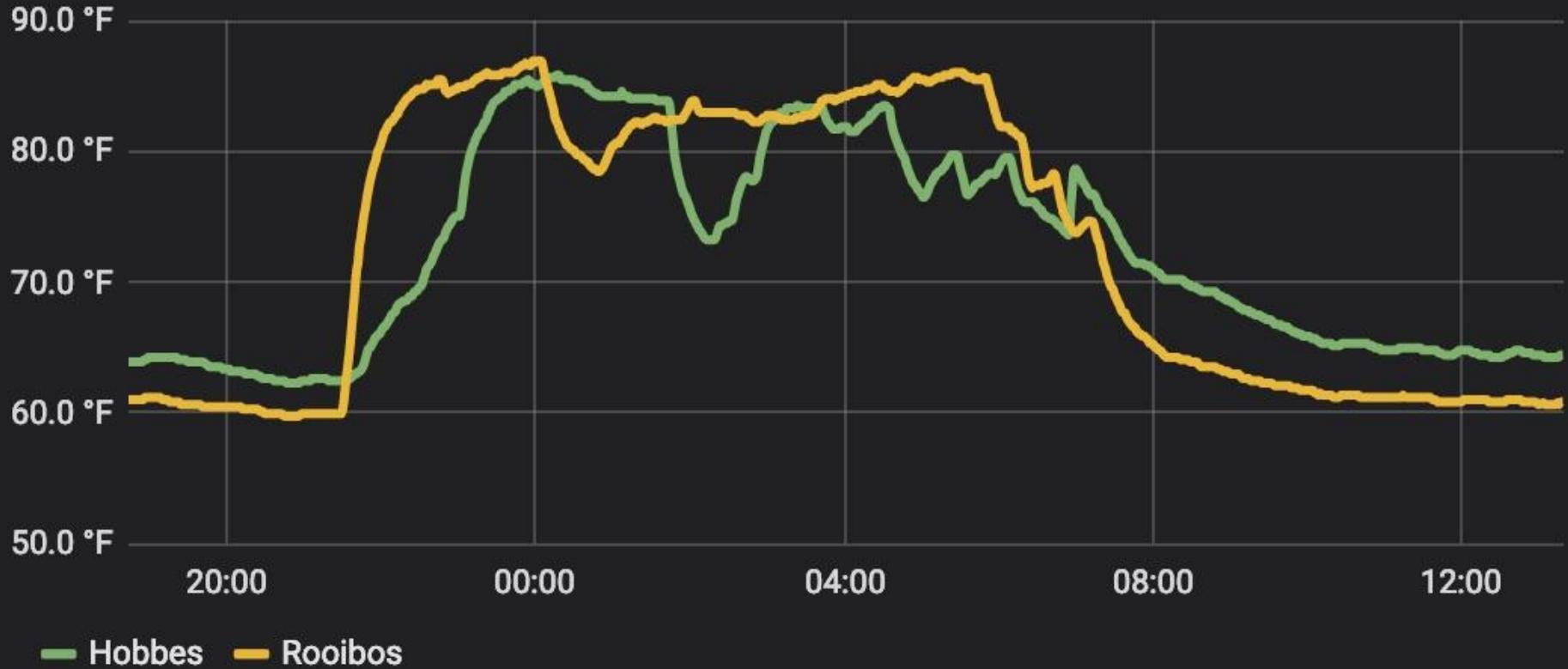
# Hobbes



# Rooibos

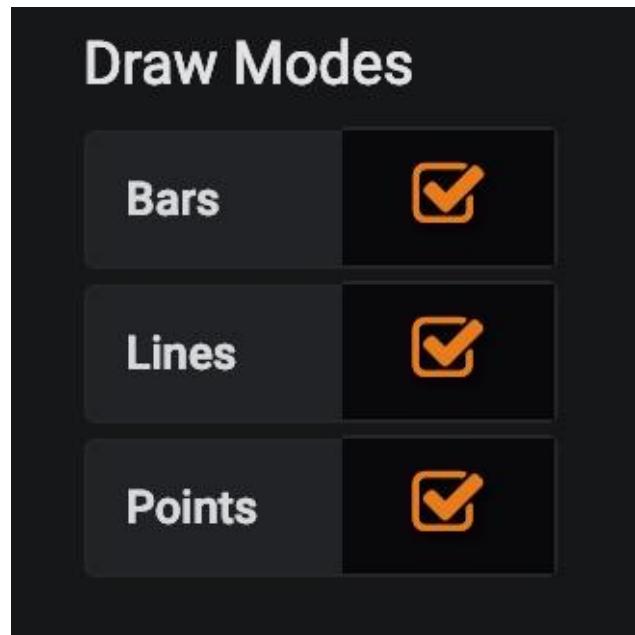
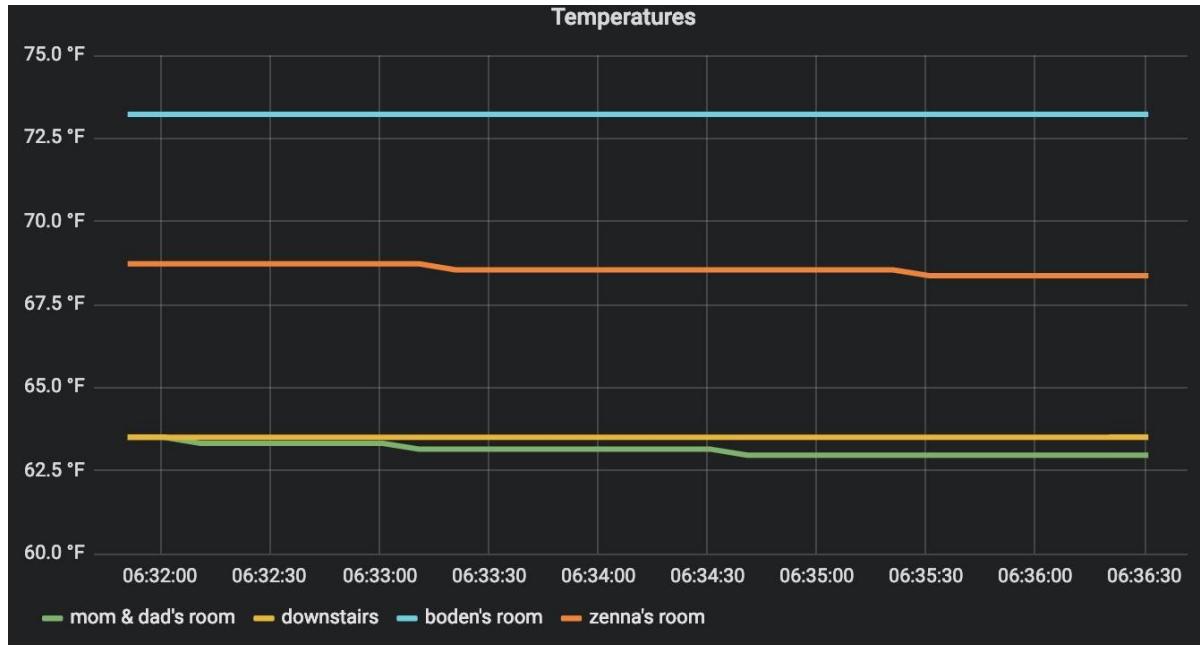


## Temperatures

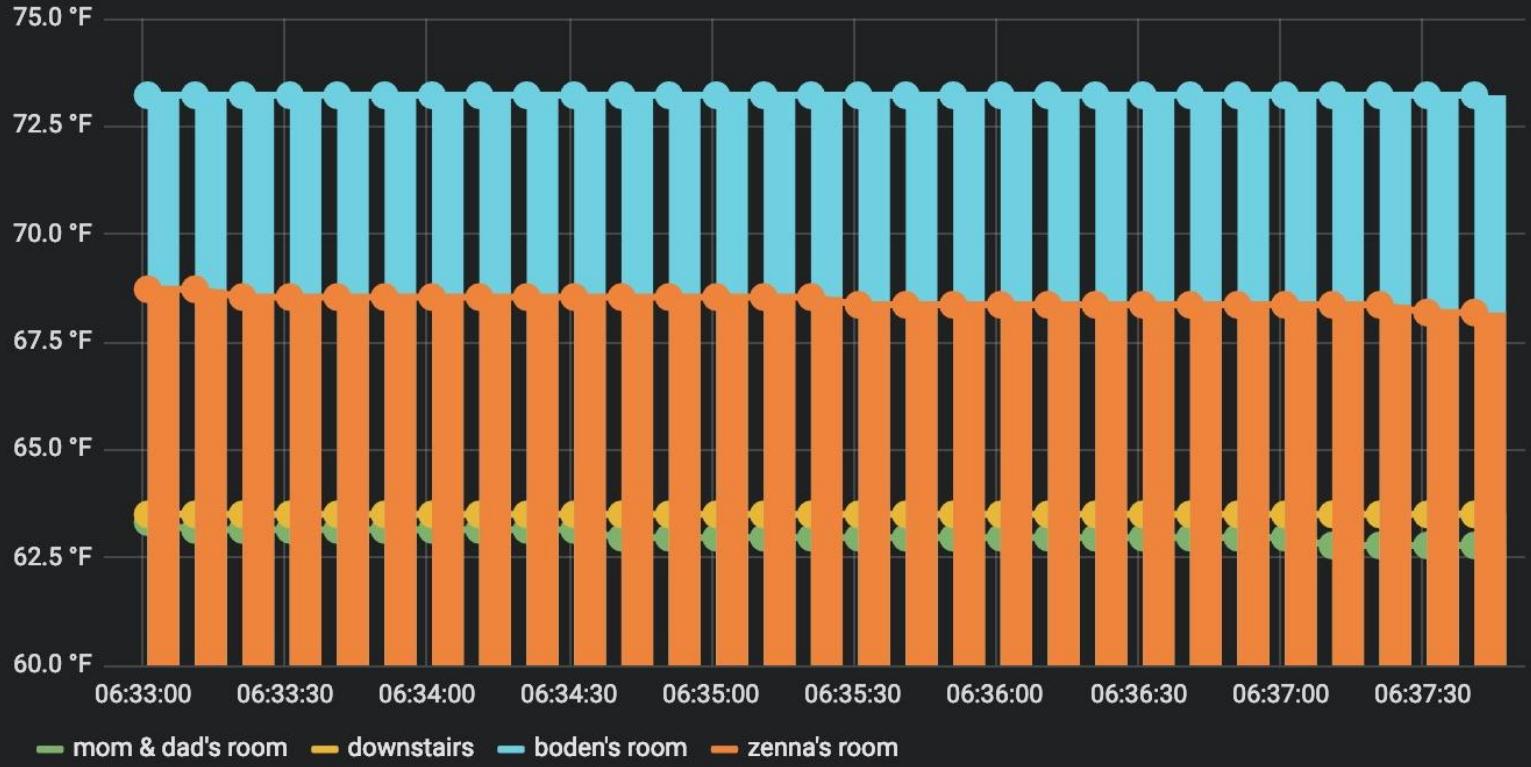








## Temperatures



MMF



© 1995 Watterson/Distributed by Universal Uclick

RRGG



ONE!

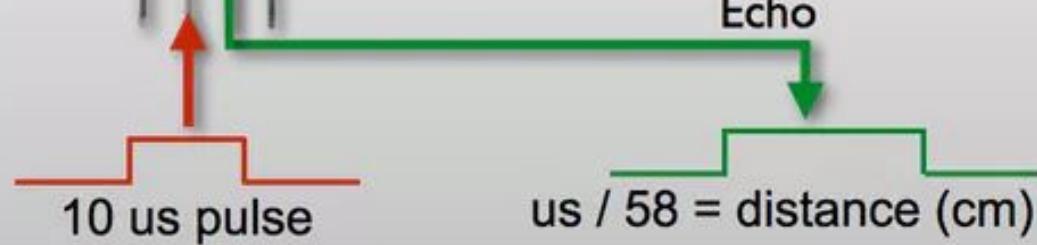
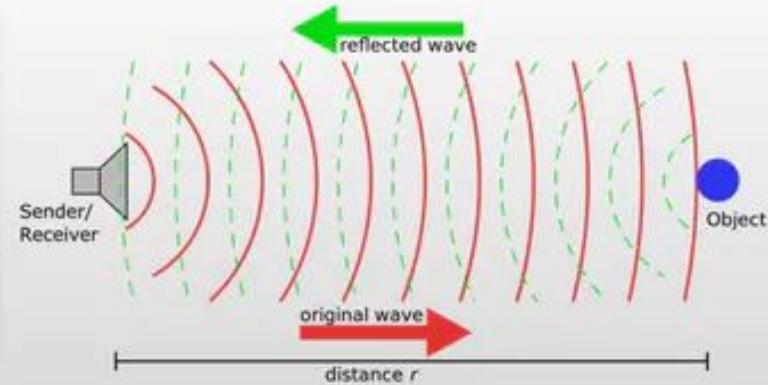


REWARD,  
PLEASE!



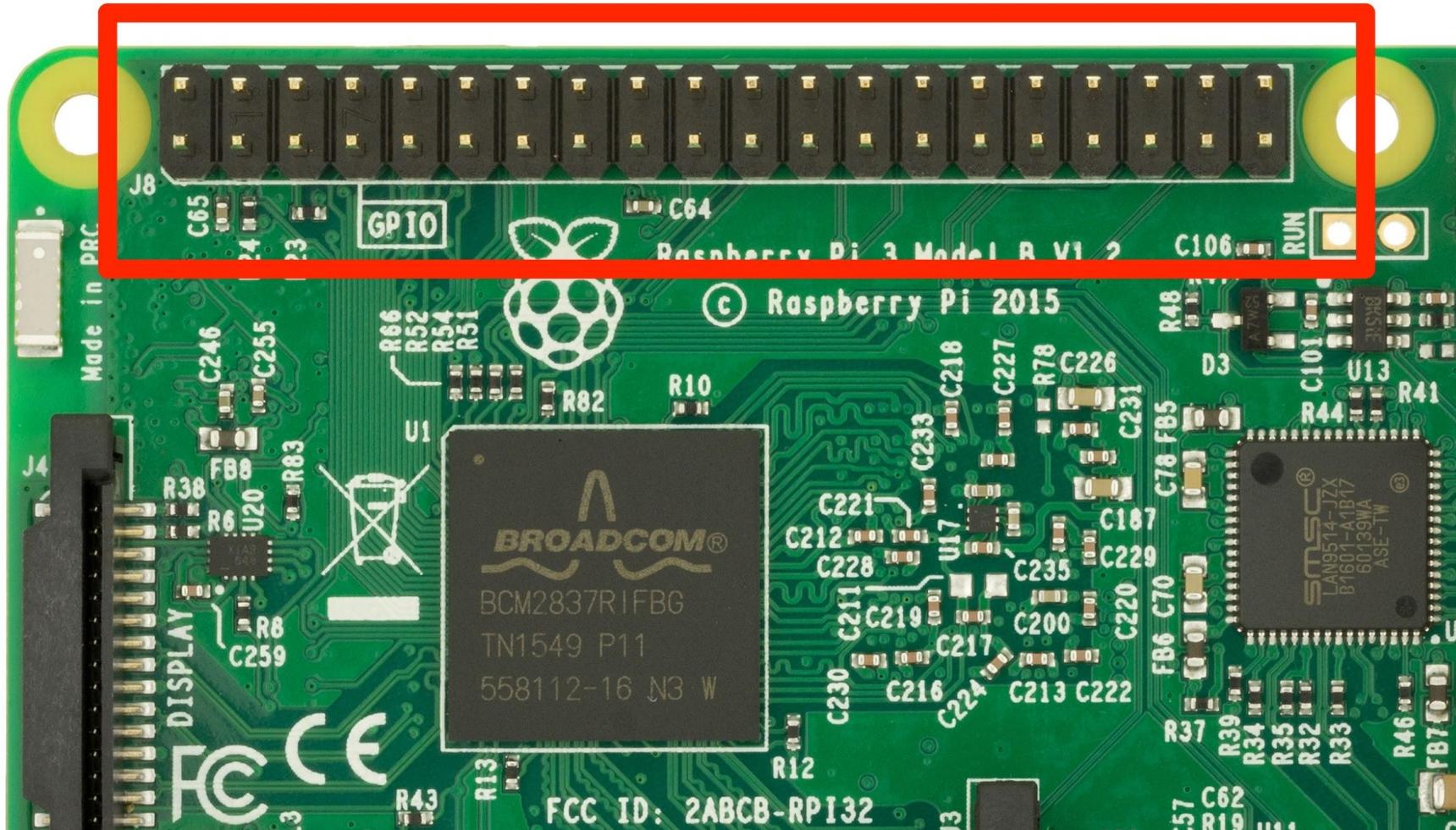
5-29 WATT





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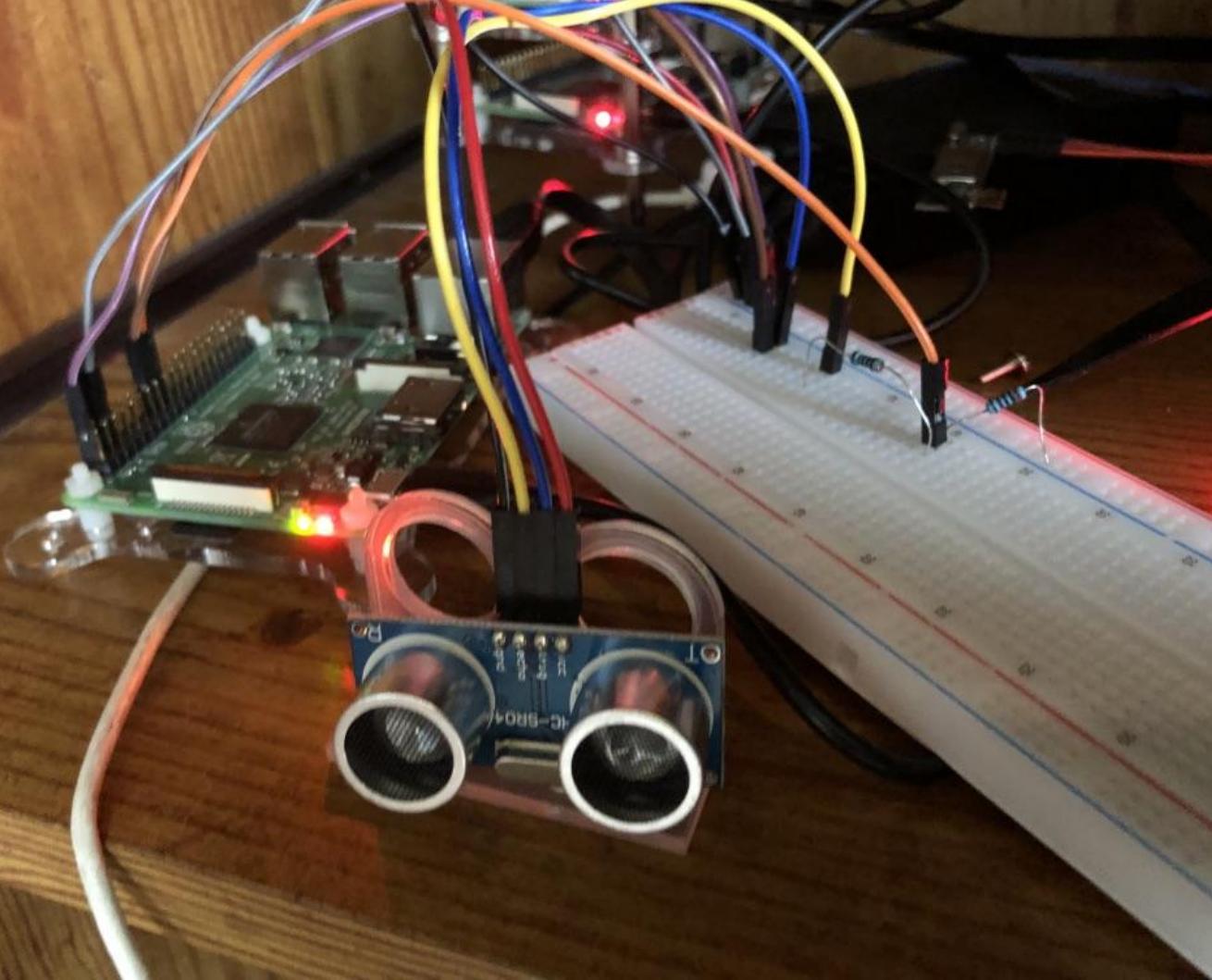
Distance = (Roundtrip time × velocity of sound (340M/S) / 2)





LOS ANG  
**Grafan**





```
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) {

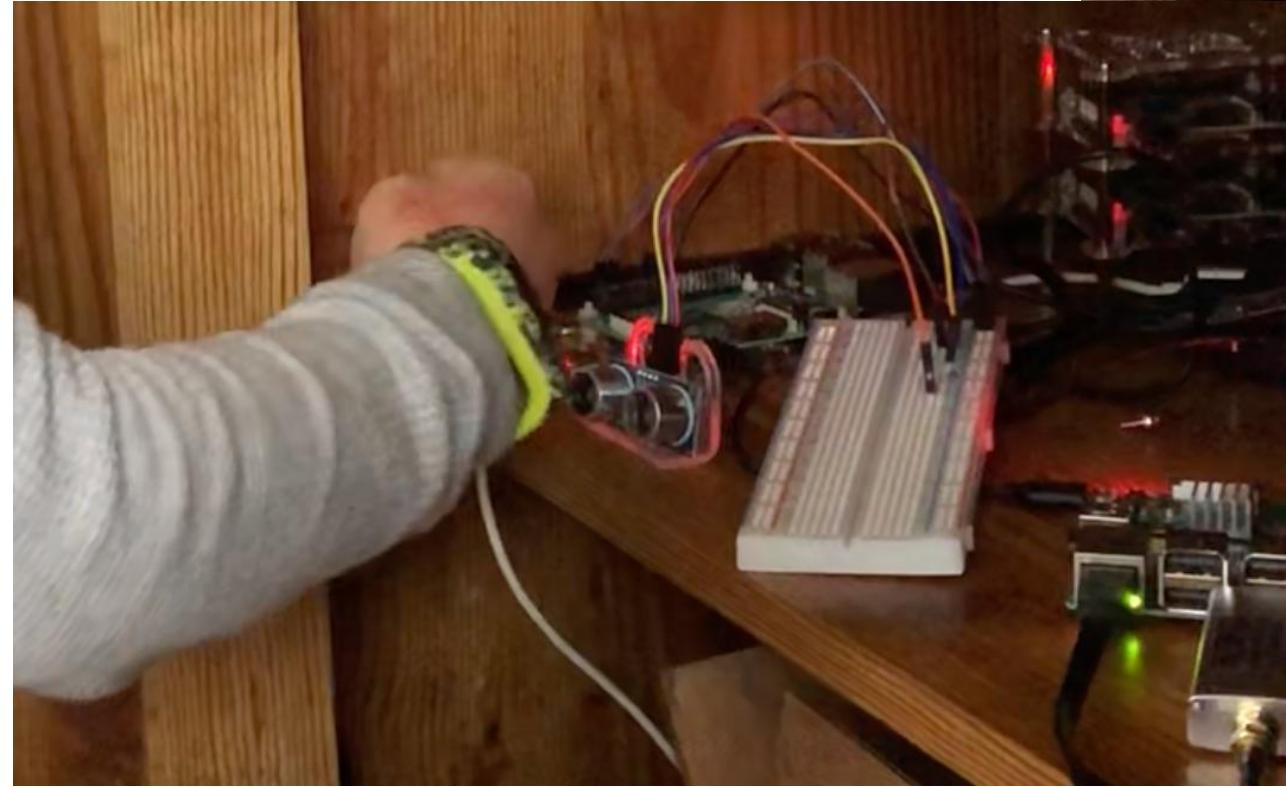
        startTick = tick;

    } else {

        const endTick = tick;

        const diff = (endTick >> 0) - (startTick >> 0);

        const distanceCM = diff / 2 / MICROSECONDS_PER_CM
```

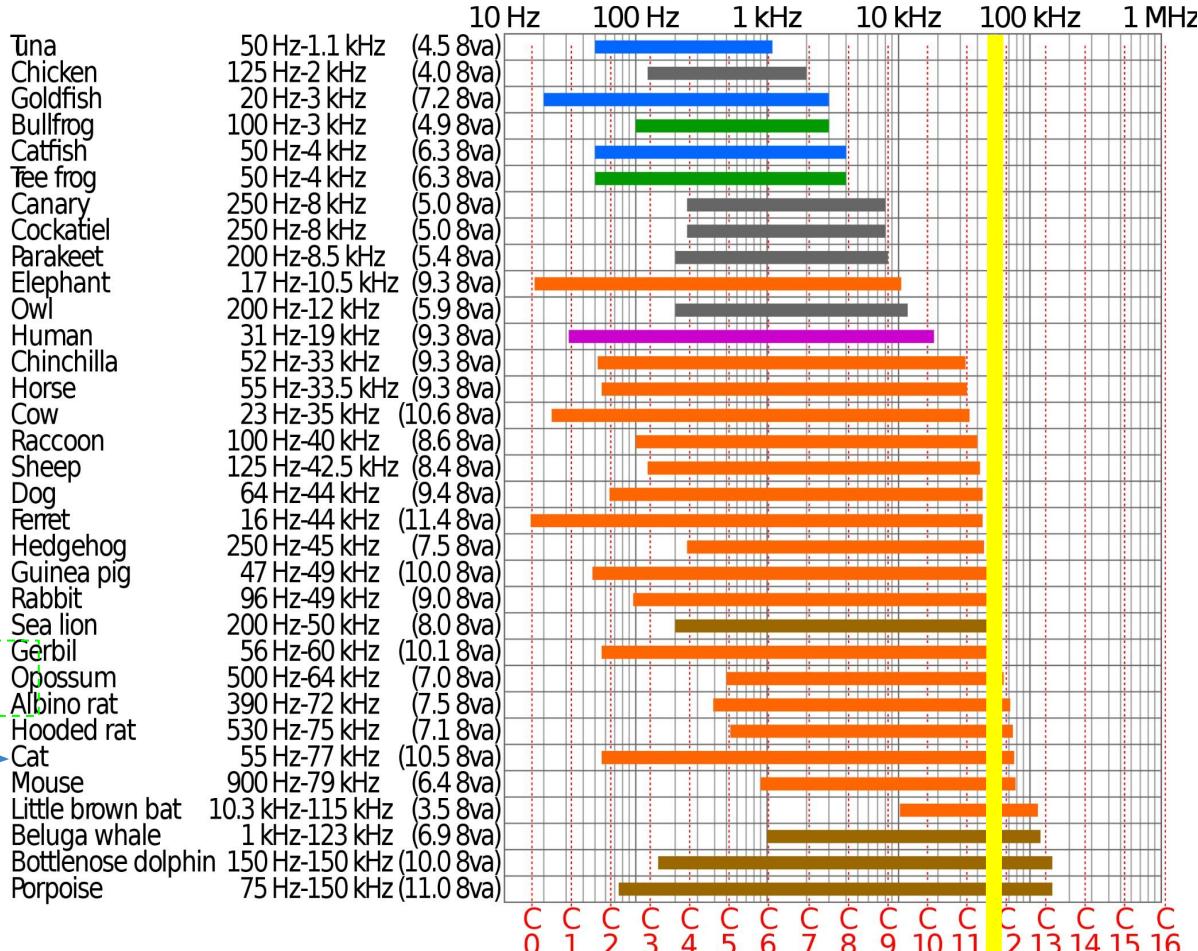


118.8364625  
25.3117375  
16.9030925  
15.959265  
14.329017499999999  
14.500622499999999  
14.75803  
41.356805  
52.167919999999995  
121.66794499999999

# Cat and sensor

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

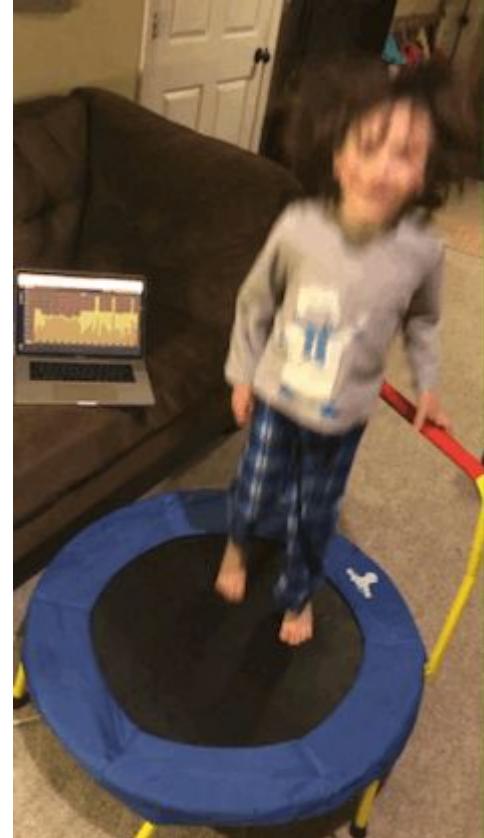
**A SAWTOOTH!**

# Hardware Design Demo - Zenna



# Boden

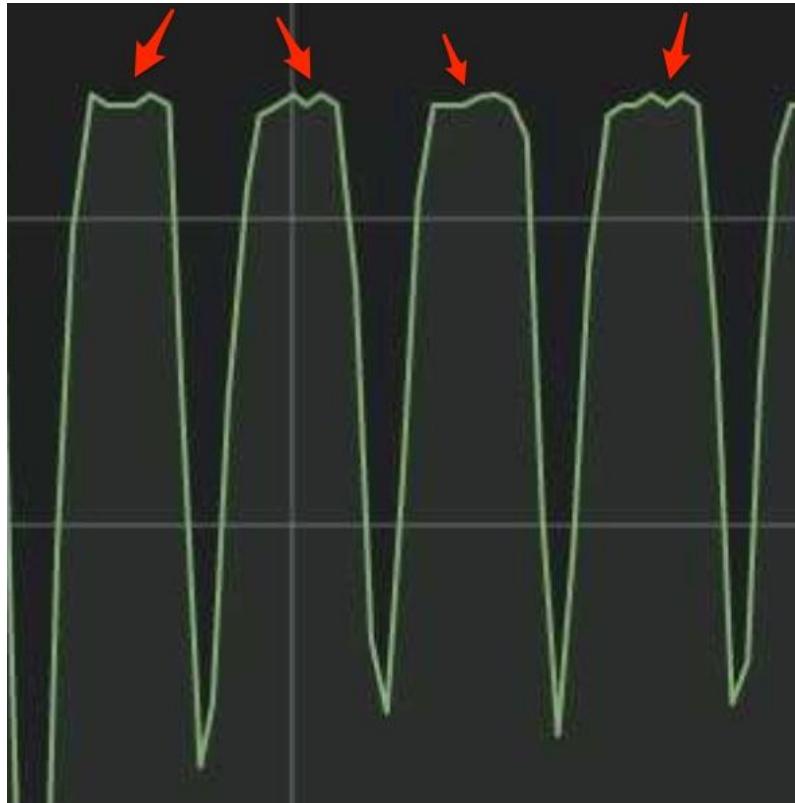
# Lead Metrics Engineer





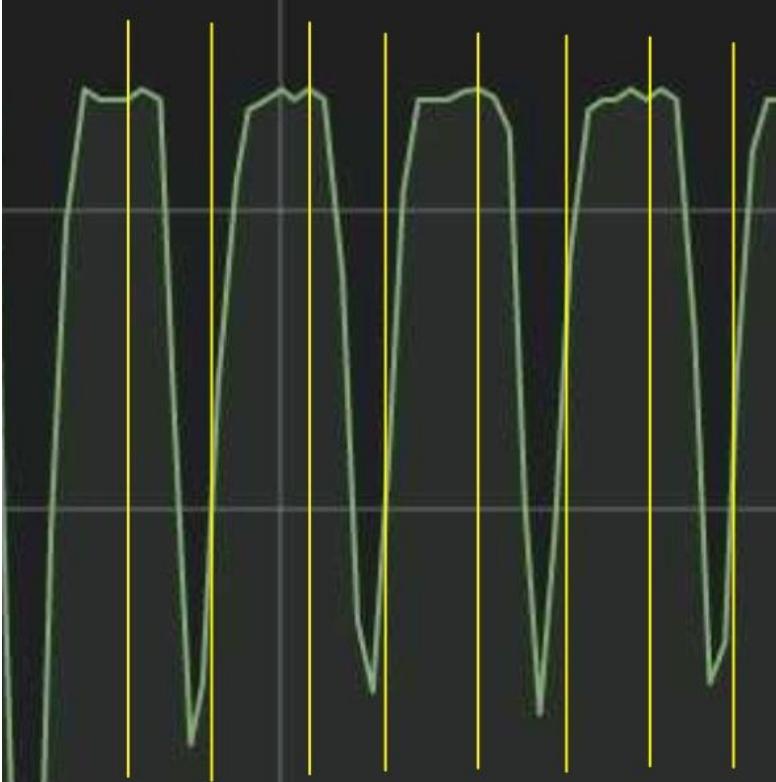


# How to count jumps?

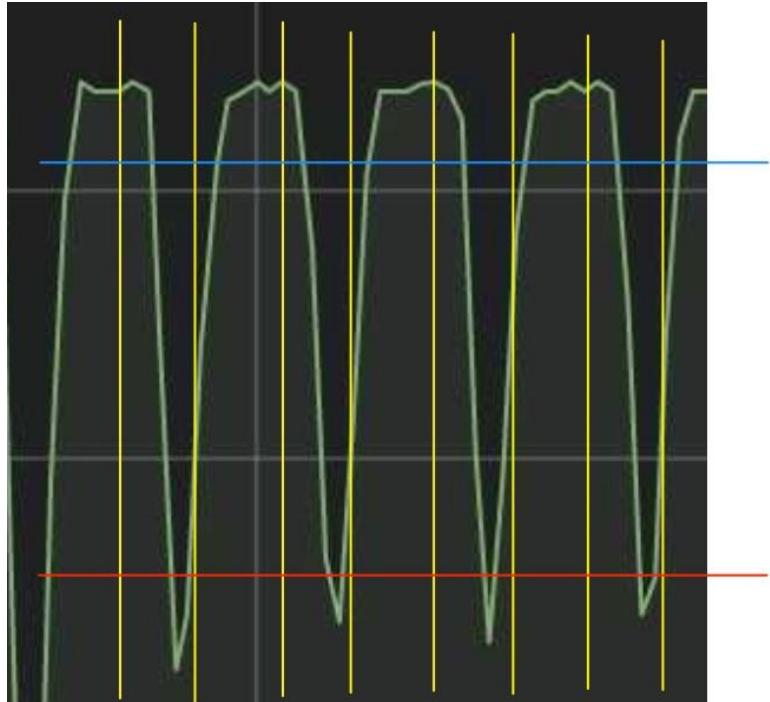


# Sampling





Minimum 50ms  
between checks

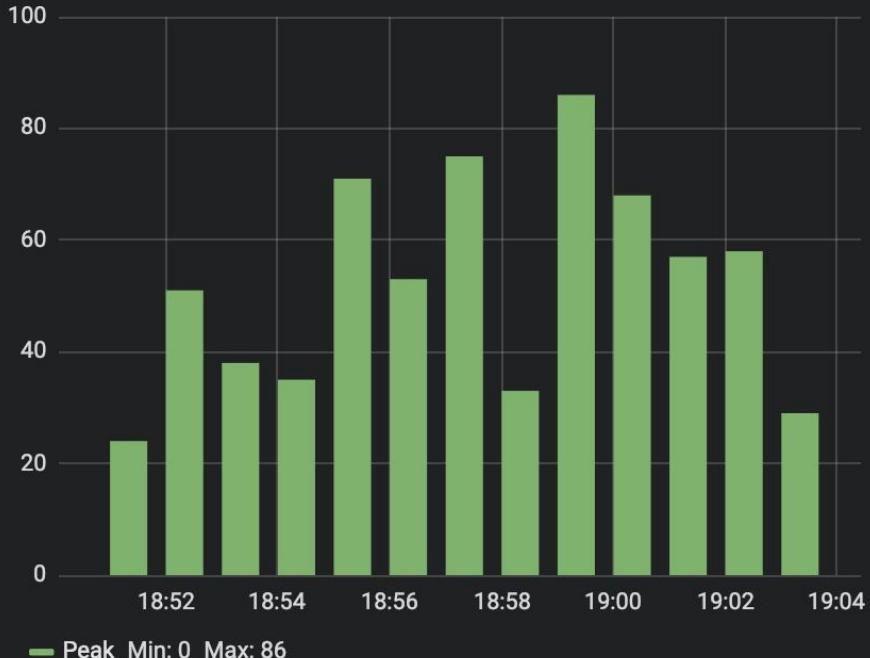


Count a peak when  
cross upper threshold

Count a valley when  
cross lower threshold



Jumps Per Minute



High  
Score

86

Jumps Per Minute

Total

678

Jumps

Pull requestsIssuesMarketplaceExplore

## geekdave / trampoline

Watch ▾CodeIssues 0Pull requests 0ActionsProjects 0WikiInsights

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

Manage topics

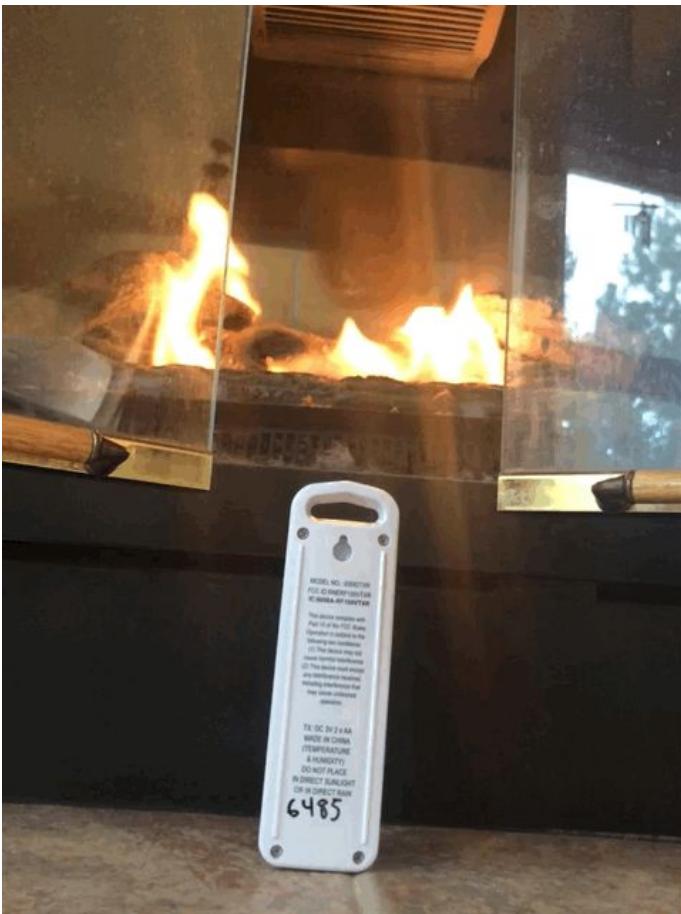
2 commits

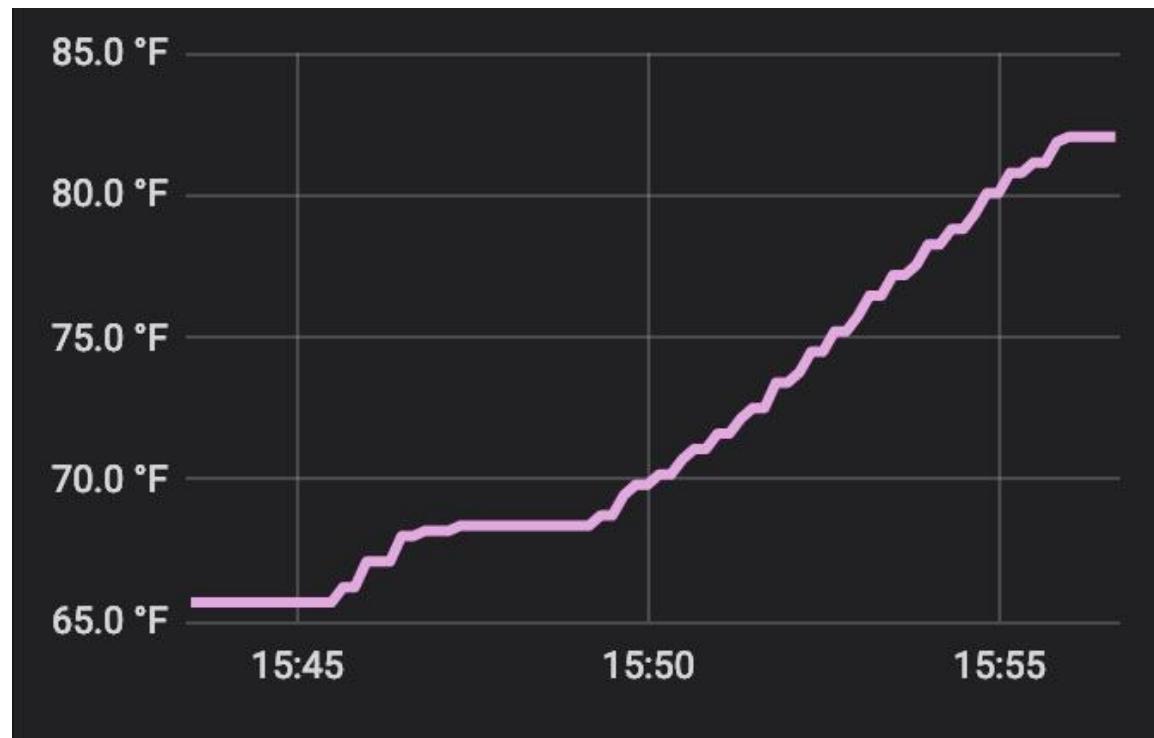
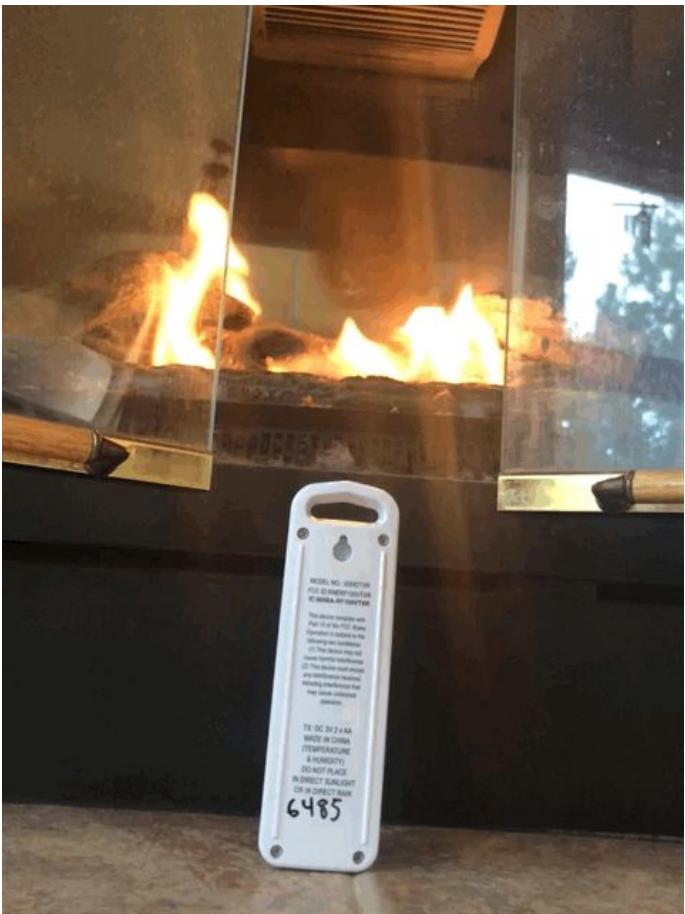
1 branch

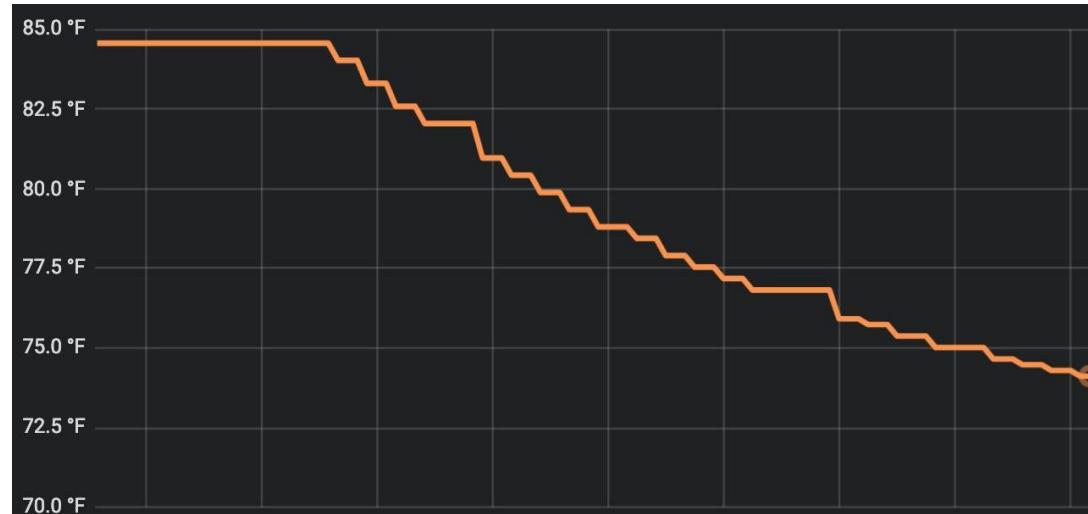
0 releases

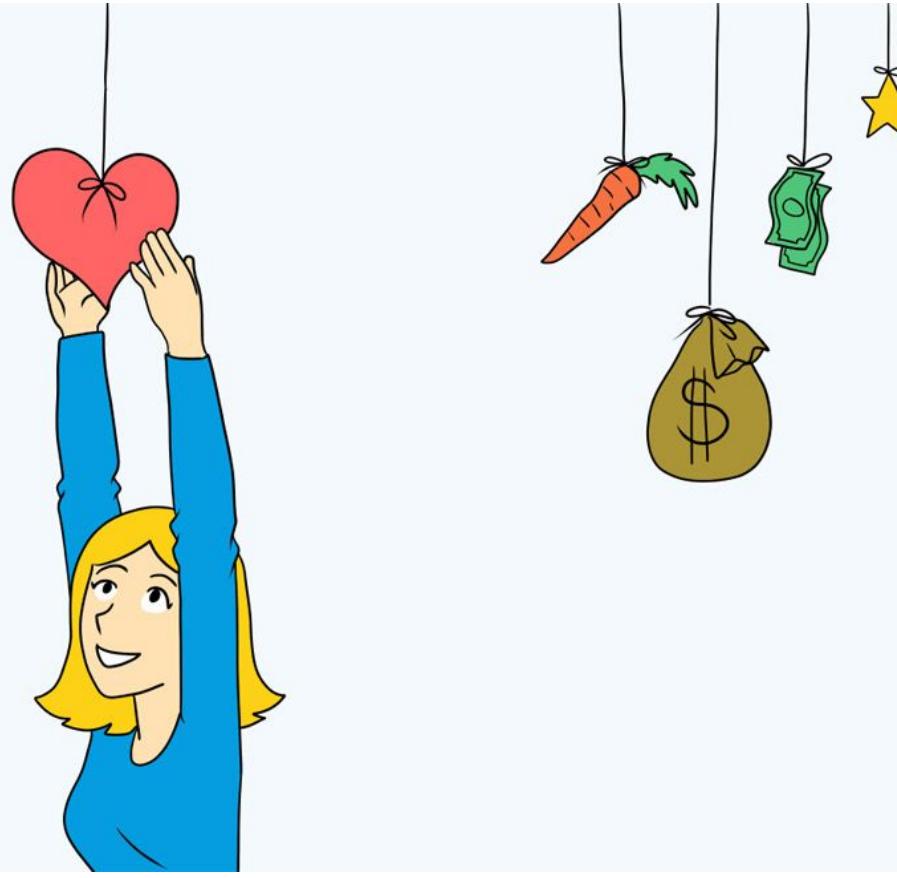
1 contributor

# Favorite Moments

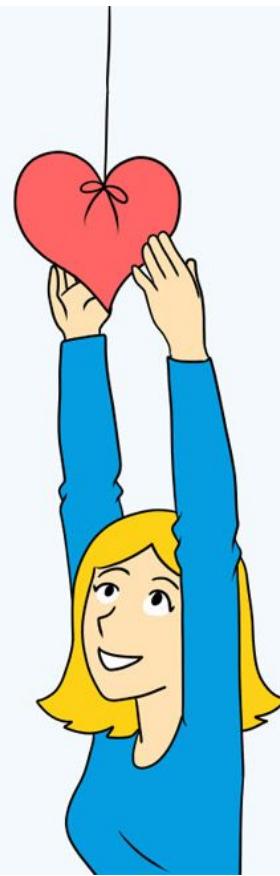








## Intrinsic Motivation

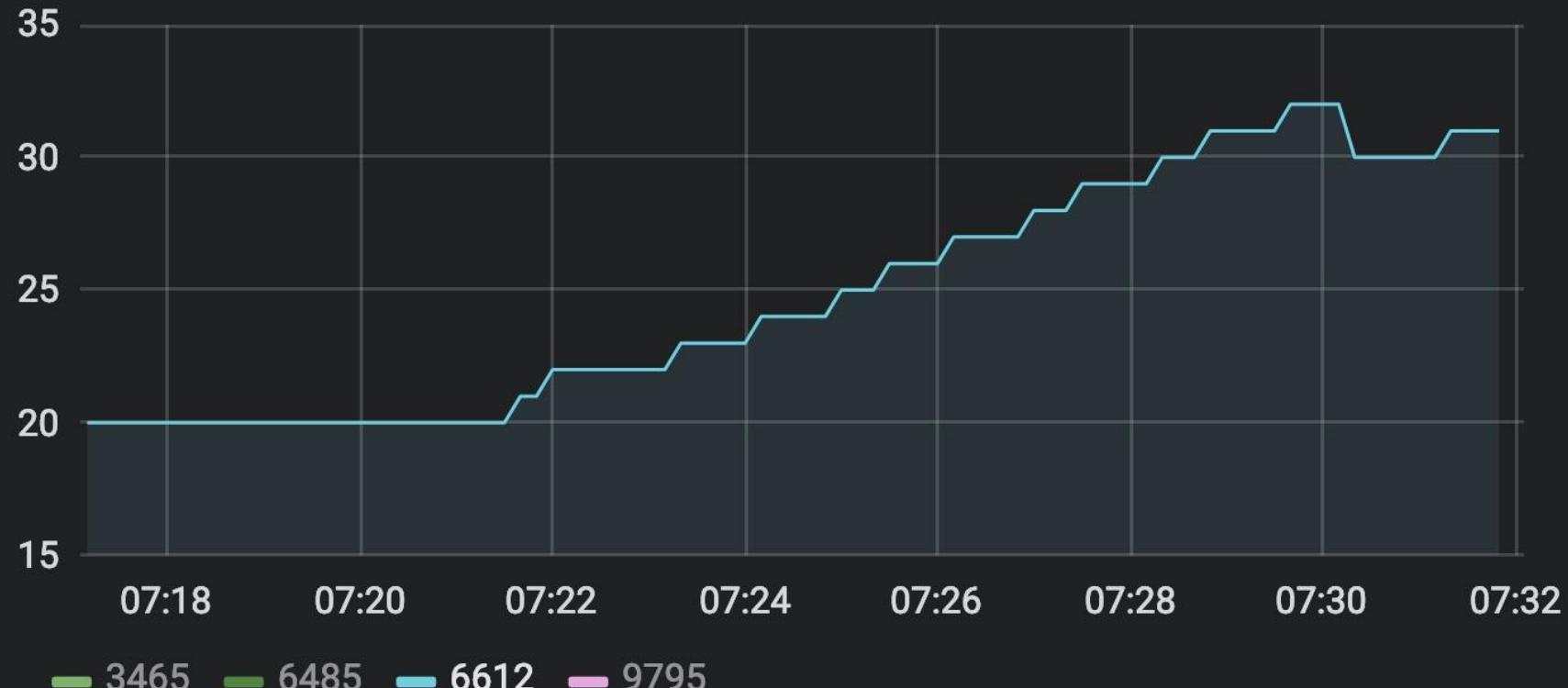


## Extrinsic Motivation

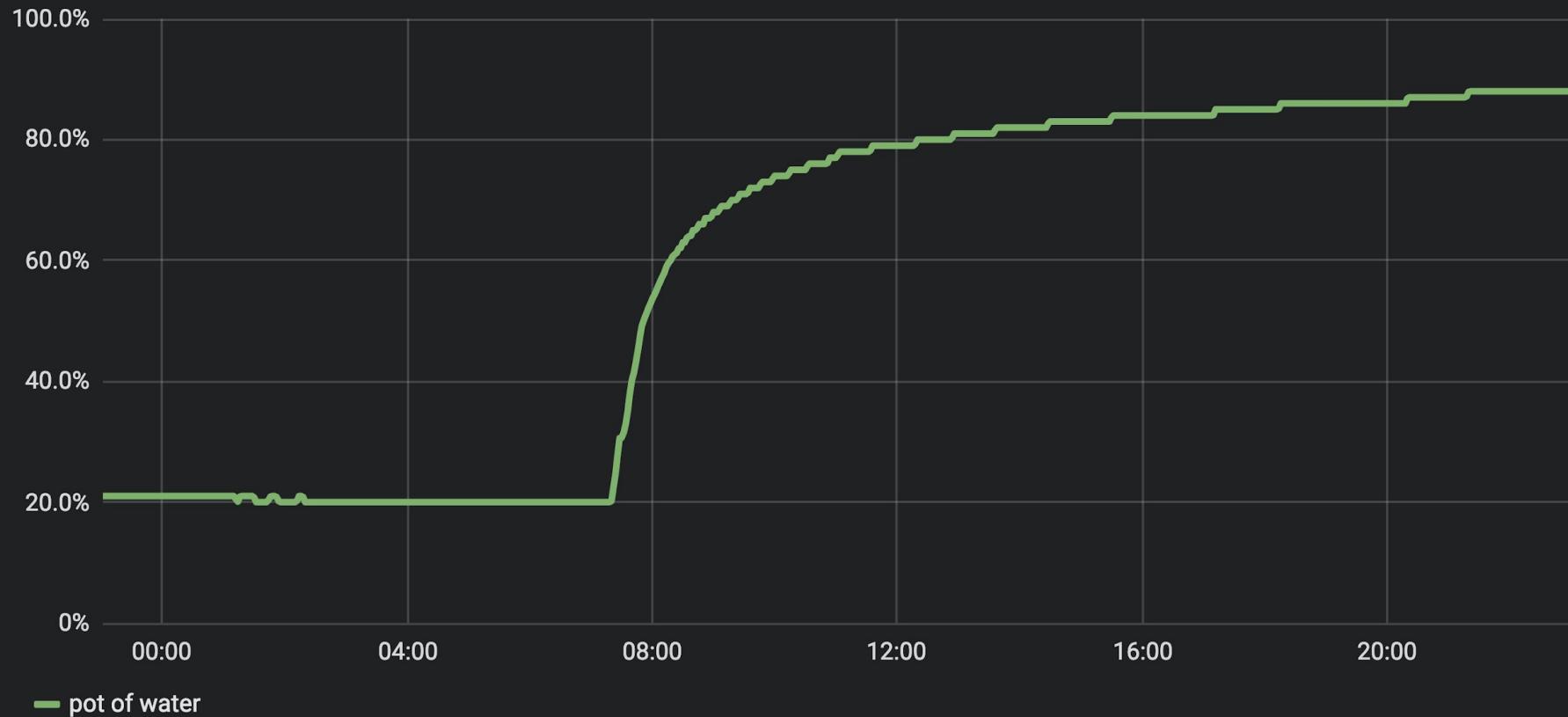


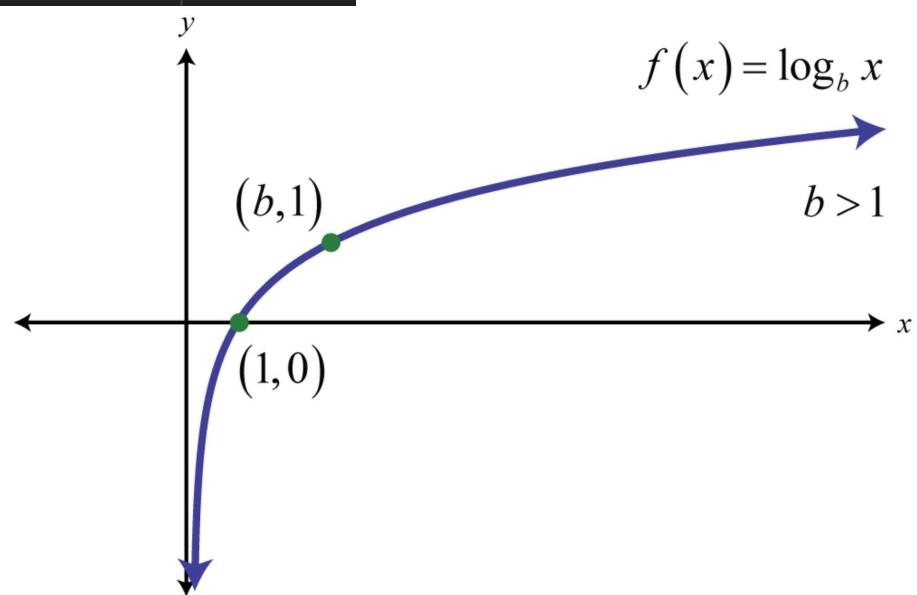
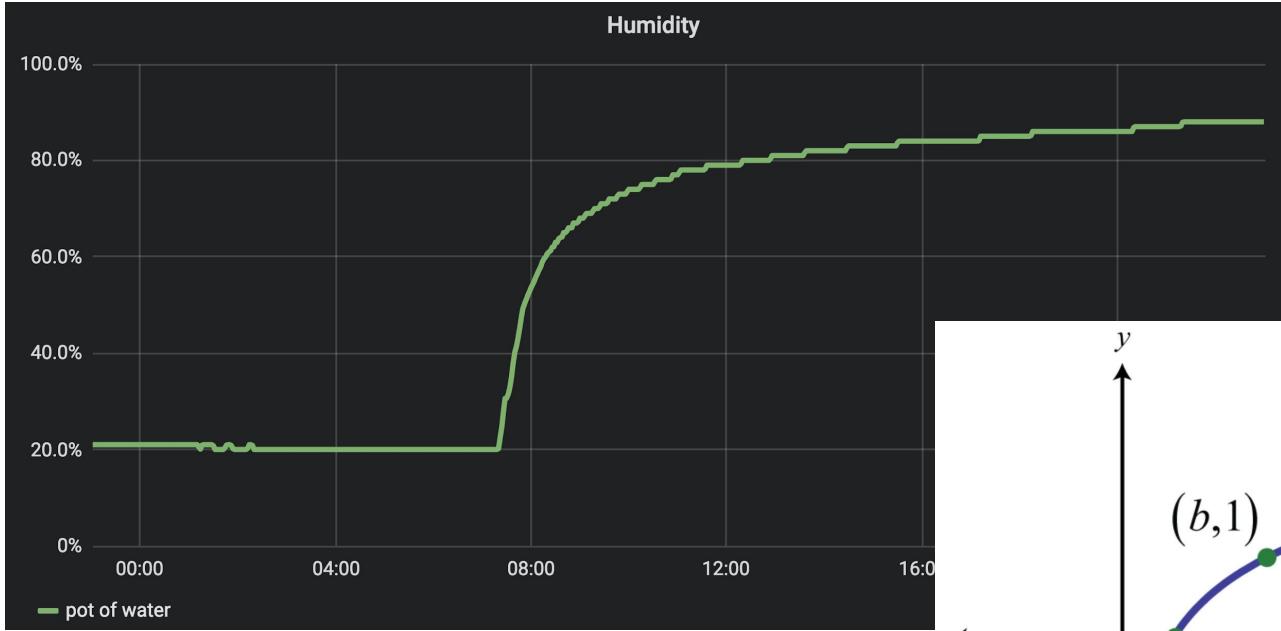


# Humidity



## Humidity





# Bringing the fun back to work

# Game Day!

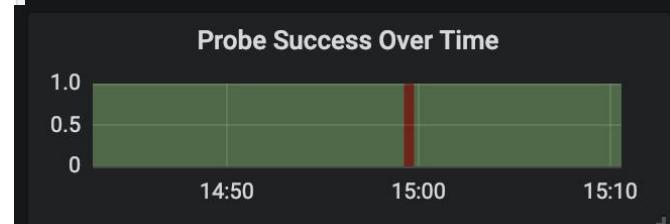
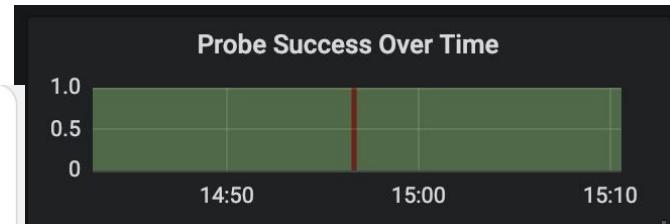
~ sudo /sbin/shutdown now



Prometheus BOT Dec 12, 1:46 PM

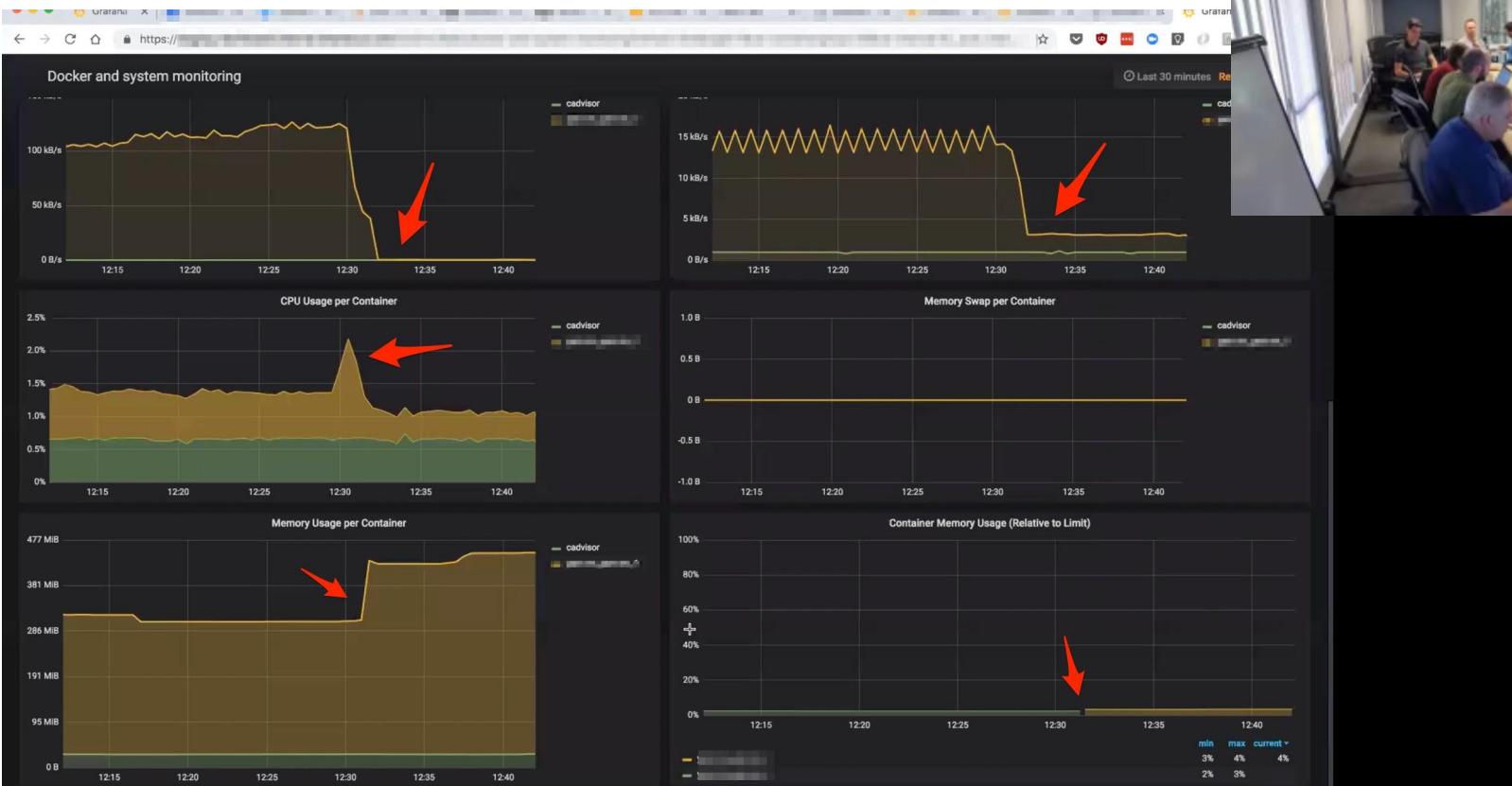
@all : FIRING : HTTP probe failing: [http://\[REDACTED\]/alive](http://[REDACTED]/alive)

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

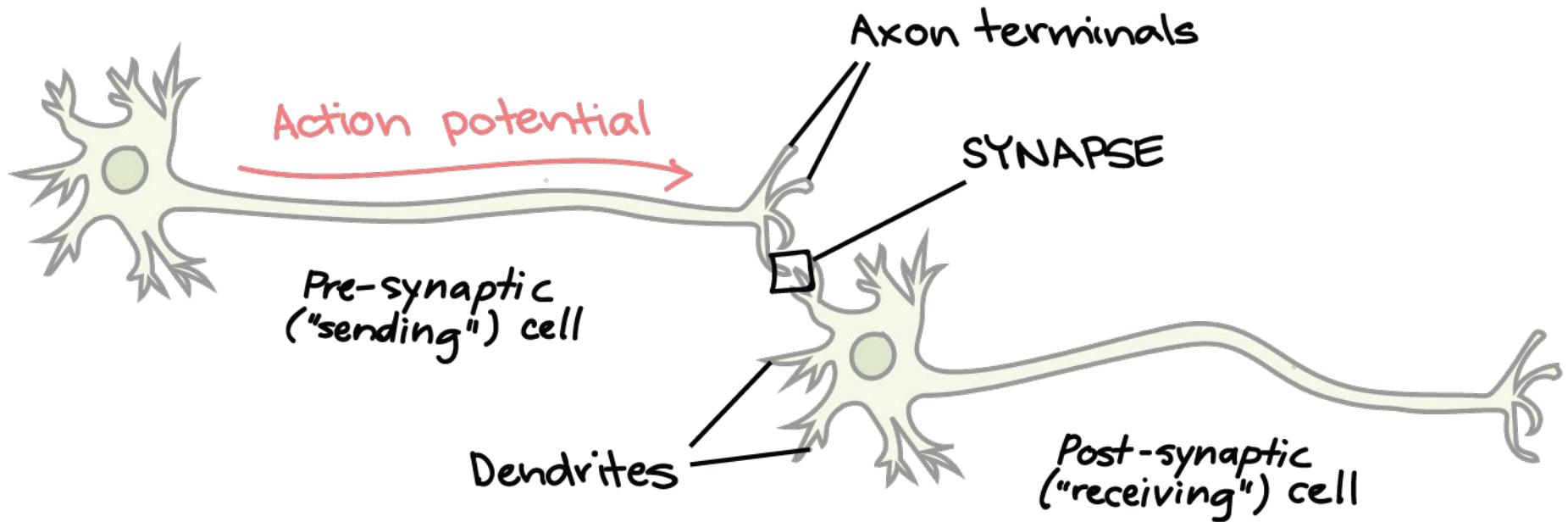


Probe Success Over Time

# Game Day!



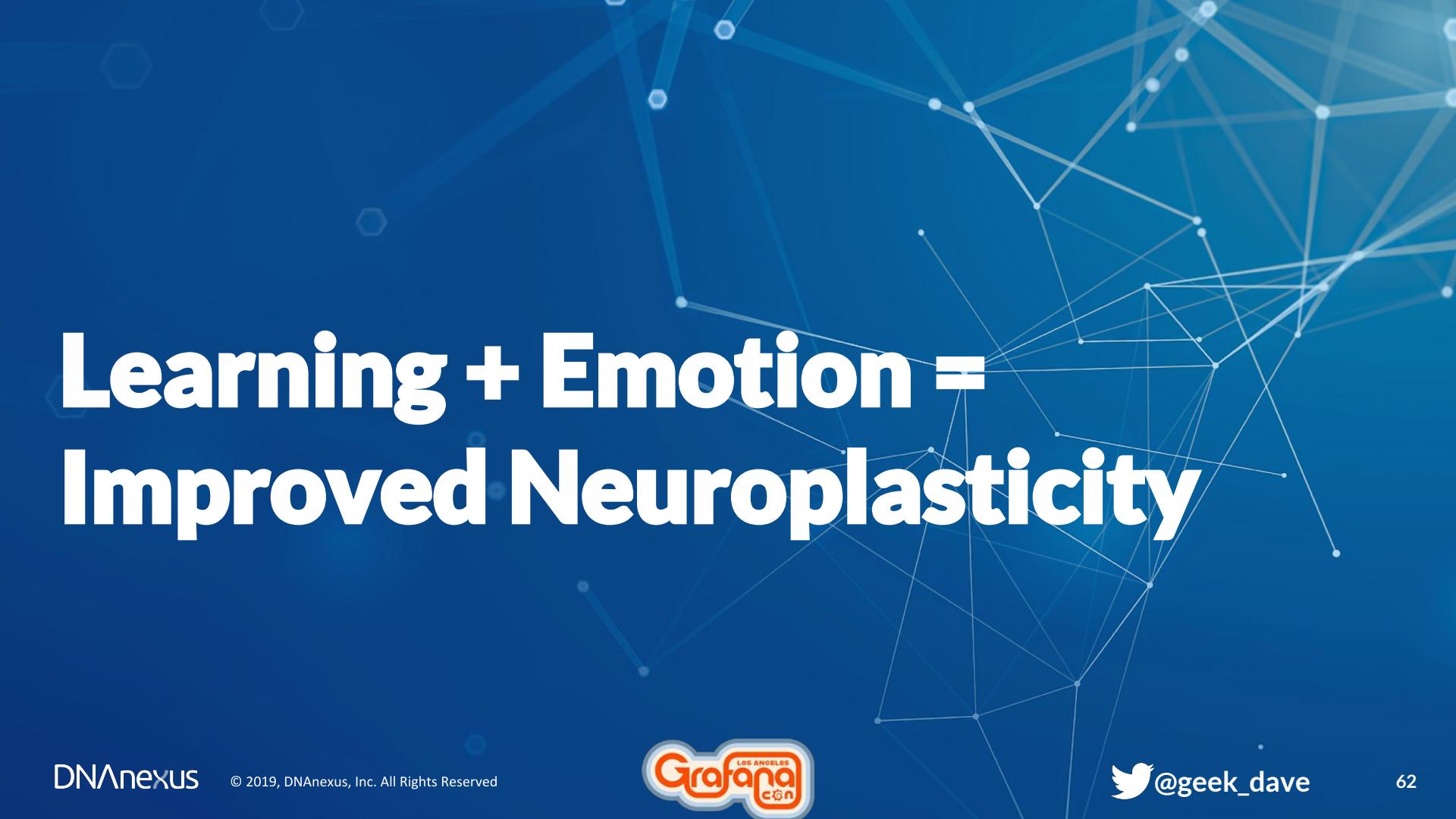
# Science Behind Learning



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

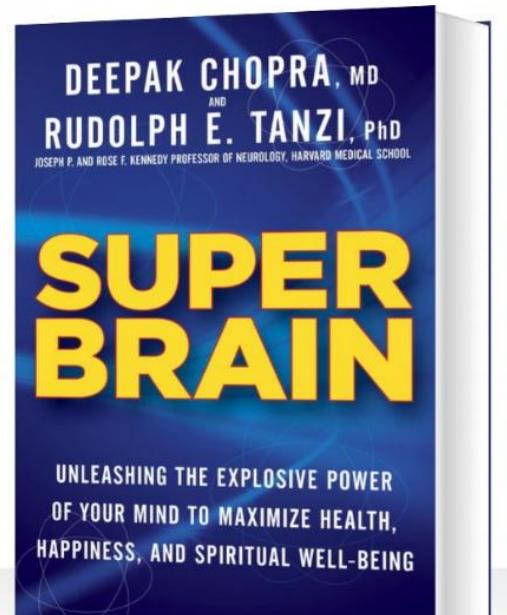
# neuroplasticity

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

A complex network graph is overlaid on a dark blue background. The graph consists of numerous small, semi-transparent white dots connected by thin, light blue lines, forming a dense web of connections.

# 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:

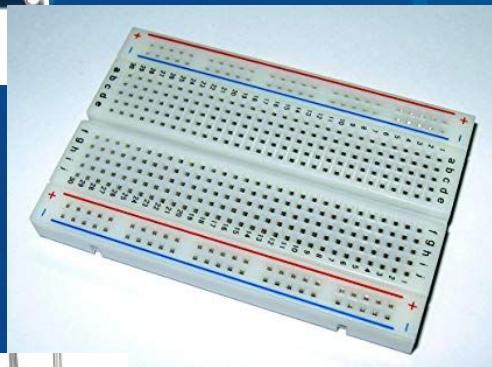
**Explain like they're five;  
Learn like you're five.**

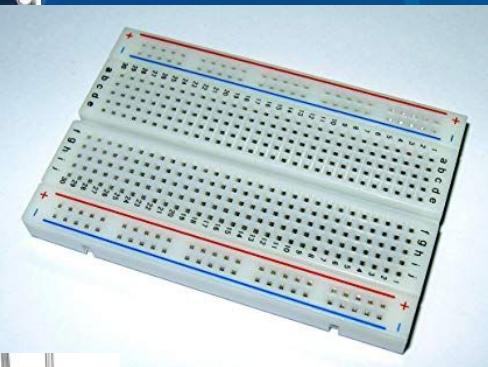
## Takeaway #2:

**Don't just observe your environment, manipulate it!**

## Takeaway #3:

**Share the excitement  
at home!**





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THANK YOU!

