Intro to IOT

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What is IOT?

What is IOT?

- Internet of Things.
- Multidisciplinary Engineering field.
- Connecting all these together:
 - Hardware
 - Embedded Circuits and Devices
 - Sensors, actuators, etc.
 - Software
 - Machine Learning / Data Science
 - Embedded Programming
 - Full-Stack Web Development
 - "The Cloud"

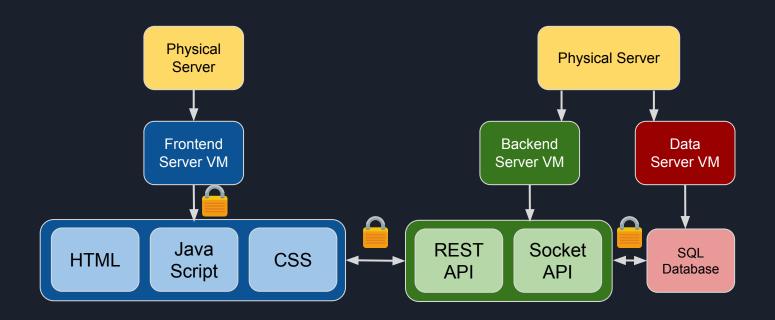


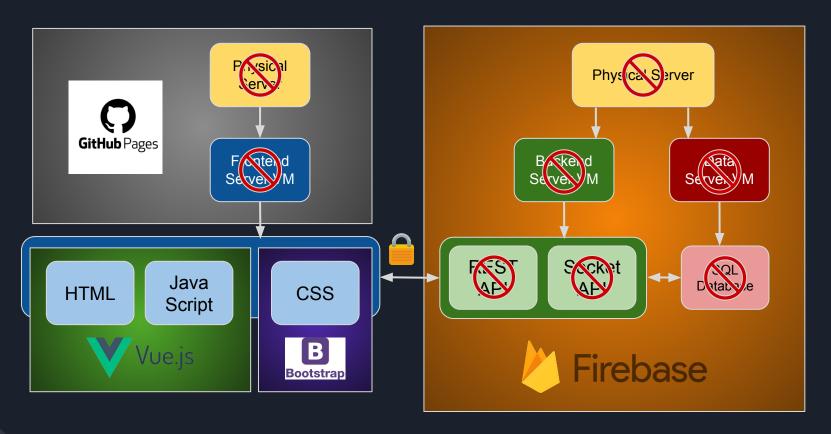
Why IOT?

IoT is an ever increasing field with relevant applications.

- Factory Work-from-Home
 - Many automated robots and other mechanical systems.
 - Because COVID, employees need a way to monitor and control factory systems remotely.
- Air Quality Monitoring
 - Multiple climate sensors deployed all over San Diego.
 - Interactive Google Map showing fire smoke pollution in real time.
 - Send phone alerts to subscribed users in case of danger.
- Uber Eats / Postmates
 - Coordinate between customers, businesses, and drivers.
 - GPS Sensors update the customer in real time.

Full Stack Development





Creating a Full Stack App, in 2020

Why Cloud Services & Frameworks

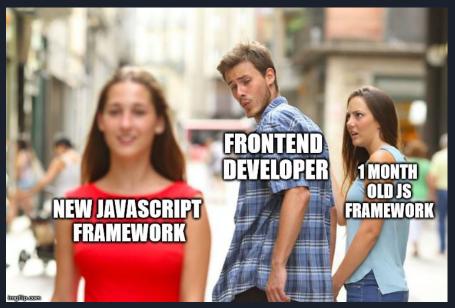
Technical details figured out by specialists

Cloud services:

- Backend + Database stack commoditized into services
- You the Engineer can rent services and focus on real work.

Frameworks:

- Ready-made Frontend software + design
- You the Engineer don't have to reinvent the wheel.





Which do we pick...

We are using these products...

Firebase

- Google Firebase
- Github Pages
- <u>Vue.is</u>
- Bootstrap



- VS Code
- Python 3



GitHub Pages





Summary

What is IOT

- IoT: Internet of Things
- Hardware + Software + Internet
- Sensor + Controls + Database
- Wirelessly connecting devices together
- Application?

Objective

- Embedded Computing (RPi)
- App Development
- Cloud Development