

Personal Management Tool

Members: Cheng Wang Xu Zhang Yang He

TaskLogger

Goal:

- Manage the daily tasks and events
- Flexible
- Categorize the tasks easily
- Generate reports

TaskLogger

Some related Methodology

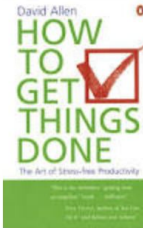
GTD:

"GTD is the work-life management system that has helped countless individuals and organizations bring order to chaos."

Bullet Journal

Traditional	Rapid Logging*
<p><input type="checkbox"/> Call Keith back about to figure out where we should eat this weekend.</p> <p><input type="checkbox"/> Email Heather again regarding the Home Co release forms for project participants. Need to send out the forms to them and have their signatures before we proceed.</p> <p>The Home Co. 5th Presentation is due February 15.</p> <p><input type="checkbox"/> Email Leigh about her party that she's having on April 21.</p> <p>The office will be closed on the 15th.</p> <p>I was happily surprised that Margaret seems to have taken feedback to heart. She volunteered to help manage the assets for the project, and has become a more engaged part of the team. Her work is also showing progress.</p> <p><input type="checkbox"/> Call to cancel Yoga orientation.</p> <p><input type="checkbox"/> Order for a birthday cake for next week on Thursday. It can't be the gluten free because she's allergic.</p> <p><input type="checkbox"/> Add notes for Home Co project to the time tracker.</p> <p>Monday was blocked on my way to work this morning as I had to take a detour. On the way I spotted a new coffee shop I have to try. It's also a lot more scenic. I used to get the minor done and just enjoyed the ride. I got so caught up in making to work, that I totally forgot about that route. By the time I got to work, I was feeling pretty good even though I was a little late.</p>	<p>04/01/16</p> <ul style="list-style-type: none">Keith: Call re-orientation dinnerHome Co: Release formsHeather: Email: Get formsEmail forms to participantsGet signaturesHome Co. 5th Presentation - Feb 15Leigh: On Apr 21 partyOffice closed Apr. 15thMargaret: volunteered to help with assets<ul style="list-style-type: none">Showing more initiative and engagementIncreased participation effort <p>04/02/16</p> <ul style="list-style-type: none">Yoga: CancelAlso get birthday cake<ul style="list-style-type: none">Order: needs to be gluten freeThe party on ThursdayHome Co.: Log hoursScenic route: need to take long wayTo new coffee place<ul style="list-style-type: none">Make perfect driveFeel more relaxed when I arrived

* 60% less content!



Getting Things Done

Book by David Allen

84% liked this book

Google users

Getting Things Done is a time management method, described in the book of the same title by productivity consultant David Allen. The method is often referred to as GTD. [Wikipedia](#)

Originally published: 2001

Author: [David Allen](#)

Page count: 267

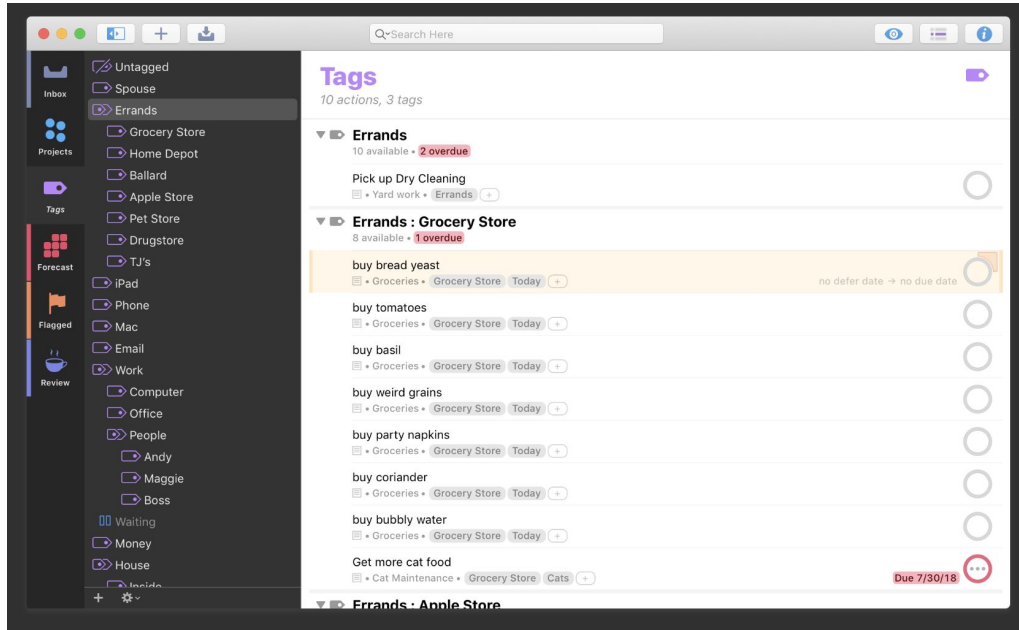
Subject: [Business](#)

Genre: Self-help book

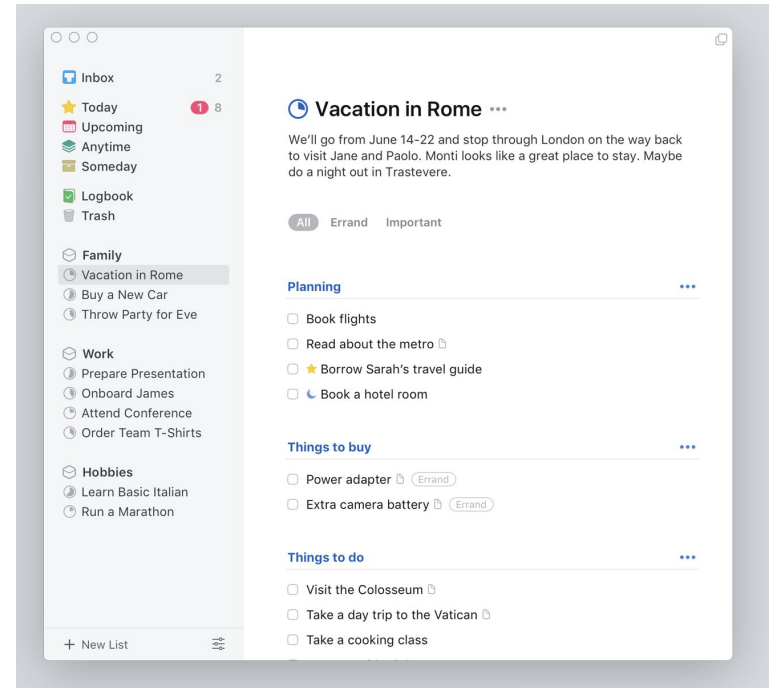
Country: [United States of America](#)

TaskLogger

Some softwares(tools) I've used



OmniFocus



Things 3

TaskLogger

Some softwares(tools) I've used



For Mac

macOS 10.11+

\$49.99 (US)

[view in your currency.](#)



For iPhone & Watch

iOS 10+

\$9.99 (US)

[view in your currency.](#)



For iPad

iOS 10+

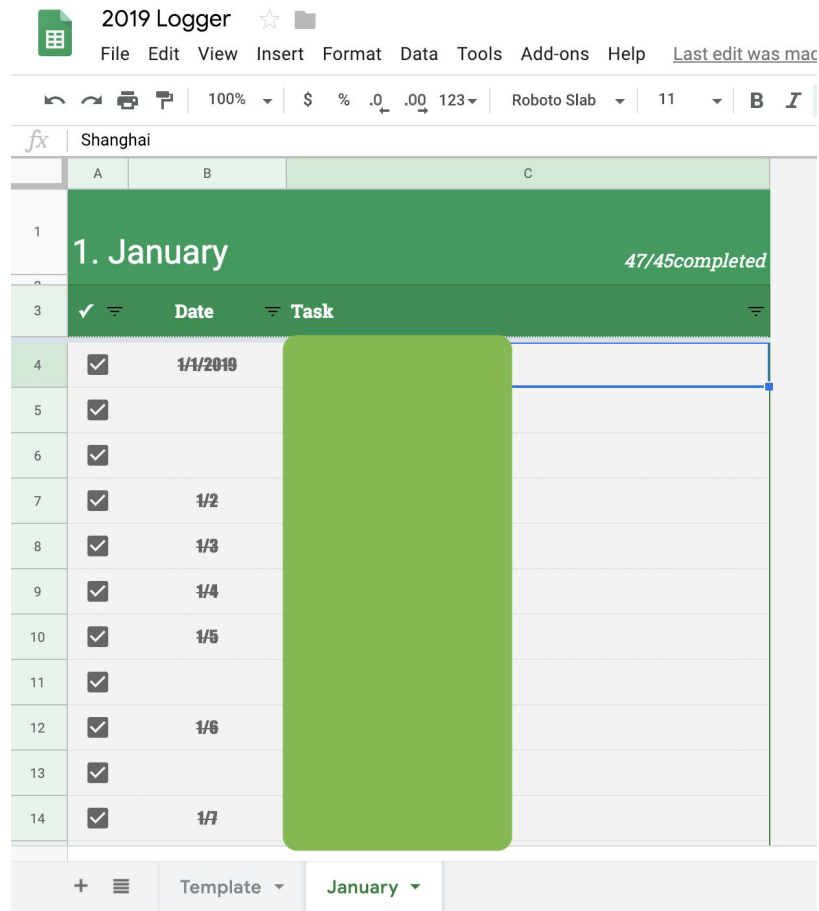
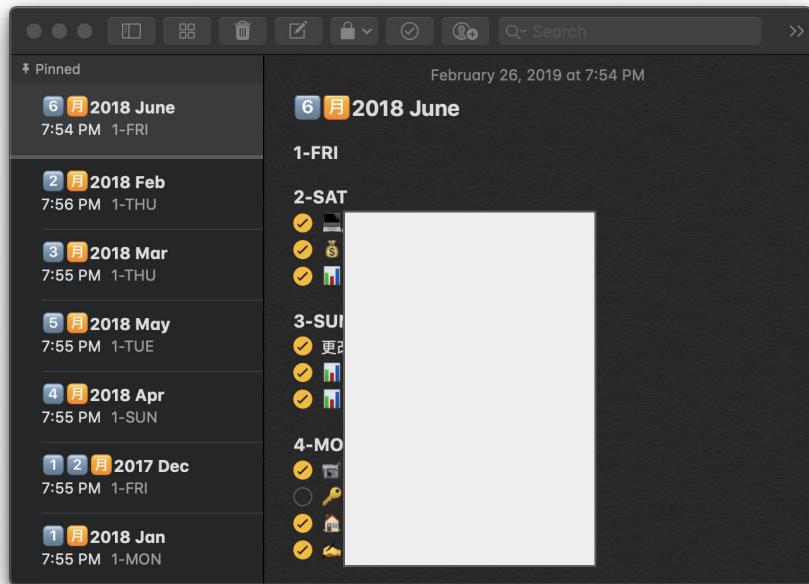
\$19.99 (US)

[view in your currency.](#)



TaskLogger

My Experiment



TaskLogger - The Website Structure

Routing

- Everyday page
- Report Page
- Export Page
- Setting Page
- About Page
- Product Page(sitting log)

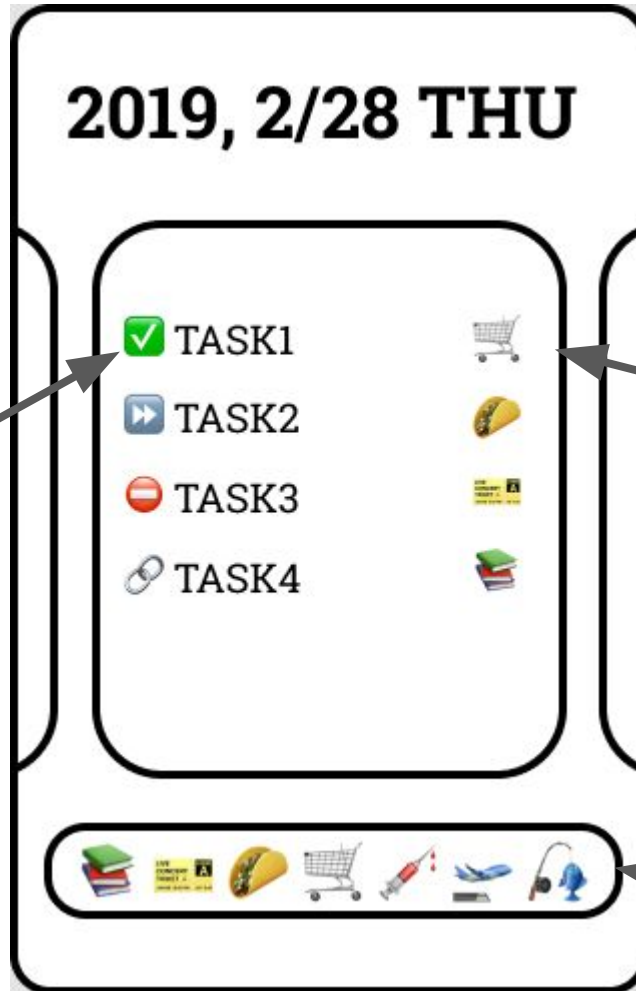
TaskLogger

Everyday page

Task Status

Category

Category
Picker



TaskLogger

Report page

Report

Year ▼

Mouth ▼

Category ▼

Generate

Feb. 2019

TaskLogger

Export page

Export

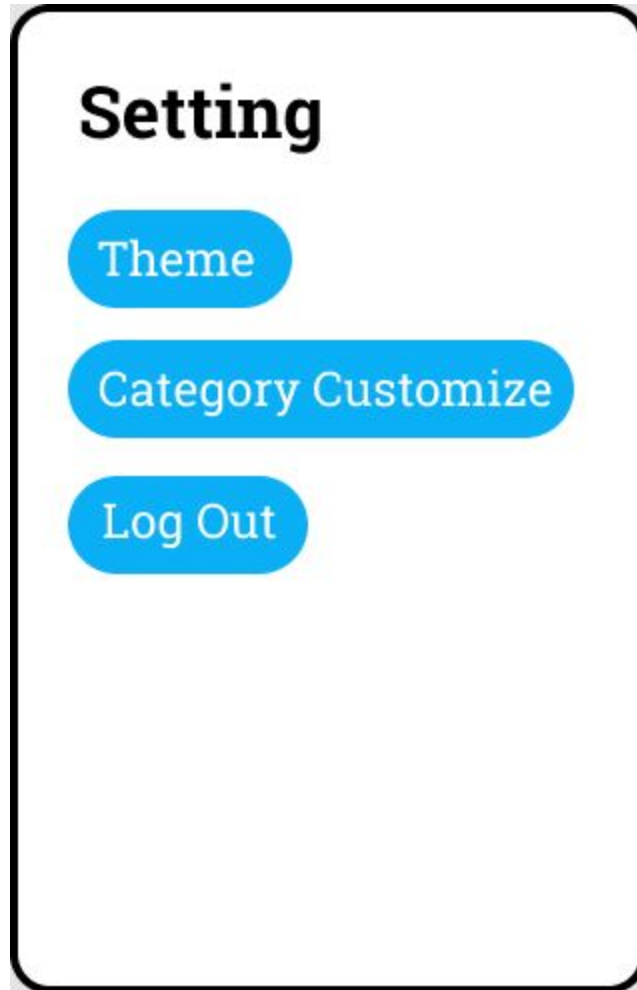
Conect to Google Sheet

Mothly Statement

Year-to-End Summary

TaskLogger

Setting page



TaskLogger

About page

About

Who should use:

How to use:

TaskLogger

Product page

Product

**Buy our product and
activate "Quit Sitting"
Today!!!**

Buy

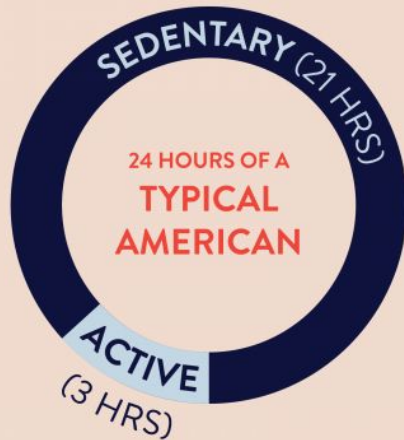
Activate

Sitting logging webapp

Sitting is the new smoking!

SITTING DISEASE

The negative effects of an over-sedentary lifestyle



increased risk of

- chronic diseases
- organ damage
- spine damage
- muscle degeneration
- leg disorders



THE WHOLE U
UNIVERSITY of WASHINGTON

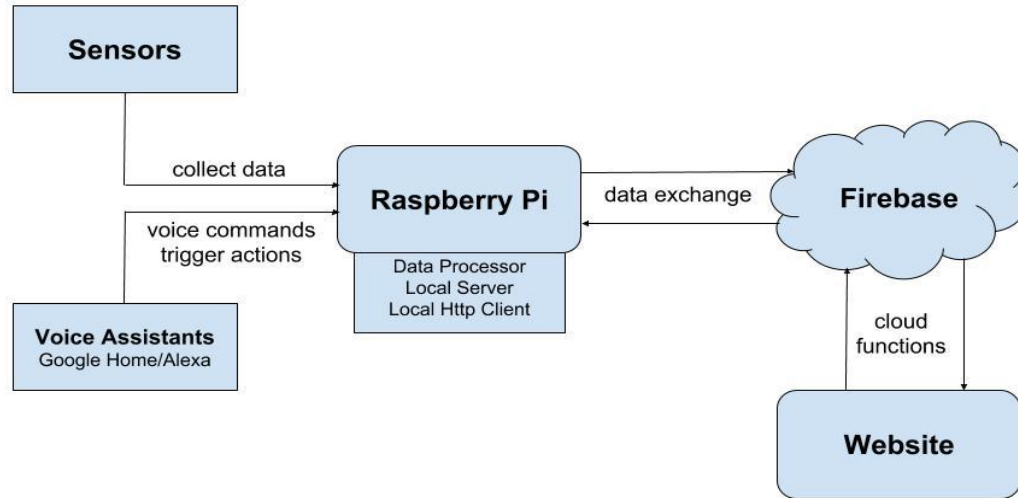
Project goals:

- Use **Raspberry Pi** to connect sensor to chair to track user sitting activity.
- Design a webapp to display the data, create notifications and generate logging.
- Add voice control using **Google Home** to enable interactions.

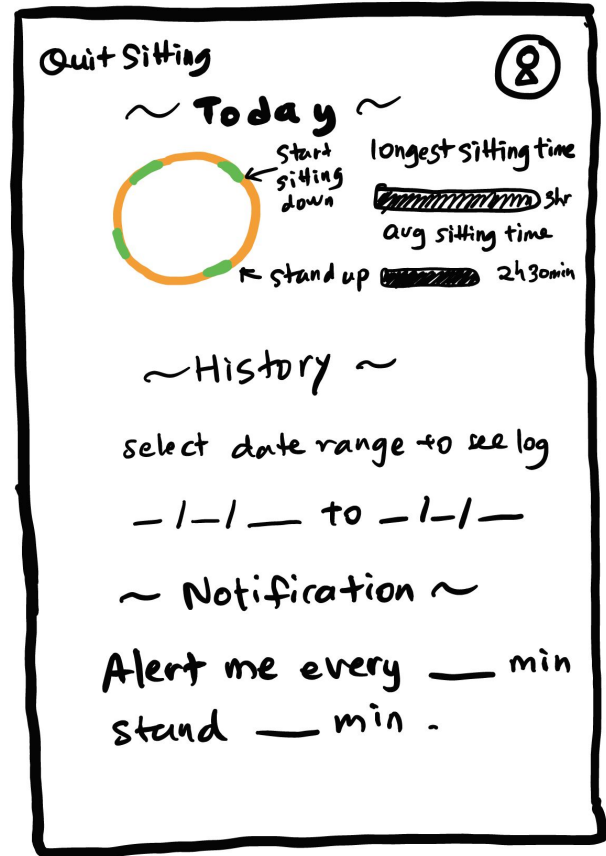
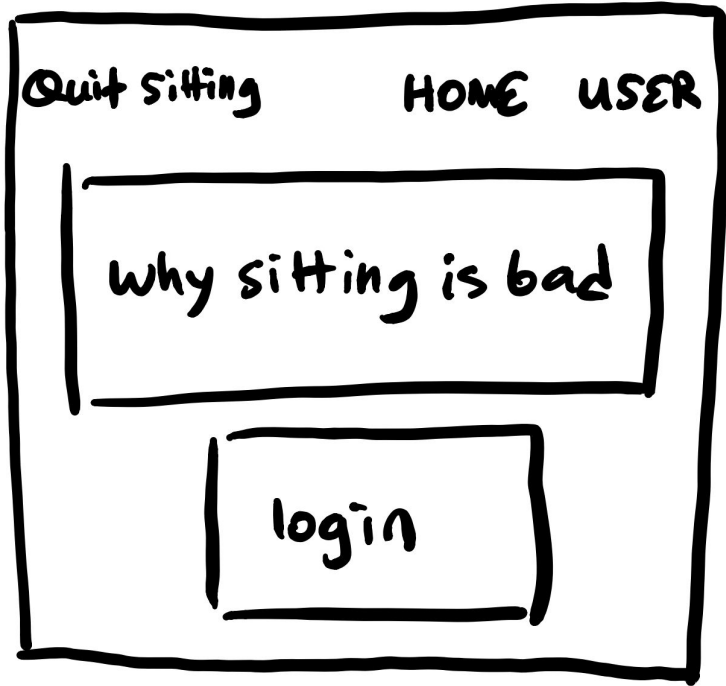
Uniqueness:

- Tracking automatically happens when user sit down
- Data privacy
- Cost-effective
- Voice-controlling is fun

Structure Diagram



Web design



Why combine our projects

- Similar purpose

Task Logger

To provide user with a more efficient and convenient tool to manage daily tasks.

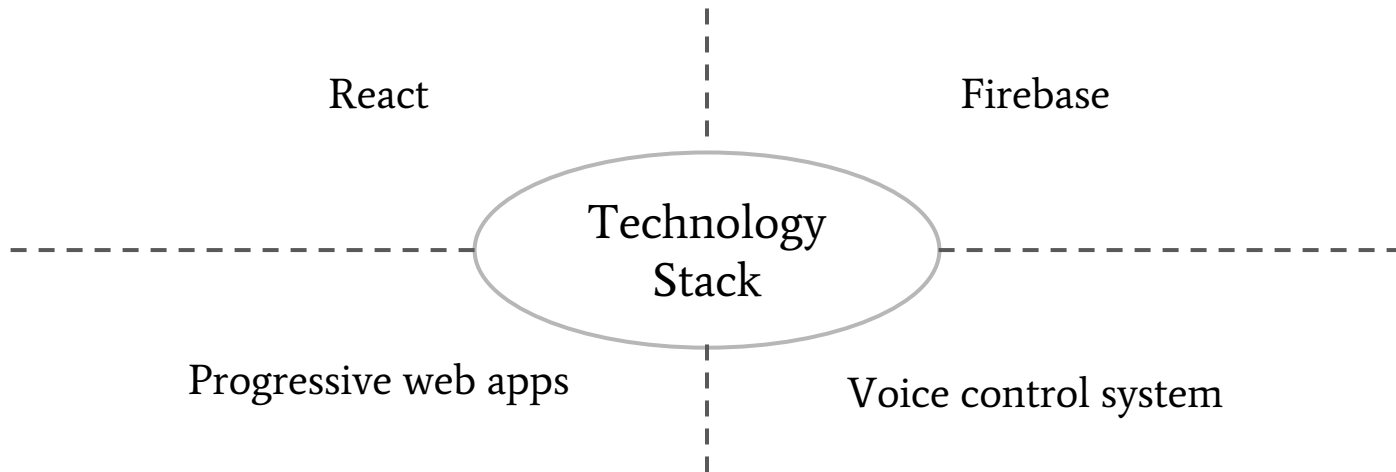
Sitting Logging

To develop a program to track users' sitting activity and visualize sitting data for users.

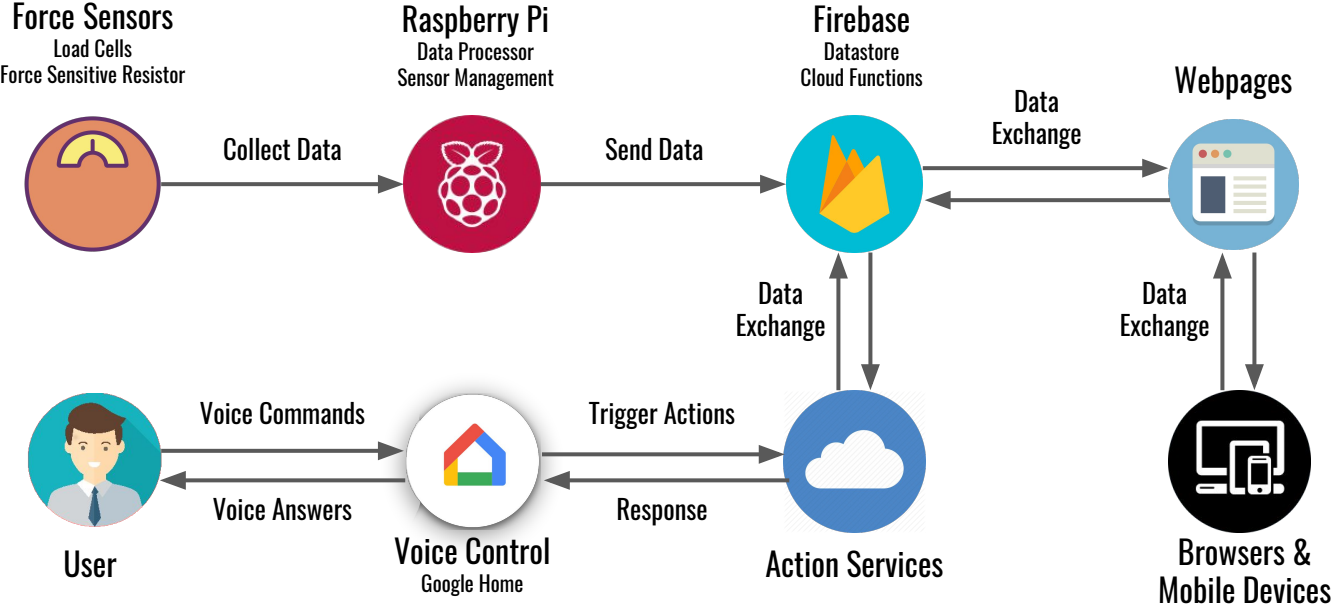
To build a tool to help users manage their personal data

Why combine our projects

- Similar tech stack



Diagram



Technologies

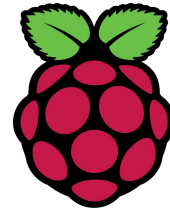
Technology Overview

- Raspberry Pi and Sensors
- Voice Control System
- React
- Progressive Web App (PWA)
- Firebase

Intro to Raspberry Pi and Sensors

Hey, Raspberry Pi

- The Raspberry Pi is a series of small single-board computers developed in the United Kingdom by the Raspberry Pi Foundation to promote teaching of basic computer science in schools and in developing countries.
- You can use it to learn coding and to build electronic projects, and for many of the things that your desktop PC does, like spreadsheets, word processing, browsing the internet, and playing games.



Raspberry Pi

Raspberry is a reference to a fruit naming tradition in the old days of microcomputers.

Pi is because originally we were going to produce a computer that could only really run Python. So the Pi in there is for Python.

[What is the story behind the name "Raspberry Pi"? - Quora](#)

Using Raspberry Pi - Python Requests

- Requests is an elegant and simple HTTP library for Python, built for human beings.
- It is based on http, urllibs and some other Python's standard libraries but provides simpler methods to construct requests and process response messages.



Using Raspberry Pi - Python Requests

Request

- requests.get(), requests.post(), ...

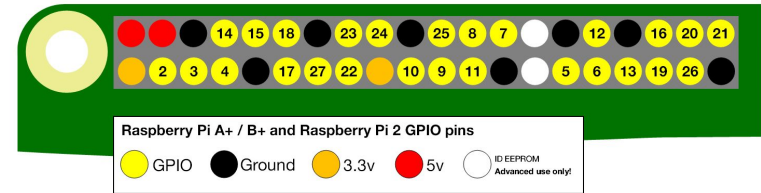
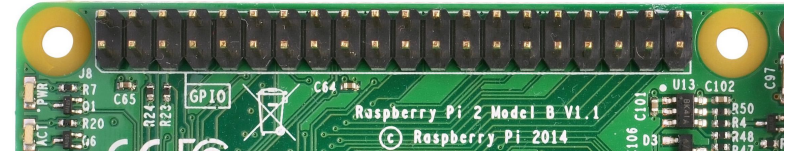
Response

- By property: url, headers, text, raw, ...
- By methods: json(), ...

```
pi@raspberrypi:~$ python
Python 2.7.13 (default, Sep 26 2018, 18:42:22)
[GCC 6.3.0 20170516] on linux2
Type "help", "copyright", "credits" or "license" for more information.
>>> import requests
>>> resp=requests.post("http://httpbin.org/post", data={'key':'test1'})
>>> resp.url
u'http://httpbin.org/post'
>>> resp.headers
{'Content-Length': '264', 'Content-Encoding': 'gzip', 'Server': 'nginx',
'Connection': 'keep-alive', 'Access-Control-Allow-Credentials': 'true',
'Date': 'Tue, 05 Mar 2019 13:40:31 GMT', 'Access-Control-Allow-Origin': '*
', 'Content-Type': 'application/json'}
>>> resp.text
u'{\n  "args": {}, \n  "data": "", \n  "files": {}, \n  "form": {\n    "k
ey": "test1"\n  }, \n  "headers": {\n    "Accept": "*/*", \n    "Accept-E
ncoding": "gzip, deflate", \n    "Content-Length": "9", \n    "Content-Ty
pe": "application/x-www-form-urlencoded", \n    "Host": "httpbin.org", \n
    "User-Agent": "python-requests/2.12.4"\n  }, \n  "json": null, \n  "o
rigin": "72.230.83.162, 72.230.83.162", \n  "url": "https://httpbin.org/p
ost"\n}\n'
>>> resp.json()
{'files': {}, u'origin': u'72.230.83.162, 72.230.83.162', u'form': {u'ke
y': u'test1'}, u'url': u'https://httpbin.org/post', u'args': {}, u'header
s': {u'Content-Length': u'9', u'Accept-Encoding': u'gzip, deflate', u'Acc
ept': u'*/*', u'User-Agent': u'python-requests/2.12.4', u'Host': u'httpbi
n.org', u'Content-Type': u'application/x-www-form-urlencoded'}, u'json':
None, u'data': u''}
```

Using Raspberry Pi - GPIO

- General Purpose Input/Output on the RPi
- Two 5V pins and two 3V3 pins are present on the board, as well as a number of ground pins (0V), which are unconfigurable. The remaining pins are all general purpose 3V3 pins, meaning outputs are set to 3V3 and inputs are 3V3-tolerant.
- Inputs and Outputs: high (3V3) or low (0V)
- Protocols: PWM, SPI, I2C, and Serial



Using Raspberry Pi - GPIO

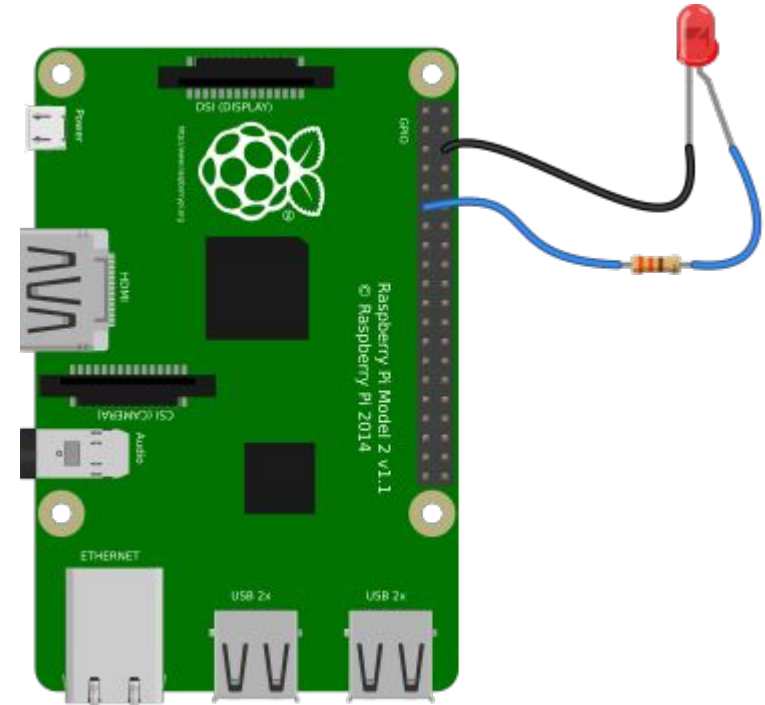
- GPIO library: RPi.GPIO
- Code example:

```
import RPi.GPIO as GPIO

GPIO.setmode(GPIO.BCM)
GPIO.setwarnings(False)

GPIO.setup(17, GPIO.OUT)

GPIO.output(17, GPIO.HIGH)
```



Source: <https://gpiozero.readthedocs.io/en/stable/recipes.html>

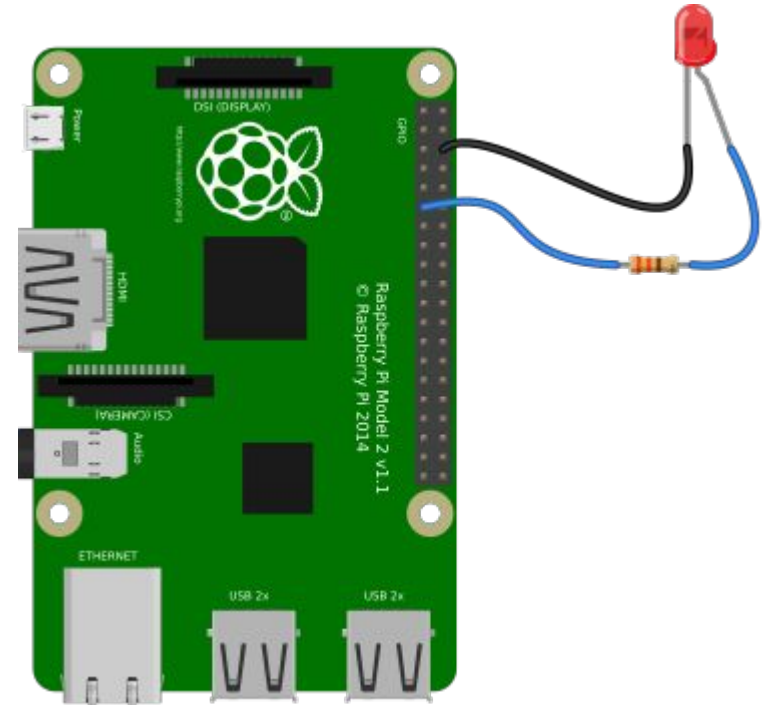
Using Raspberry Pi - GPIO

- GPIO library: gpiozero
- A layer on top of RPi.GPIO
- Code example:

```
from gpiozero import LED
from time import sleep

led = LED(17)

while True:
    led.on()
    sleep(1)
    led.off()
    sleep(1)
```



Source: <https://gpiozero.readthedocs.io/en/stable/recipes.html>

Sensors

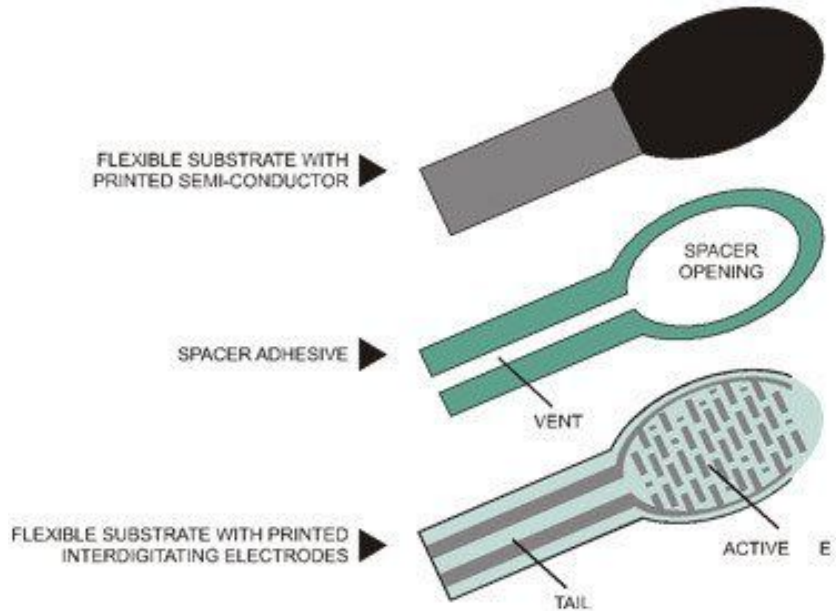
- Force sensitive resistor

Used to detect physical pressure, squeezing, and weight

- Half-bridge strain gauge load cell

Widely used in bathroom scales

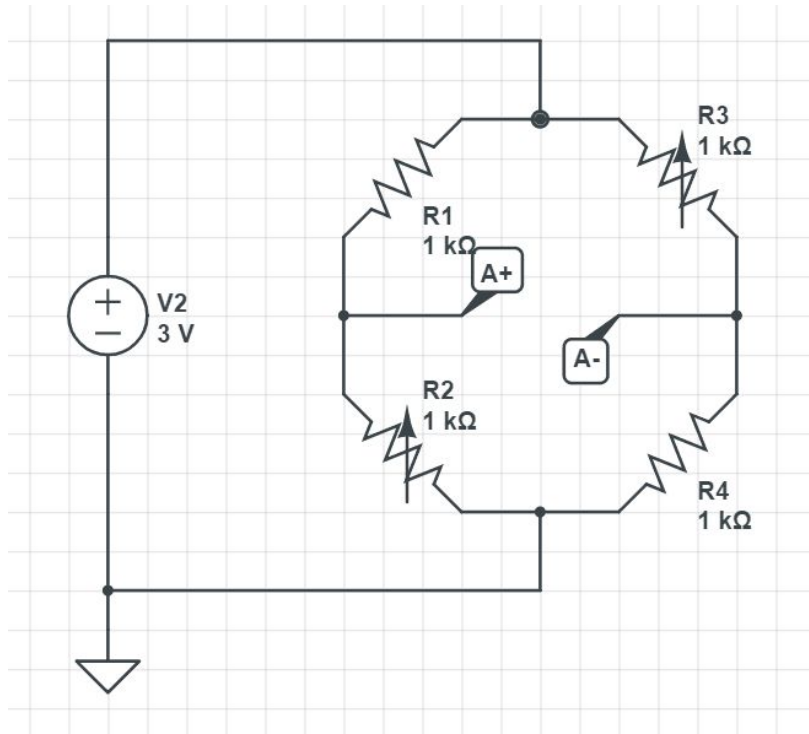
Sensors - Force sensitive resistors



- FSRs are basically a resistor that changes its resistive value (in ohms Ω) depending on how much it is pressed.
- The FSR is made of 2 layers separated by a spacer. The more one presses, the more of those Active Element dots touch the semiconductor and that makes the resistance go down.



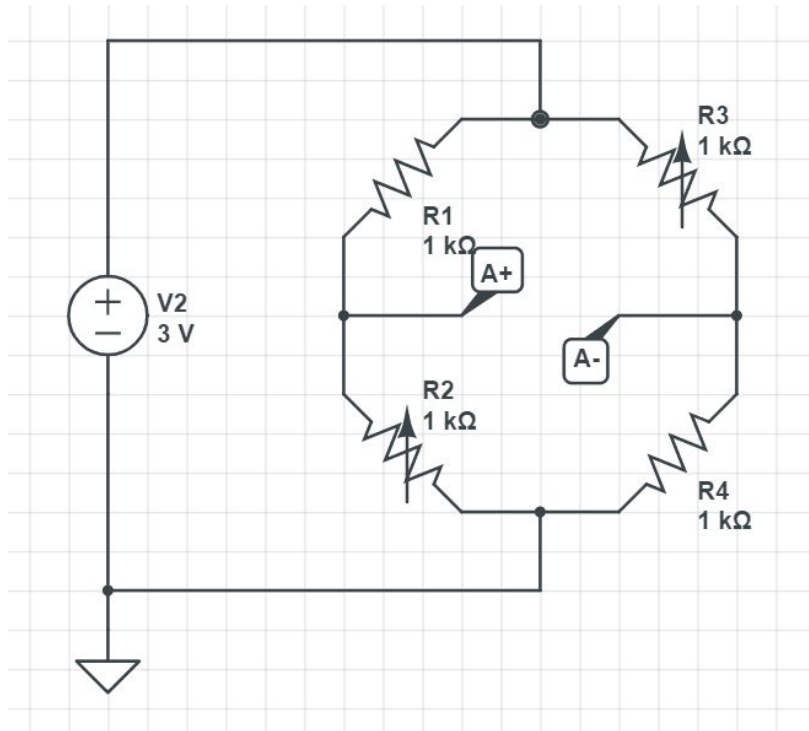
Sensors - Half-bridge strain gauge load cell



- Strain Gauge

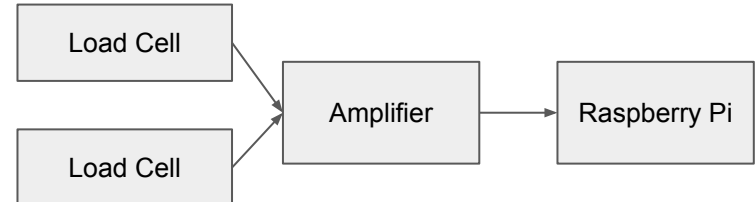
When an electrical conductor is stretched within the limits of its elasticity such that it does not break or permanently deform, it will become narrower and longer, which increases its electrical resistance end-to-end.

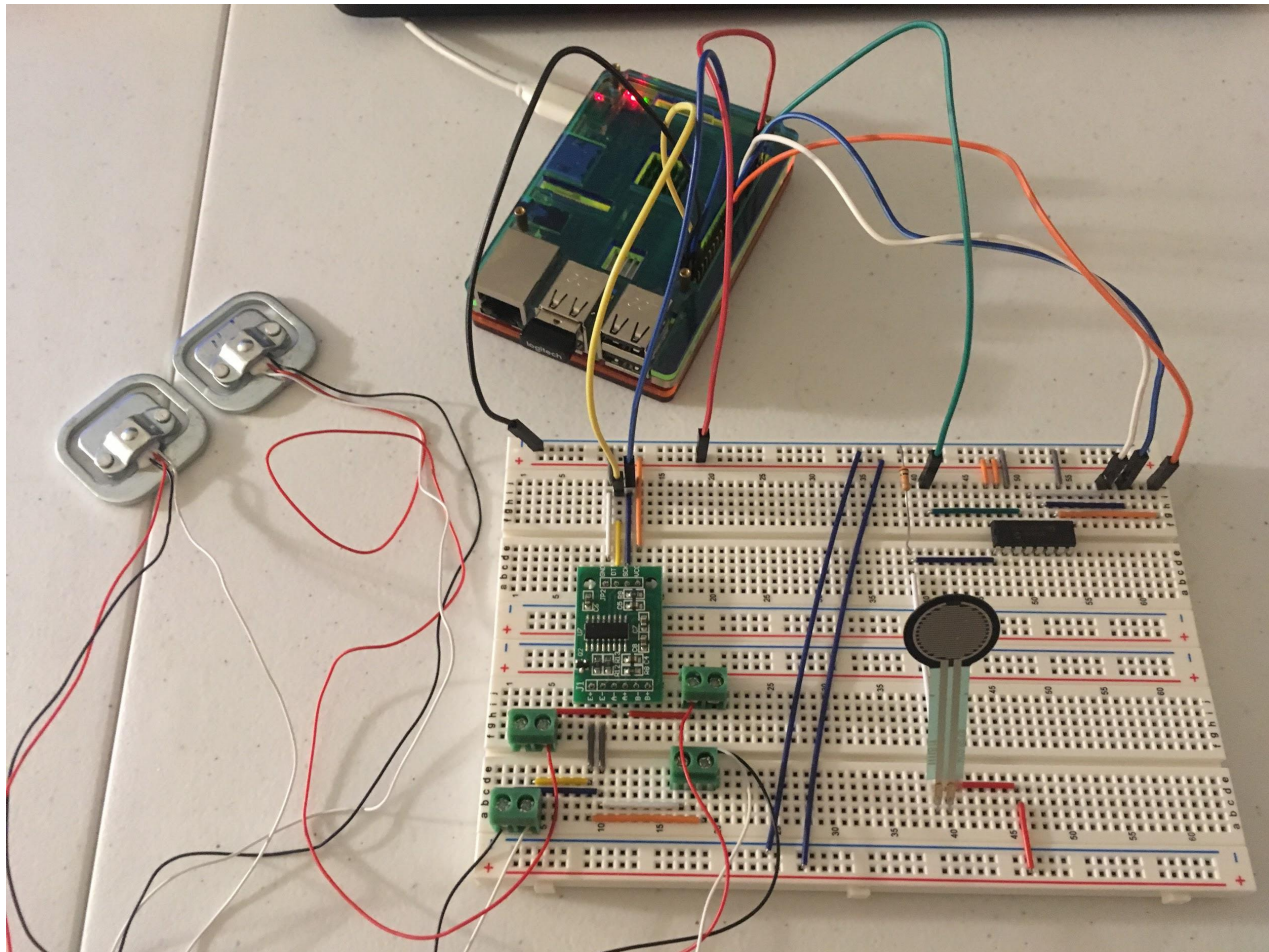
Sensors - Half-bridge strain gauge load cell



- Wheatstone bridge

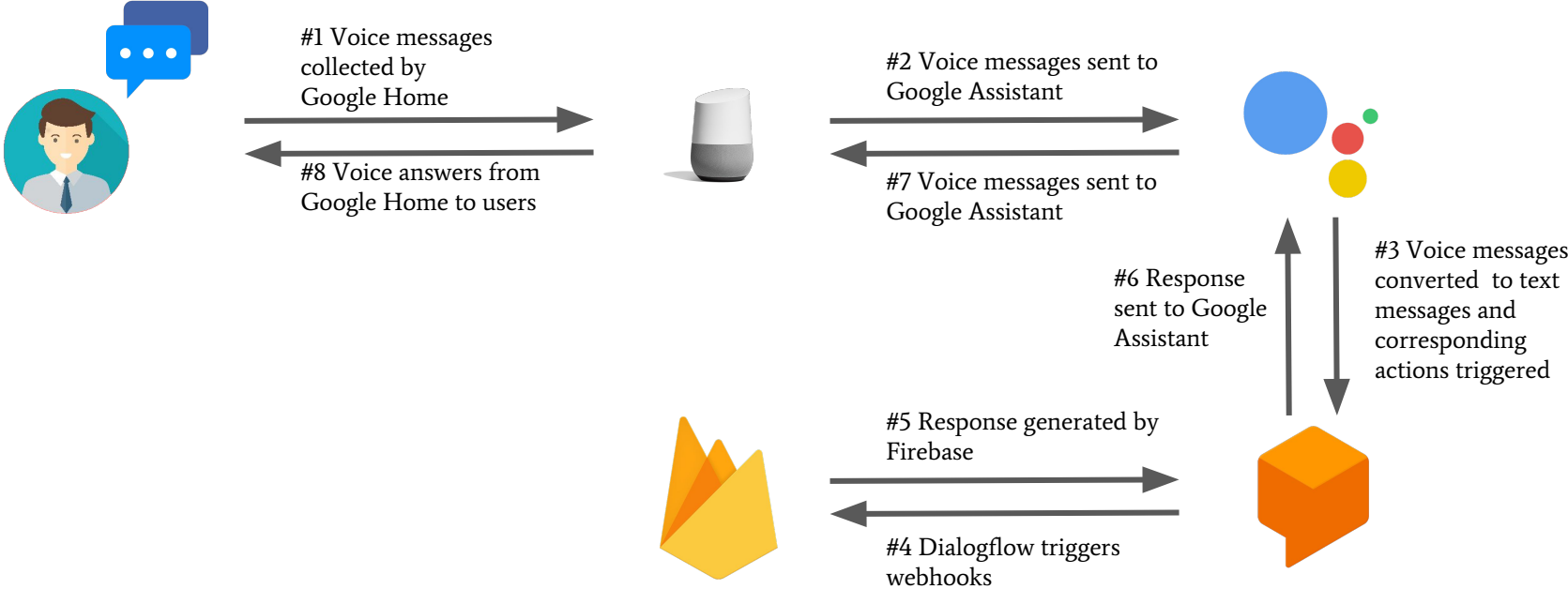
A Wheatstone bridge is an electrical circuit used to measure an unknown electrical resistance by balancing two legs of a bridge circuit, one leg of which includes the unknown component.





Intro to Voice Control System

Diagram



Hey, Google - Google Home

Smart speaker

A type of wireless speaker and voice command device with an integrated virtual assistant that offers interactive actions and hands-free activation with the help of one "hot word" (or several "hot words").

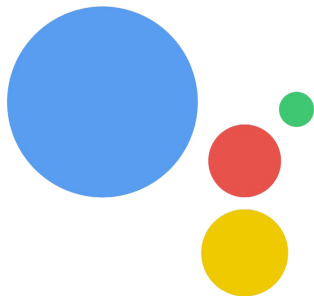
Google Home

A smart speaker that enables users to speak voice commands to interact with services through Google's personal assistant software called Google Assistant.



Google Assistant

An artificial intelligence-powered virtual assistant developed by Google that is primarily available on mobile and smart home devices.



hey google

Hi, what can I do for you?

i'm a robot

01001000 01101001. Just
joking. That means "Hi" in
binary code 🤓

Actions and Dialogflow

Actions on Google

A platform for developers to extend the Google Assistant by implementing customized actions.

Dialogflow

Give users new ways to interact with your product by building engaging voice and text-based conversational interfaces, such as voice apps and chatbots, powered by AI.

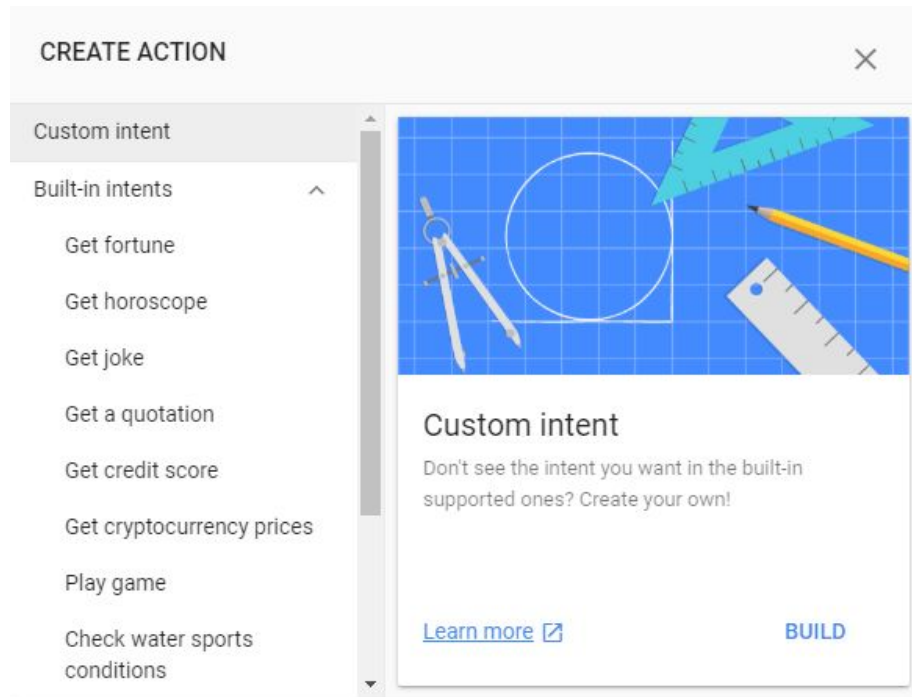


Actions and Dialogflow

Actions

An interaction you build for the Assistant that supports a specific intent and has a corresponding fulfillment that processes the intent.

- Smart home Actions
- Conversational Actions



Actions and Dialogflow

Intent

A goal or task that users want to do, such as ordering coffee or finding a piece of music. In Actions on Google, this is represented as a unique identifier and the corresponding user utterances that can trigger the intent.

The screenshot displays the configuration interface for a 'Sitting Time' intent in the Google Assistant Actions console. The interface is organized into several sections:

- Contexts:** A section with a dropdown arrow.
- Events:** A section with a dropdown arrow.
- Training phrases:** A section with a search bar and a list of phrases:
 - Add user expression
 - sitting time please
 - Tell me the sitting time
- Action and parameters:** A section with a dropdown arrow.
- Responses:** A section with tabs for 'DEFAULT' and 'GOOGLE ASSISTANT'. The 'DEFAULT' tab is active, showing a list of text responses:
 - 1 No data now
 - 2 Enter a text response variant
- Settings:** A toggle switch for 'Set this intent as end of conversation'.
- Fulfillment:** A section with a dropdown arrow and a toggle for 'Enable webhook call for this intent'.

Actions and Dialogflow

Fulfillment

A service, app, feed, conversation, or other logic that handles an intent and carries out the corresponding Action.

- By the inline editor
- By webhooks

The screenshot shows the 'Fulfillment' configuration page in Dialogflow. At the top, there is a lightning bolt icon and the word 'Fulfillment'. Below this, the 'Webhook' section is active, indicated by a blue toggle switch labeled 'ENABLED'. A descriptive text explains that the web service will receive a POST request from Dialogflow. The configuration fields include: 'URL*' with a placeholder 'https://'; 'BASIC AUTH' with 'Enter username' and 'Enter password' fields; 'HEADERS' with two 'Enter key' and 'Enter value' pairs and an 'Add header' button; and 'DOMAINS' with a dropdown menu set to 'Disable webhook for all domains'. Below the webhook section, the 'Inline Editor' is shown as 'DISABLED'. A note states 'Build and manage fulfillment directly in Dialogflow via Cloud Functions for Firebase. Docs'. The code editor shows the following JavaScript code:

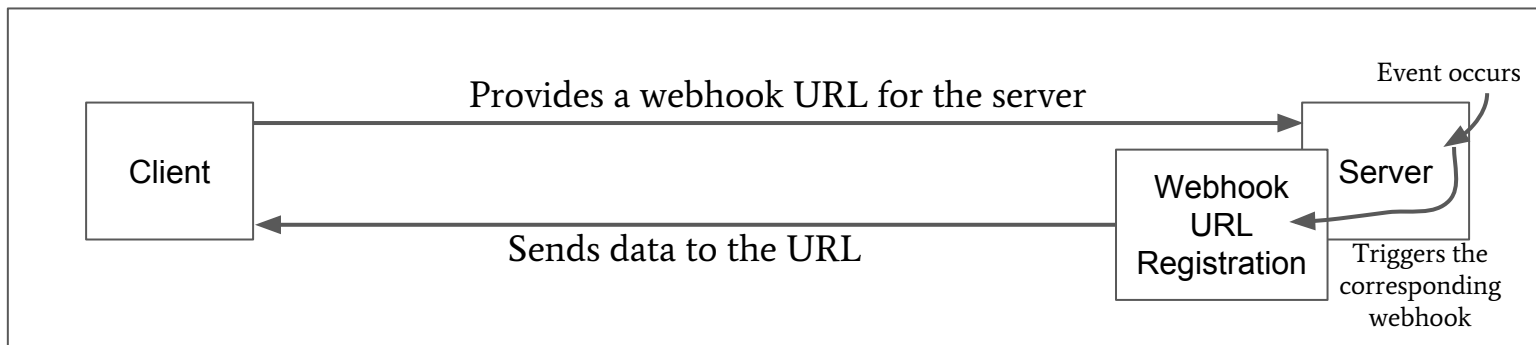
```
index.js package.json
1 // See https://github.com/dialogflow/dialogflow-fulfillment-nodejs
2 // for Dialogflow fulfillment library docs, examples, and to report issues
3 'use strict';
4
5 const functions = require('firebase-functions');
6 const {WebhookClient} = require('dialogflow-fulfillment');
7 const {Card, Suggestion} = require('dialogflow-fulfillment');
8
9 process.env.DEBUG = 'dialogflow:debug'; // enables lib debugging statements
10
11 exports.dialogflowFirebaseFulfillment = functions.https.onRequest((request, response) => {
12   const agent = new WebhookClient({ request, response });
```

Webhook

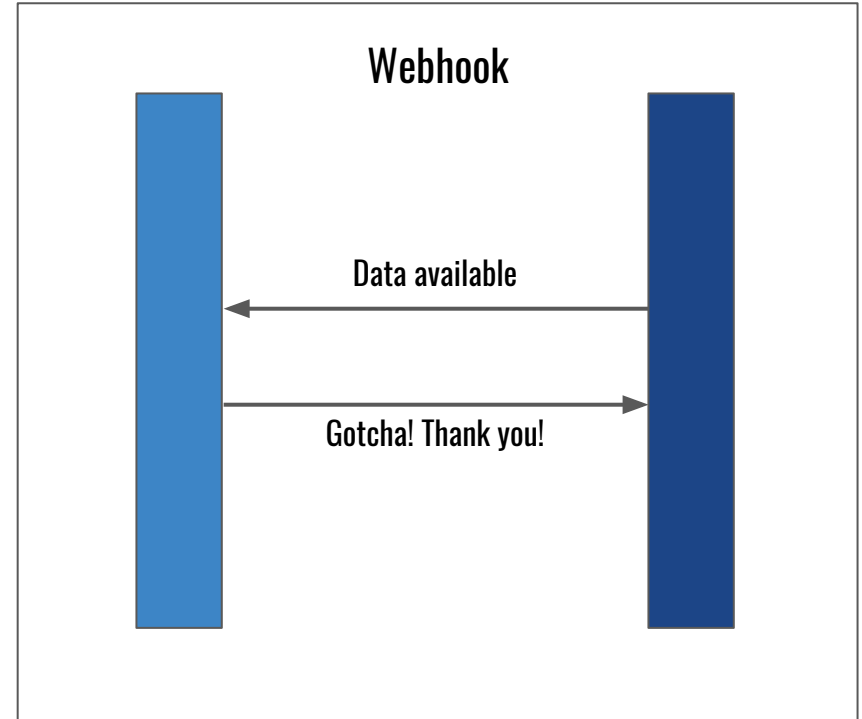
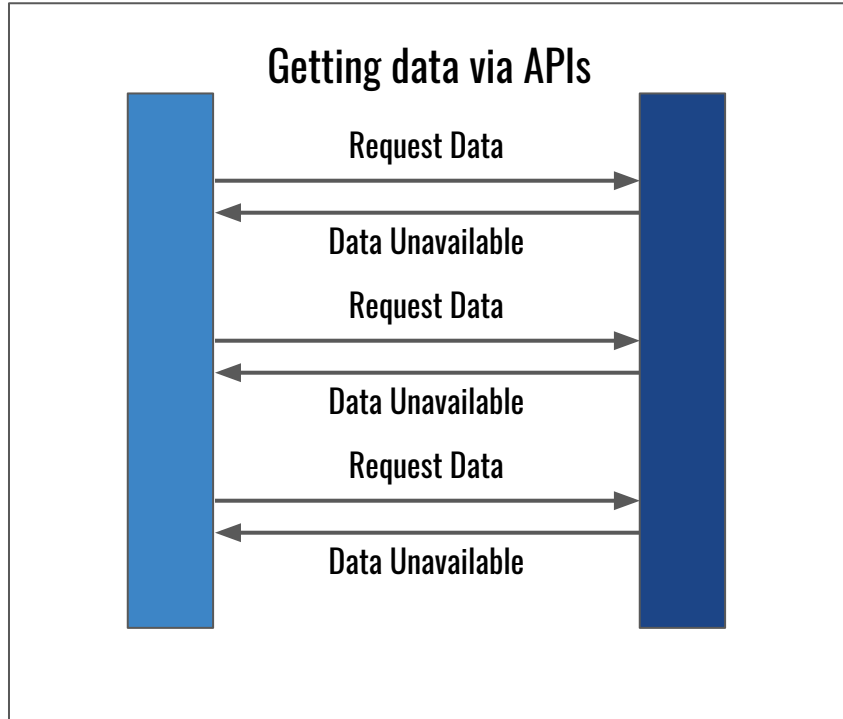
- An HTTP callback

It is a simple notification sent via HTTP POST when certain events happen.

- Reverse API
- Examples: Github webhooks, Slack webhooks, ...

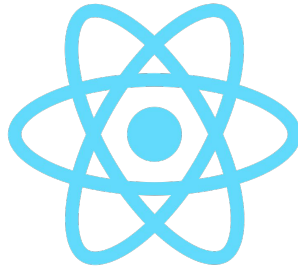


Webhooks vs API



Intro to React.js

What is React.js?



- "A Javascript library for creating user interfaces"
- "The 'V' in 'MVC'"
- "A library, not a framework"

What is React.js?

Declarative

- you can build Web interfaces without even touching the DOM directly
- you can have an event system without having to interact with the actual DOM Events.
- In contrast with JQuery

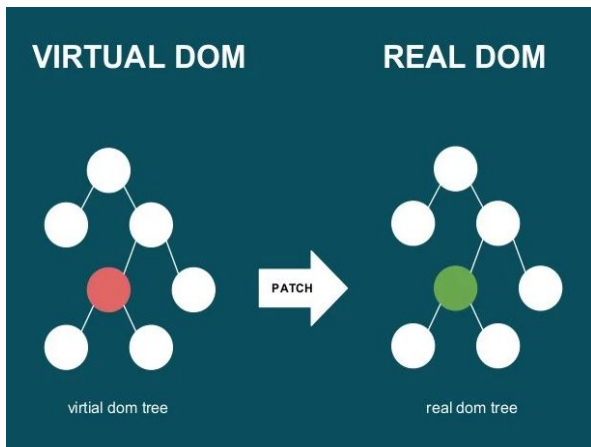
Component-based

- A method for breaking down larger UI interfaces into independent, self-sustaining micro-systems.
- Built off of the concept of Ajax requests.
- Reusability, single-responsibility

What is React.js?

- **Virtual DOM**

A virtual DOM object is a representation of a DOM object, like a lightweight copy.



Source: <https://www.vishwainfoways.com/blog/difference-between-dom-and-virtual-dom/>

- **JSX, aka JavaScript eXtension**

```
const element = <h1>Hello, world!</h1>;
```



I Am Developer
@iamdeveloper

Follow

Consensus: “You shouldn’t mix your HTML and JS together”,

Facebook: “You should mix your HTML and JS together”,

...

Consensus: “We should”.

3:32 AM - 13 May 2015

555 Retweets 460 Likes



Source: <https://twitter.com/iamdeveloper/status/598435575662813184>

React Ecosystem

- **Common Libraries:**
 1. Routing: **React-Router**
 2. AJAX requests: **Axios**, SuperAgent
 3. State Management: **Redux**
 4. Native apps: **React-Native**
 5. Set up: **create-react-app**, Next.js, Gatsby.js
- **Build Tools:**
 1. **Babel**: transforms JavaScript ES* (i.e., JS 2016, 2017) to ES5
 2. **Webpack**: module loader and bundler

React Component

React component

Button was clicked:

4 times

Click Me

```
class Counter extends React.Component {
  state = {counter : 0}

  onClick = () => {
    this.setState({counter : this.state.counter + 1});
  }

  render() {
    const {counter} = this.state;

    return (
      <div>
        Button was clicked:
        <div>{counter} times</div>

        <button onClick={this.onClick}>Click Me</button>
      </div>
    );
  }
}

render(<Counter />, mountNode);
```

React component

- Functional Component

```
function FunctionalComponentSyntax(props) {  
  return (  
    <div>  
      Hello World!  
    </div>  
  );  
}
```

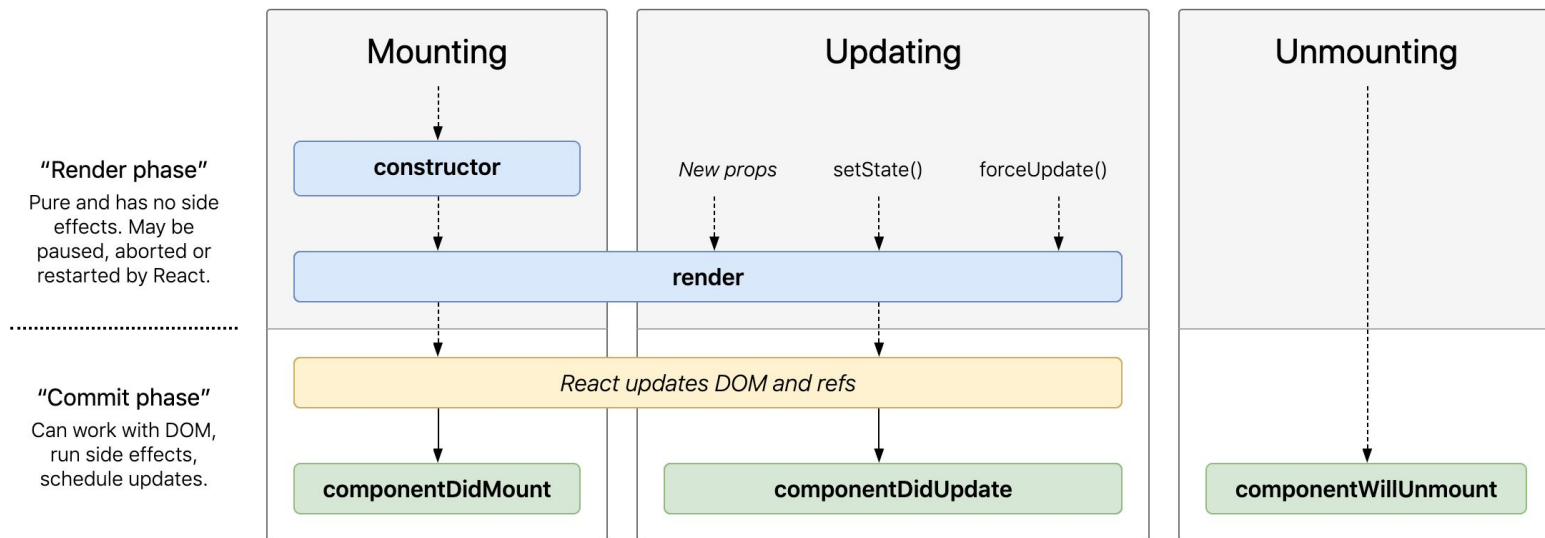
- Class Component

```
class Hello extends Component{  
  render(){  
    return <div>Hello {this.props.name}</div>  
  }  
}
```

Props vs. state

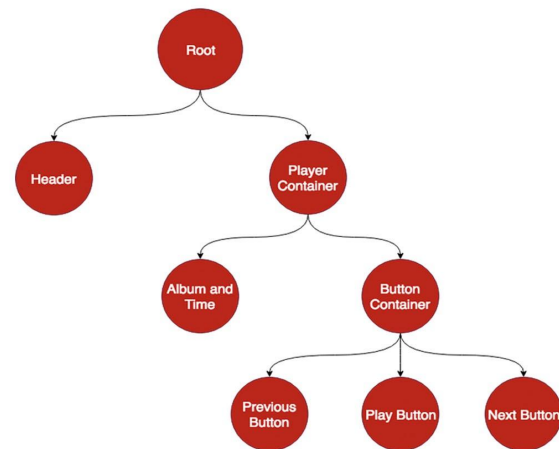
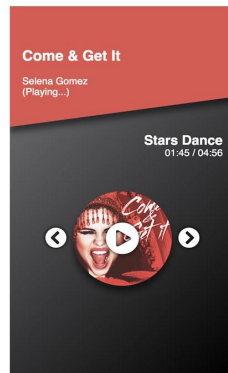
- State:
 1. Local data of the component, no access outside the component.
 2. Mutable
 3. Use `setState()` when changing the states.
- Props:
 1. Receive data from parent component
 2. Can have default values defined in the component
 3. Should not change during the component's life cycle
 4. Can specify types of props using `propTypes`.

Life cycle of a component



Context api: Why?

- Pass down data through the component tree without having to pass props down manually at every level.
- Like “global object”
- Examples of use case:
 1. Themes
 2. Multilingual application
 3. Authentication



Source: <https://blog.bitsrc.io/why-you-should-consider-the-new-context-api-in-react-a-deep-dive-d588b66c57b5>

Context api: How?

```
const { Provider, Consumer } = React.createContext()
```

```
const App = () => {  
  return (  
    <userContext.Provider value={user}>  
      <div>  
        <Header>  
          <Navbar />  
        </Header>  
        <Body>  
          <SideBar>  
            <Profile />  
          </SideBar>  
        </Body>  
      </div>  
    </userContext.Provider>  
  );  
};
```

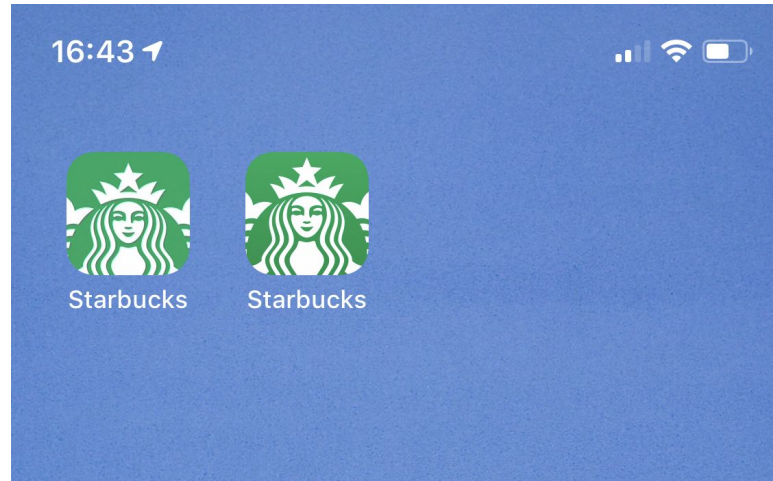
```
const Profile = () => {  
  return (  
    <userContextConsumer>  
      {value => (  
        <div>  
          <ProfileImage path={value.image_url} />  
          <ProfileName name={value.name} />  
        </div>  
      )}  
    </userContextConsumer>  
  );  
};
```

Resources for React

- Official Documentation:
 1. [React.js](#)
 2. [Create-react-app](#):
- Additional resources:
 1. [Curated React, Redux, ES6 links glossary](#)
 2. [react enlightenment](#)
 3. [30 days of react](#)

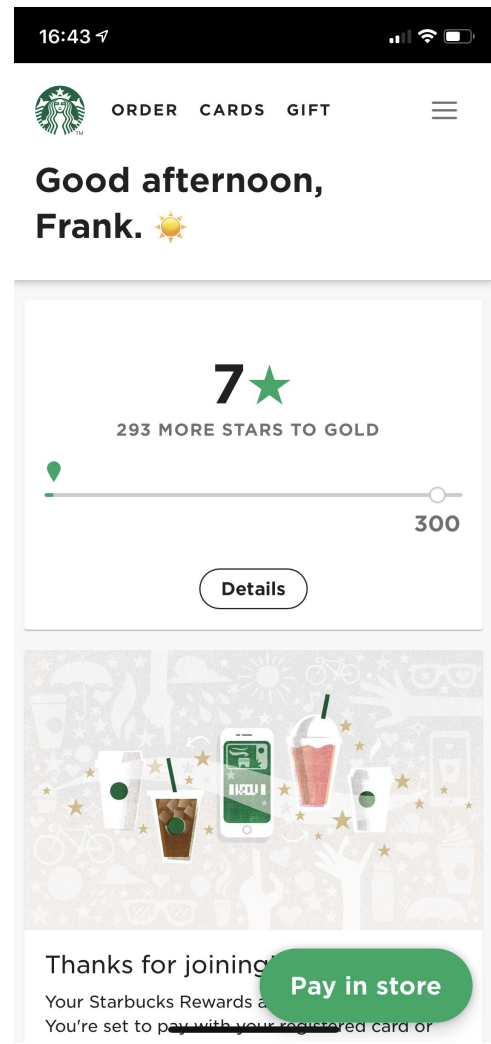
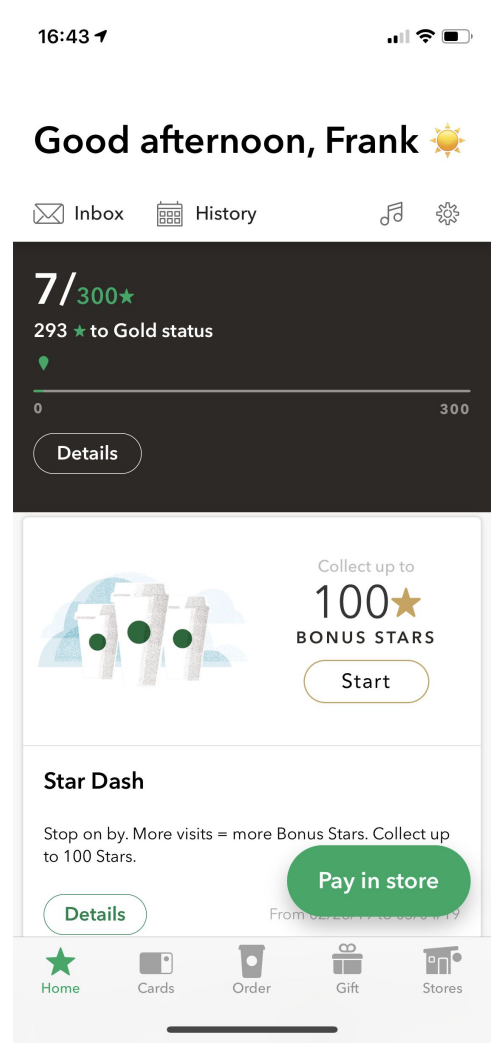
Progressive Web App

Example: Starbucks



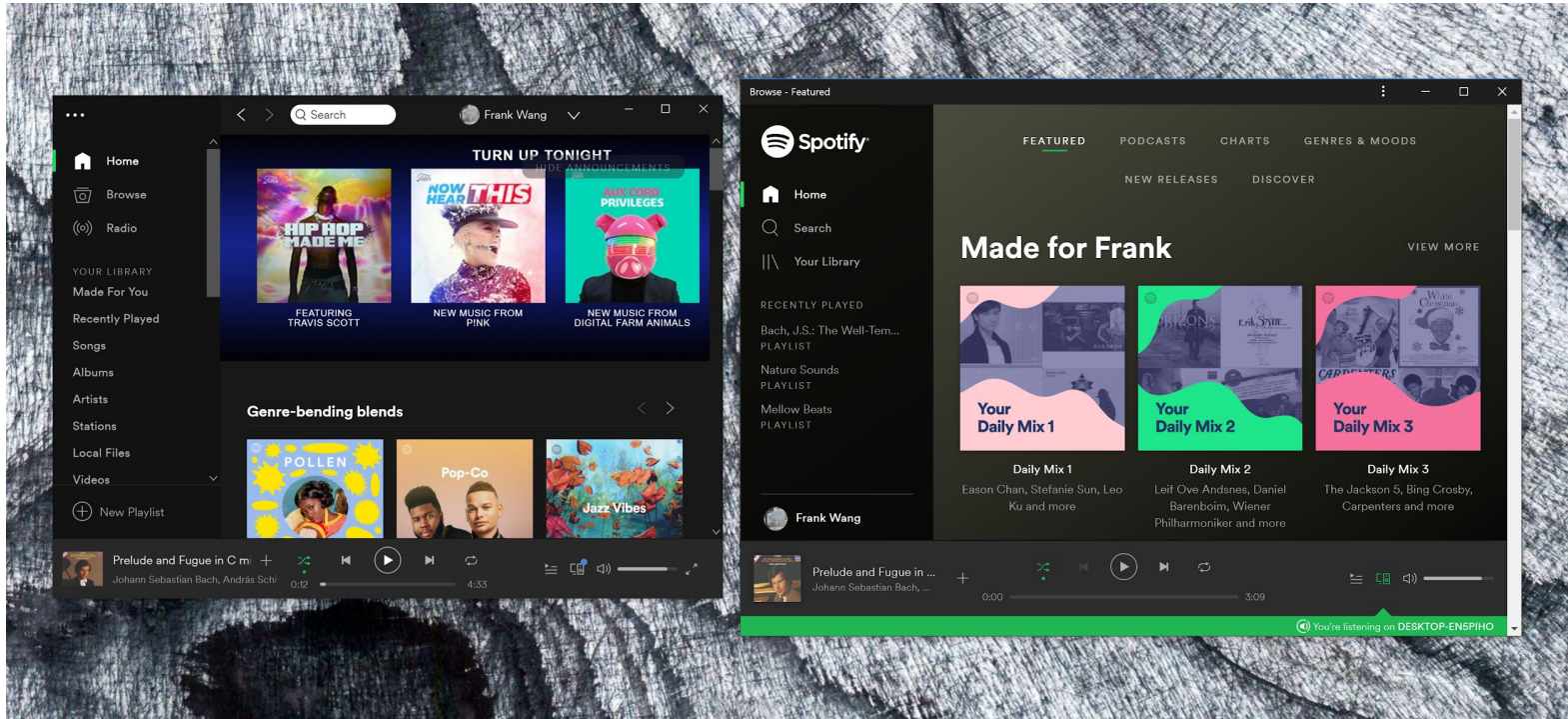
PWA

Example:
Starbucks



Progressive Web App

Example: Spotify on Windows



Progressive Web App

News on main OS:

iOS



<https://twitter.com/mhartington/status/1089292031548145666>

Progressive Web App

News on main OS:

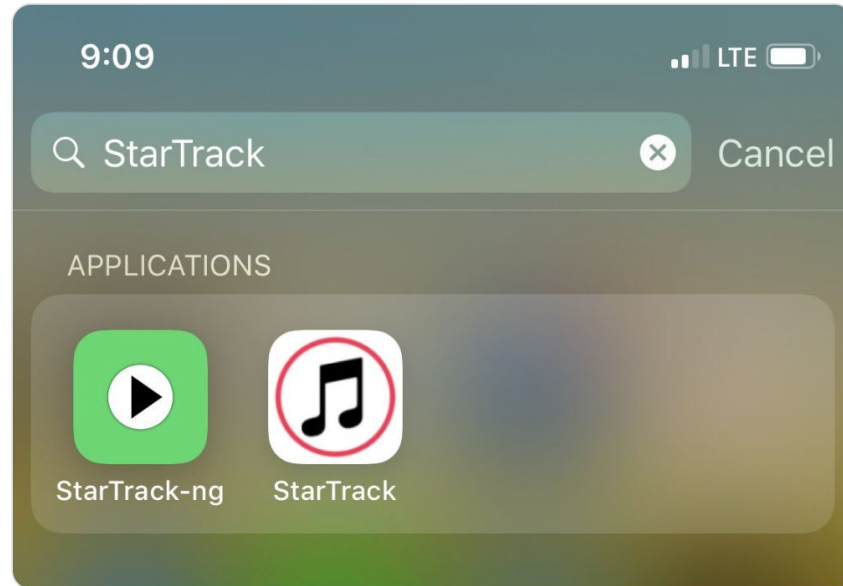
iOS



Mike Hartington @mhartington · 1月27日

4) hidden feature, pwa is in the “application” section in search! Native on the left, pwa on the right.

翻譯推文



<https://twitter.com/mhartington/status/1089292031548145666>

203

Progressive Web App

News on main OS:

Android

Google Play Store now open for Progressive Web Apps 🤯



Maximiliano Firtman [Follow](#)

Jan 31 · 19 min read ★

<https://medium.com/@firt/google-play-store-now-open-for-progressive-web-apps-ec6f3c6ff3cc>

Progressive Web App

News on main OS:

Android



Chromium Blog

News and developments from the open source browser project

Introducing a Trusted Web Activity for Android

Tuesday, February 5, 2019

A Trusted Web Activity (TWA) displays a full screen Chrome browser inside of an Android app with no browser UI. Although Android apps routinely include web content using a Chrome Custom Tab (CCT) or WebView, a TWA offers unique advantages when you need Chrome's performance and features in your app in full screen mode.

In this post I'll introduce you to TWAs, review suggested use cases and link to resources to get you started.

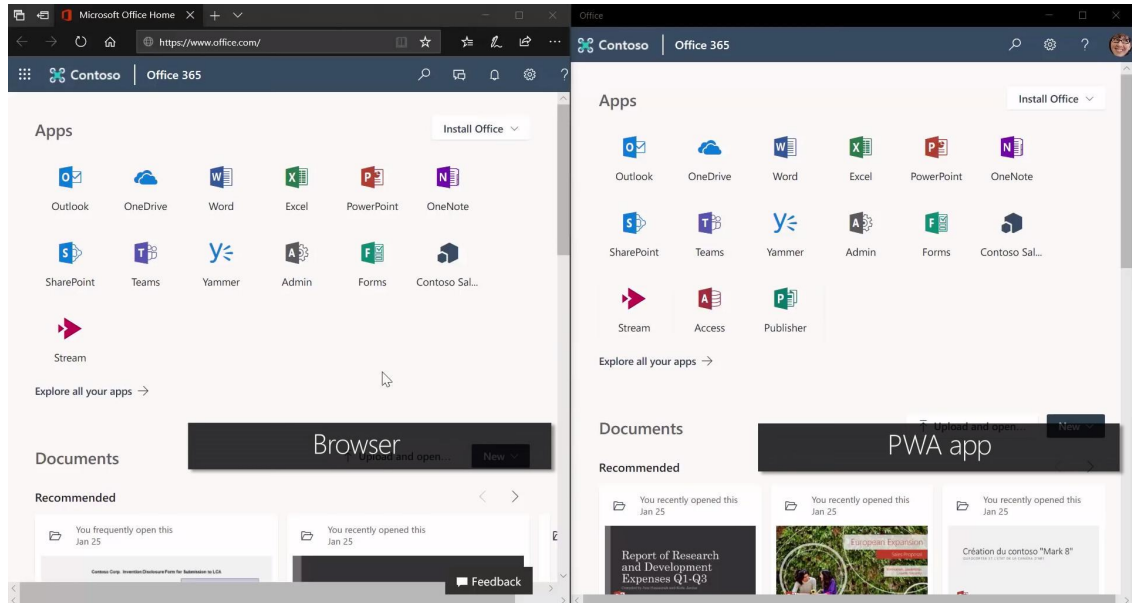
<https://blog.chromium.org/2019/02/introducing-trusted-web-activity-for.html>

Progressive Web App

News on main OS:

Windows

- Install from windows store
- Offline support
- Directly install from Edge
- Same API as UWP

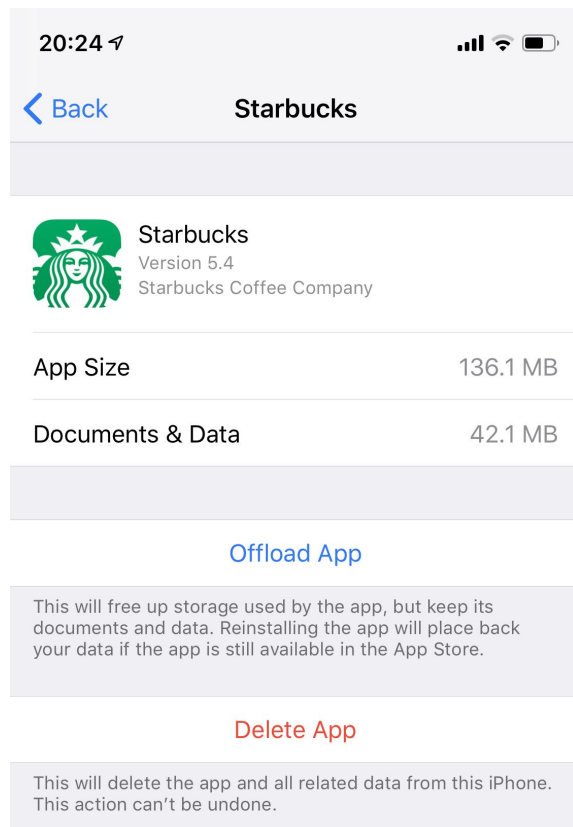


<https://www.zdnet.com/article/windows-10s-new-free-office-app-windows-store-pwa-now-open-to-all/>
https://www.youtube.com/watch?time_continue=366&v=VNpoqUNMrh8

Progressive Web App

Why use PWA

1. Size!!!



The screenshot shows the Starbucks app page on an iPhone. At the top, the time is 20:24 and the status bar shows signal strength, Wi-Fi, and battery. Below the status bar is a navigation bar with a blue back arrow and the text "Starbucks". The main content area features the Starbucks logo, the app name "Starbucks", version "5.4", and developer "Starbucks Coffee Company". Below this is a table with two rows: "App Size" with a value of "136.1 MB" and "Documents & Data" with a value of "42.1 MB". At the bottom, there are two buttons: "Offload App" in blue and "Delete App" in red. Below the "Delete App" button is a warning message: "This will delete the app and all related data from this iPhone. This action can't be undone."

App Size	136.1 MB
Documents & Data	42.1 MB

[Offload App](#)

This will free up storage used by the app, but keep its documents and data. Reinstalling the app will place back your data if the app is still available in the App Store.

[Delete App](#)

This will delete the app and all related data from this iPhone. This action can't be undone.

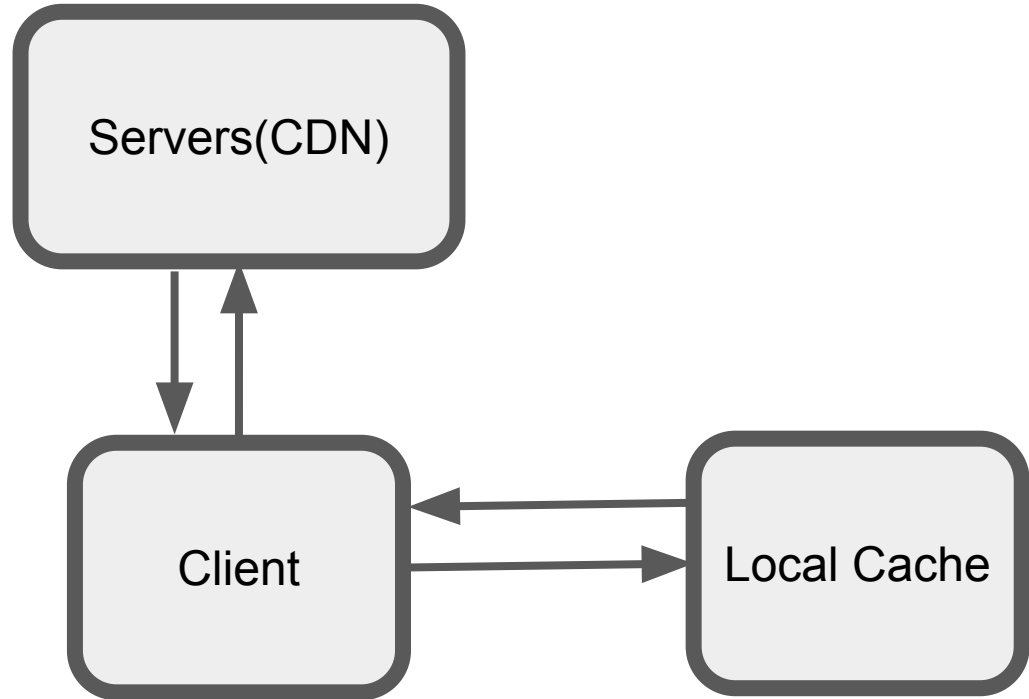
Progressive Web App

Why use PWA

1. Size!!!
2. Offline support: Service Worker
3. Native like app
4. Free of app store

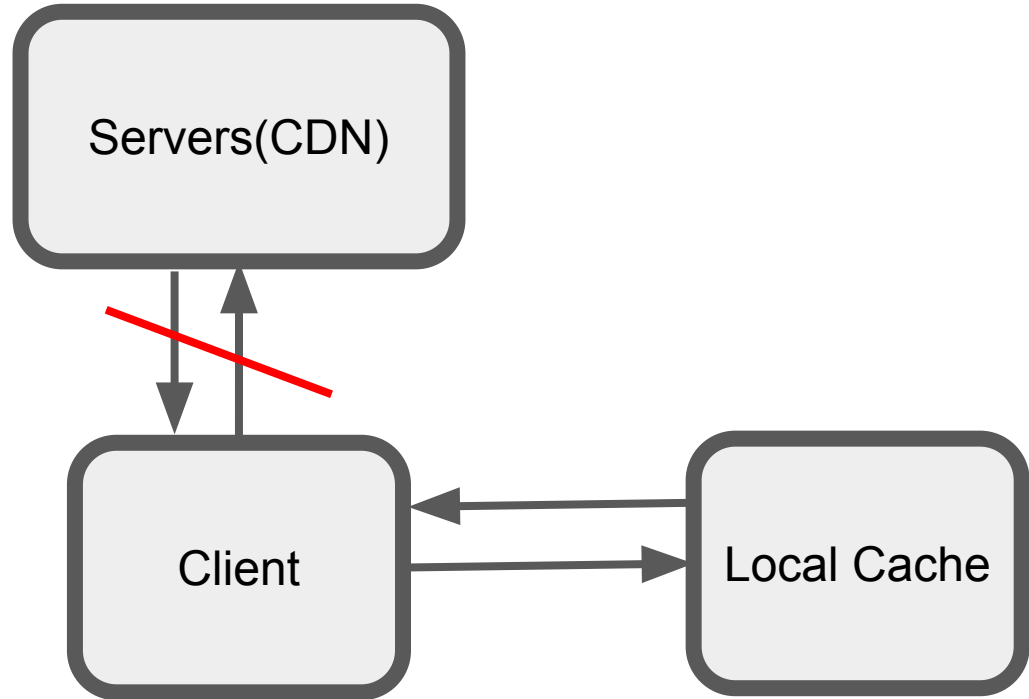
Progressive Web App

How PWA works offline



Progressive Web App

How PWA works offline



Progressive Web App

How PWA works offline



No internet

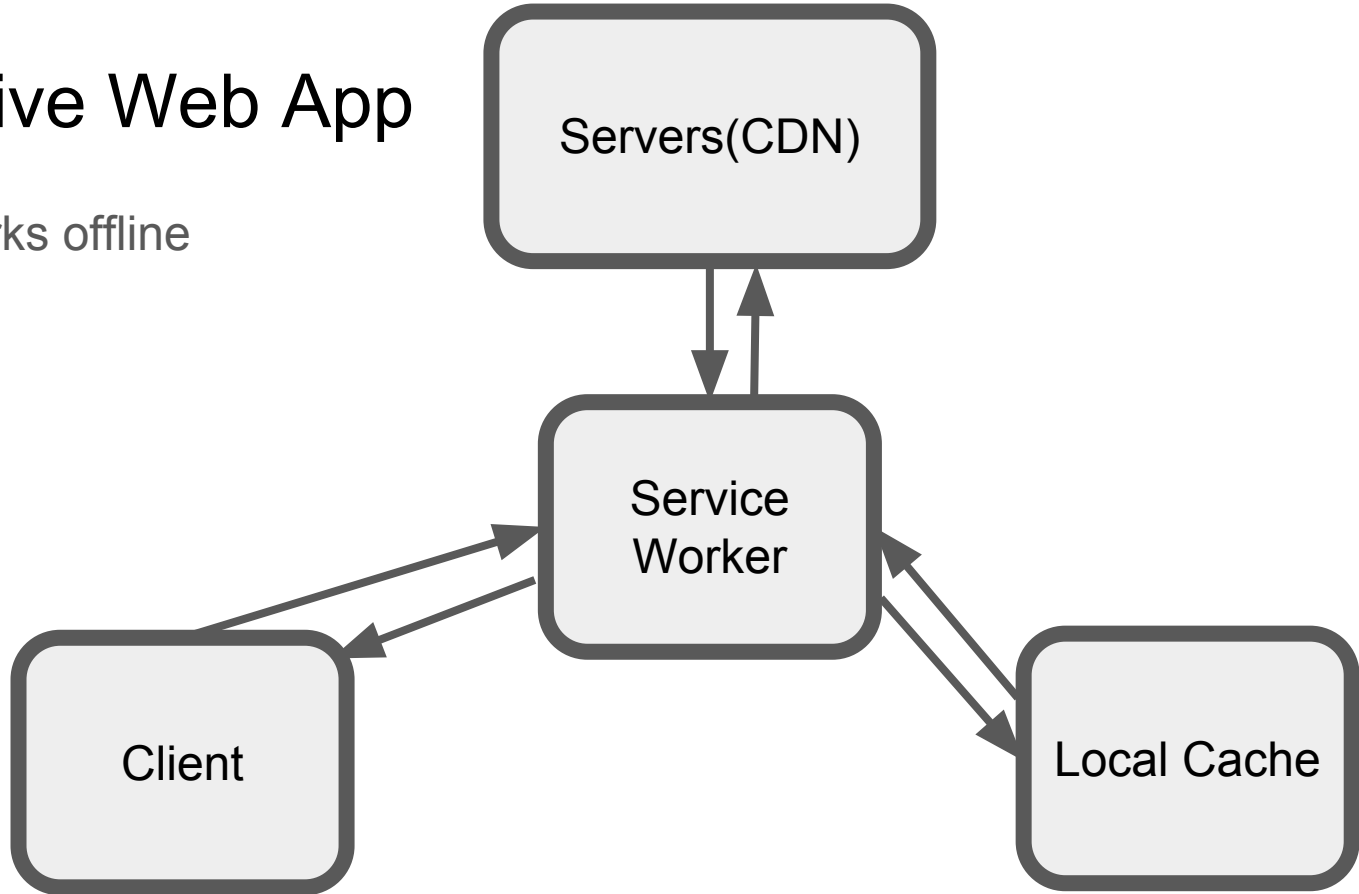
Try:

- Checking the network cables, modem, and router
- Reconnecting to Wi-Fi

ERR_INTERNET_DISCONNECTED

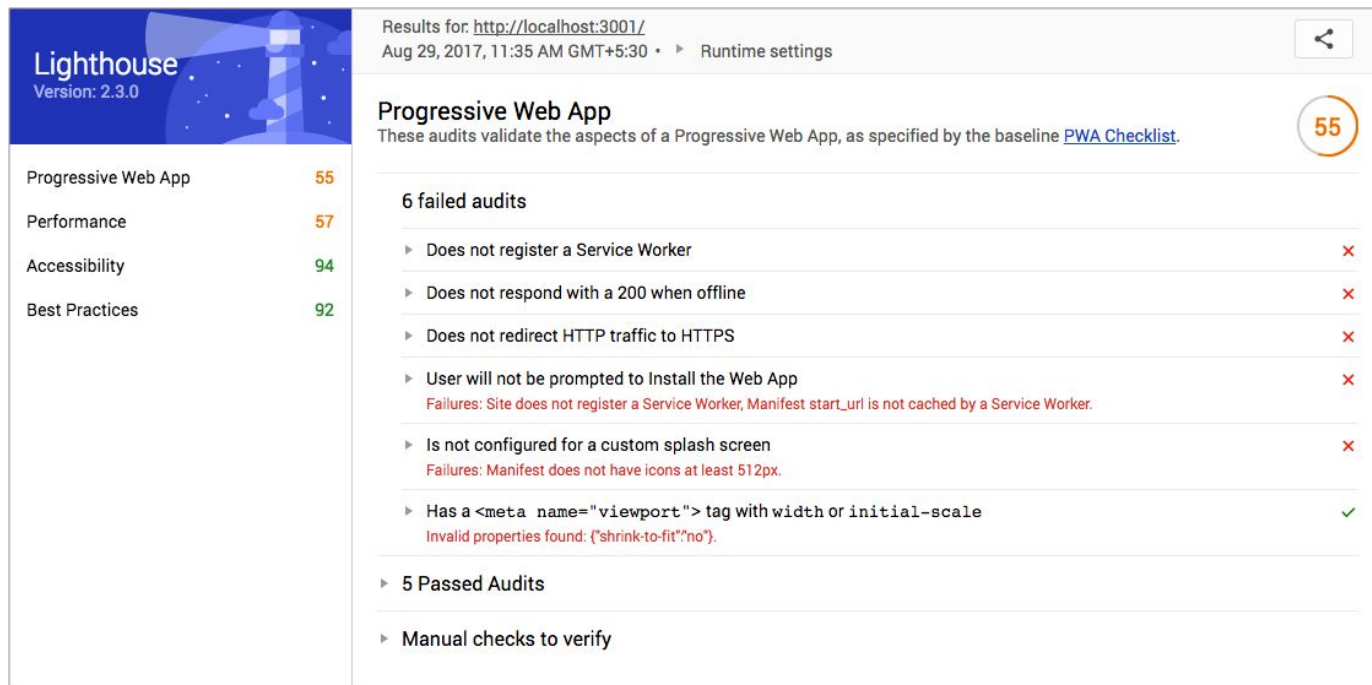
Progressive Web App

How PWA works offline



Progressive Web App

Use Lighthouse's checklist



The screenshot shows the Lighthouse audit interface. On the left, a sidebar lists categories: Progressive Web App (55), Performance (57), Accessibility (94), and Best Practices (92). The main area displays the 'Progressive Web App' section with a score of 55. It includes a header with the URL 'http://localhost:3001/' and the date 'Aug 29, 2017, 11:35 AM GMT+5:30'. Below the header, it states 'These audits validate the aspects of a Progressive Web App, as specified by the baseline [PWA Checklist](#).' The main content is divided into '6 failed audits' and '5 Passed Audits'. The failed audits are: 'Does not register a Service Worker', 'Does not respond with a 200 when offline', 'Does not redirect HTTP traffic to HTTPS', 'User will not be prompted to Install the Web App' (with failures: 'Site does not register a Service Worker, Manifest start_url is not cached by a Service Worker'), and 'Is not configured for a custom splash screen' (with failures: 'Manifest does not have icons at least 512px'). The passed audit is 'Has a <meta name="viewport"> tag with width or initial-scale' (with failures: 'Invalid properties found: {"shrink-to-fit":"no"}').

Lighthouse
Version: 2.3.0

Results for: <http://localhost:3001/>
Aug 29, 2017, 11:35 AM GMT+5:30 • ▶ Runtime settings

Progressive Web App

These audits validate the aspects of a Progressive Web App, as specified by the baseline [PWA Checklist](#).

55

6 failed audits

- ▶ Does not register a Service Worker ×
- ▶ Does not respond with a 200 when offline ×
- ▶ Does not redirect HTTP traffic to HTTPS ×
- ▶ User will not be prompted to Install the Web App ×
Failures: Site does not register a Service Worker, Manifest start_url is not cached by a Service Worker.
- ▶ Is not configured for a custom splash screen ×
Failures: Manifest does not have icons at least 512px.
- ▶ Has a `<meta name="viewport">` tag with width or initial-scale ✓
Invalid properties found: {"shrink-to-fit":"no"}.

5 Passed Audits

- ▶ Manual checks to verify






Firebase

What's Firebase

- Firebase is a mobile and web application development platform developed by Firebase, Inc. in 2011, then acquired by Google in 2014.
- Backend as a Service (BaaS)






Build better apps

-  **Cloud Firestore**
Store and sync app data at global scale
-  **ML Kit** BETA
Machine learning for mobile developers
-  **Cloud Functions**
Run mobile backend code without managing servers
-  **Authentication**
Authenticate users simply and securely
-  **Hosting**
Deliver web app assets with speed and security








Improve app quality

-  **Crashlytics**
Prioritize and fix issues with powerful, realtime crash reporting
-  **Performance Monitoring**
Gain insight into your app's performance
-  **Test Lab**
Test your app on devices hosted by Google



Grow your business

-  **In-App Messaging**
Engage active app users with contextual messages
-  **Google Analytics**
Get free and unlimited app analytics
-  **Predictions**
Smart user segmentation based on predicted behavior
-  **A/B Testing** BETA
Optimize your app experience through experimentation
-  **Cloud Messaging**
Send targeted messages and notifications

Firestore

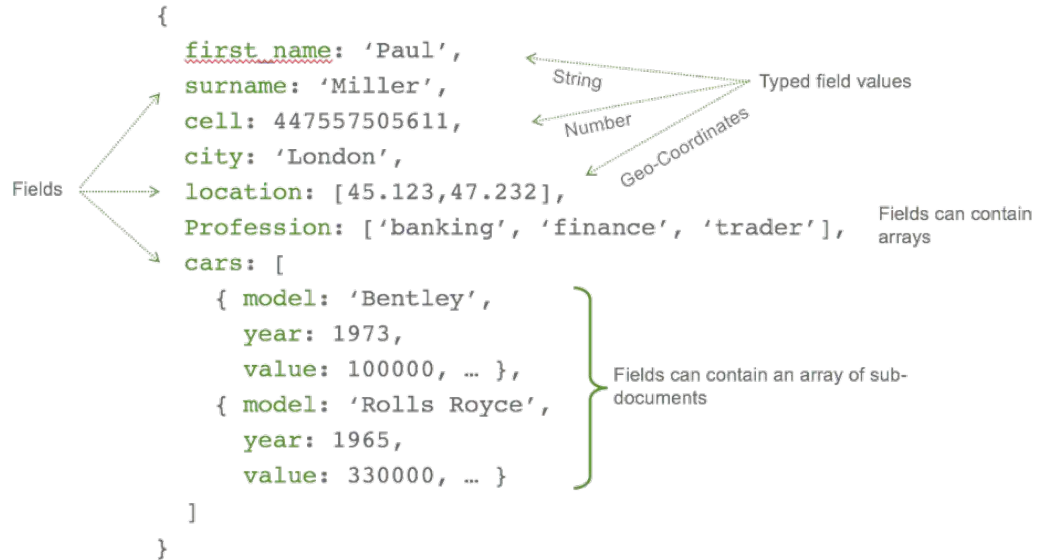
Database

- **Firestore Realtime database**
 - Cloud-host NoSql database
- **Cloud Firestore**
 - NoSql document based database

Firestore

Cloud Firestore, NoSql document based database on Google Cloud Platform

- Data Model
 - Document and collection

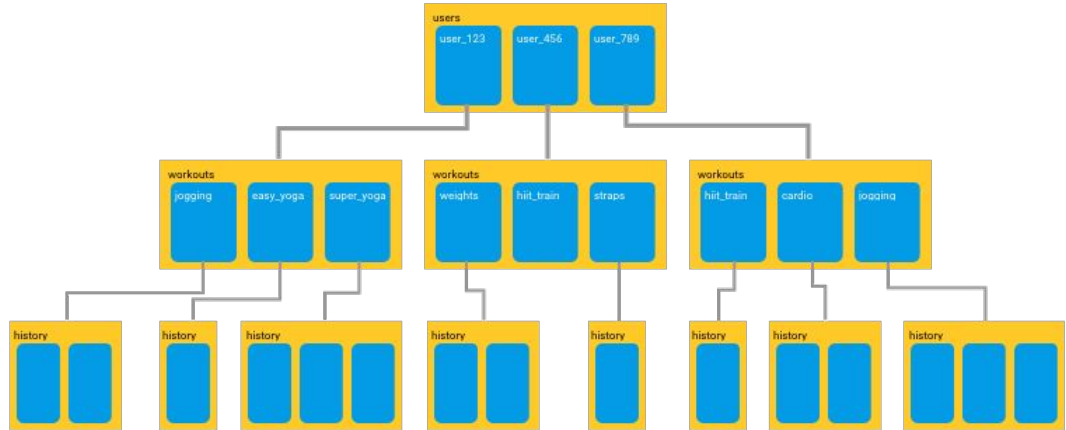


Tree-like JSON

Firestore

Cloud Firestore, NoSql document based database on Google Cloud Platform

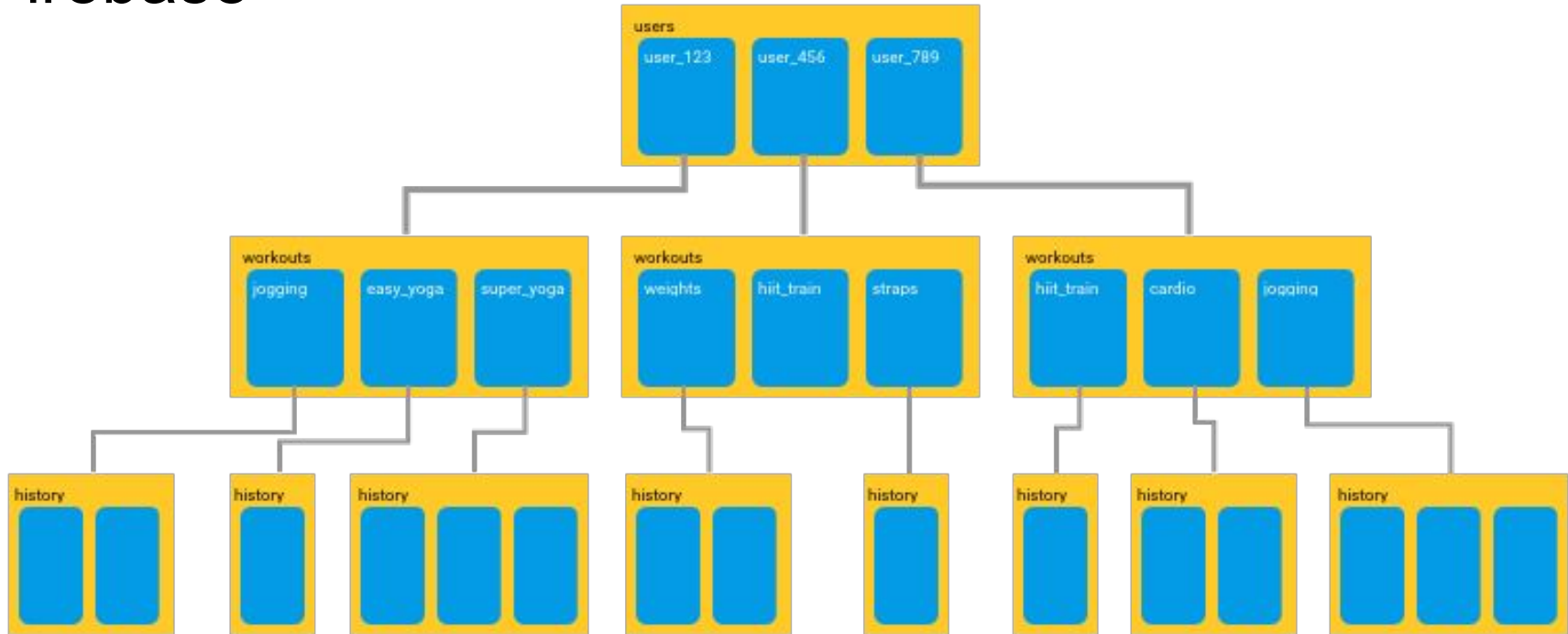
- Data Model
 - Document and collection



Document based Structure

<https://proandroiddev.com/working-with-firestore-building-a-simple-database-model-79a5ce2692cb>

Firestore



Document based Structure

<https://proandroiddev.com/working-with-firestore-building-a-simple-database-model-79a5ce2692cb>

Firestore - Cloud Firestore

Some constraints

- Collections can only contain document
- Document can not contain another document
- Only document can have fields

Firestore - Cloud Firestore

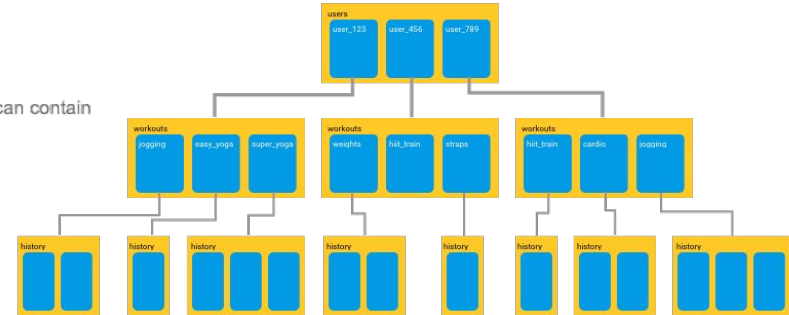
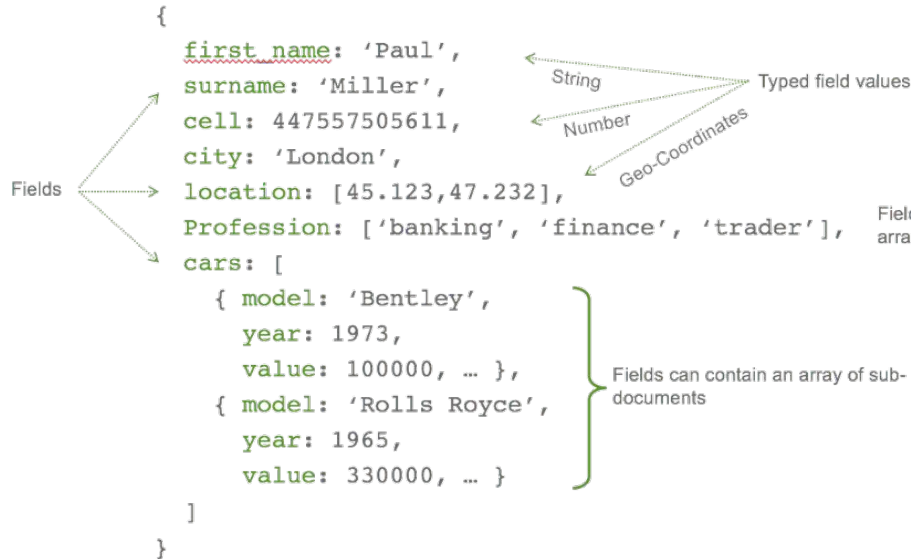
Read Data

- `firestore.collection(...).document(...).collection(...)`
- Or
- `“users/user_123/workouts/jogging/history/...”`

Firestore - Cloud Firestore

How Query works in Cloud Firestore

- Queries are shallow by default



Firestore - Cloud Firestore

How Query works in Cloud Firestore

- Query performance is proportional to the size of your **result set**, not your **data set**.
- Why? Indexing every field by default, so binary search is possible

Task Division and Timeline

Task Division & Timeline

Before March

To Apr. 15th

Apr. 15th - Apr. 28th

System Design

Implementation

Final Integration

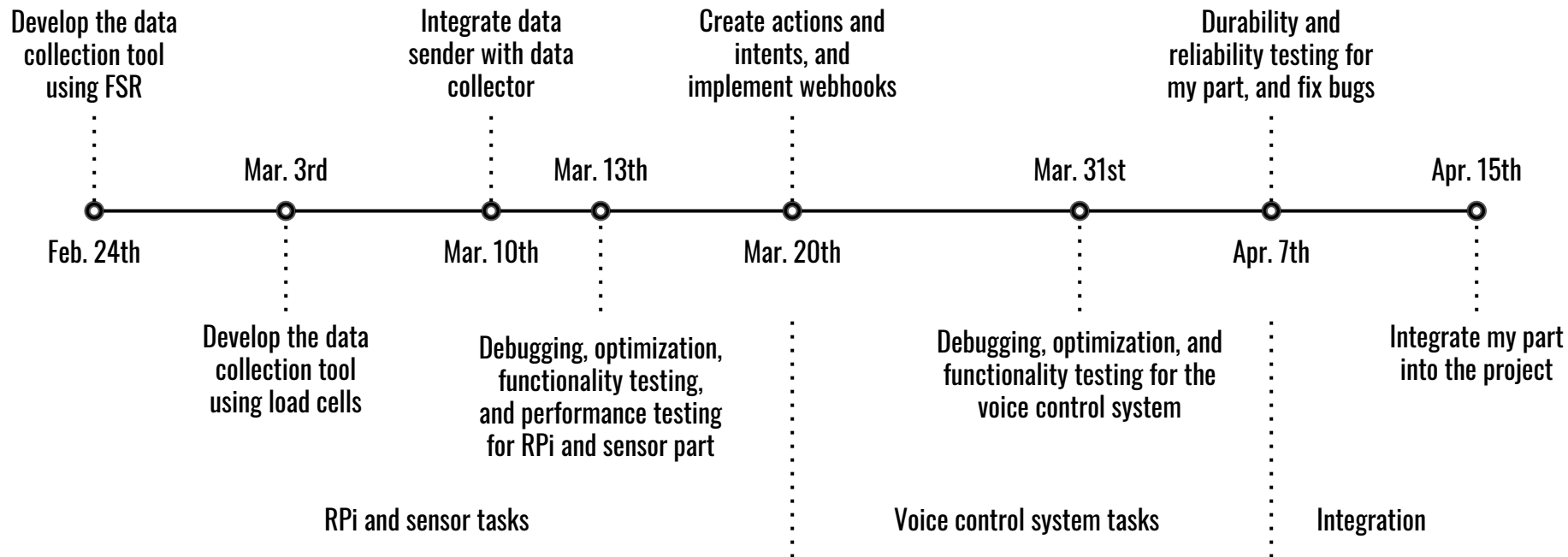
Yang He: Sensor data collection and Voice Control System

Cheng Wang: TaskLogger Website

Xu Zhang: Sitting website

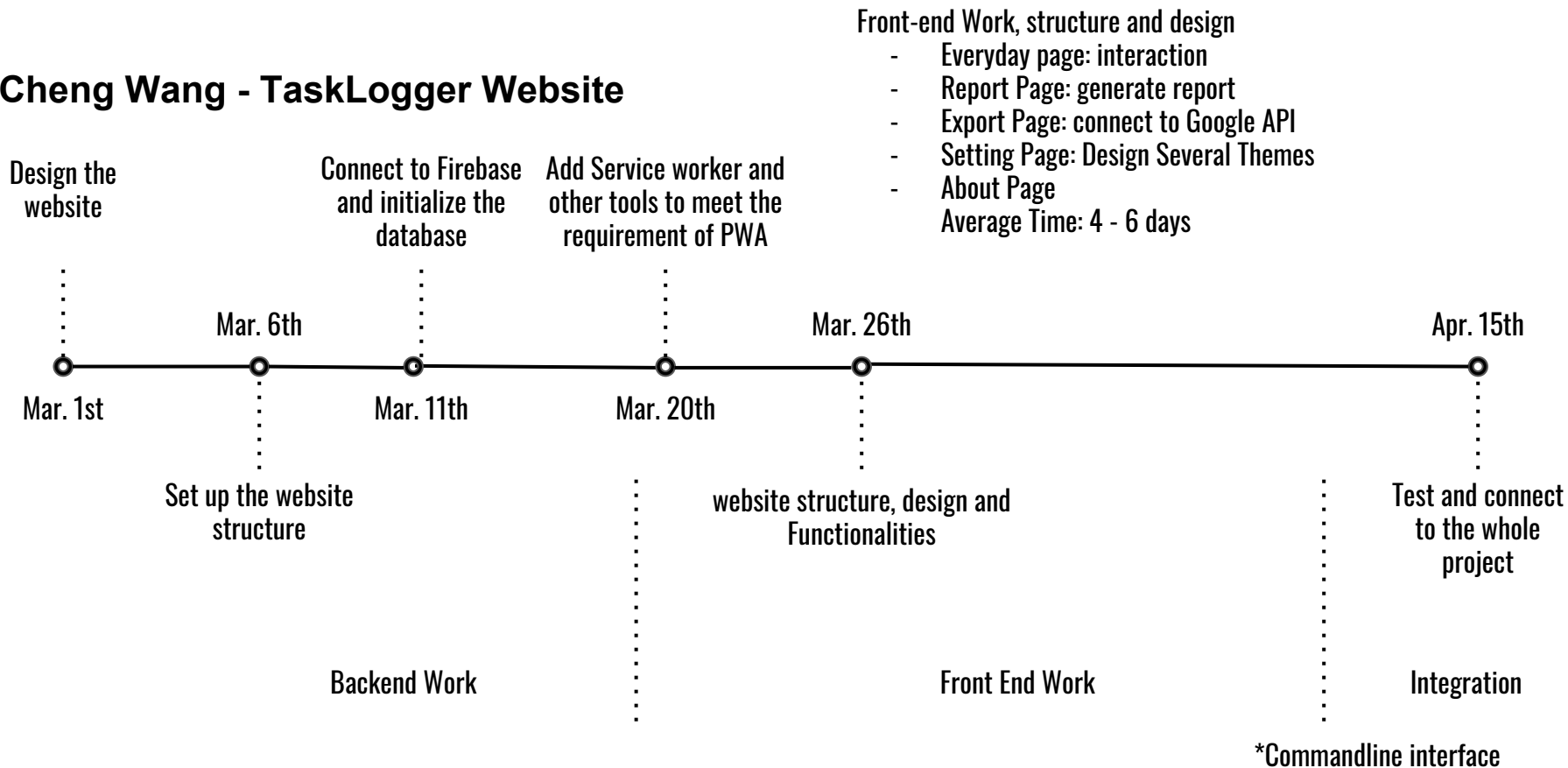
Timeline

Yang He - Sensor data collection and Voice Control System



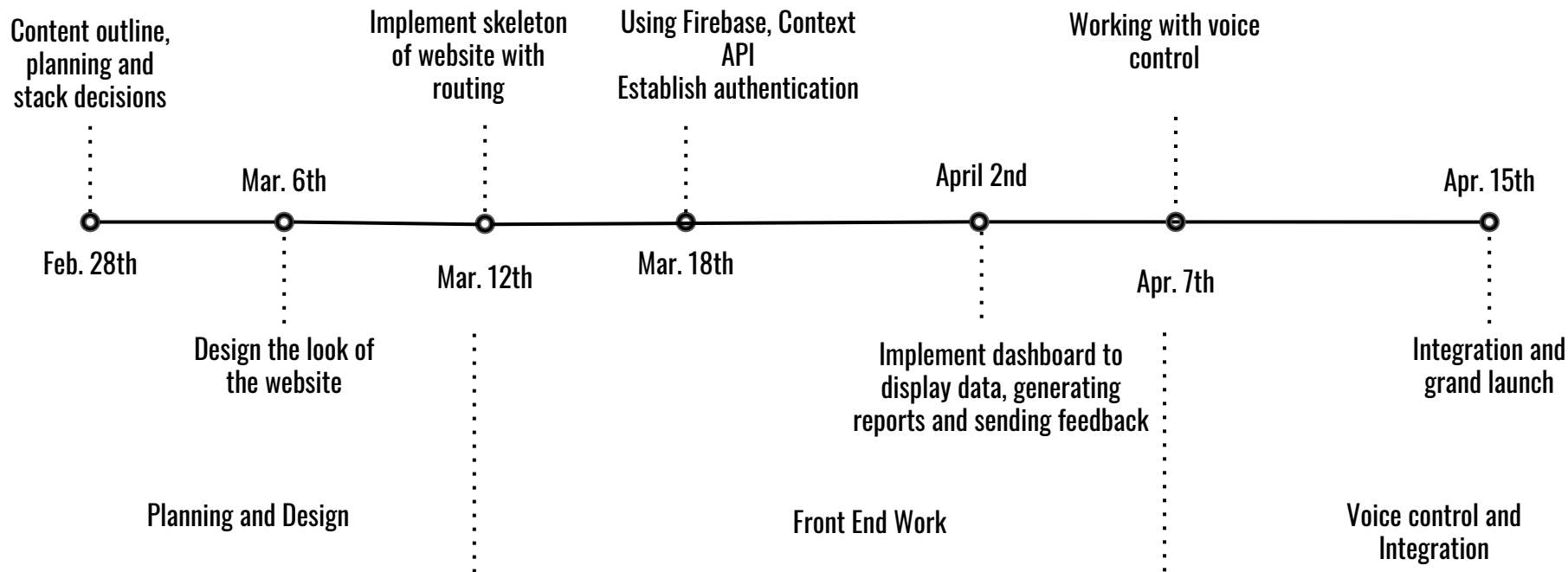
Timeline

Cheng Wang - TaskLogger Website



Timeline

Xu Zhang - Sitting website



Q & A