

Dashboard Final Presentation

Spring 2020

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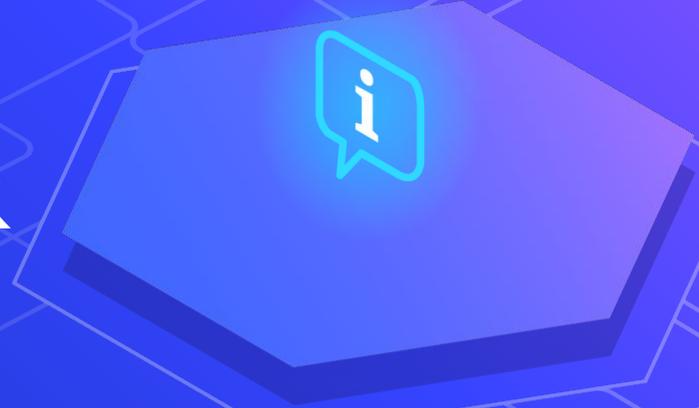




Presentation Overview

- Project Background & Motivation
- Project Goal
- Project Approach
 - Overall Block Diagram
 - Design Procedure
- Encountered Problems & Solutions
- Team's Progress & Final Status
- Future Tasks/Improvements
- Questions

Project Background & Motivation





Project Background & Motivation

- Smart Campus Energy Lab
 - Support efforts in sustainability/renewable energy
 - Weatherboxes collect meteorological data & stores into lab database
 - Dashboard displays data aesthetically for user-readability
 - Data = planning future renewable energy installations & provide risk mitigation for electricity generation

Project Goal





Project Goal

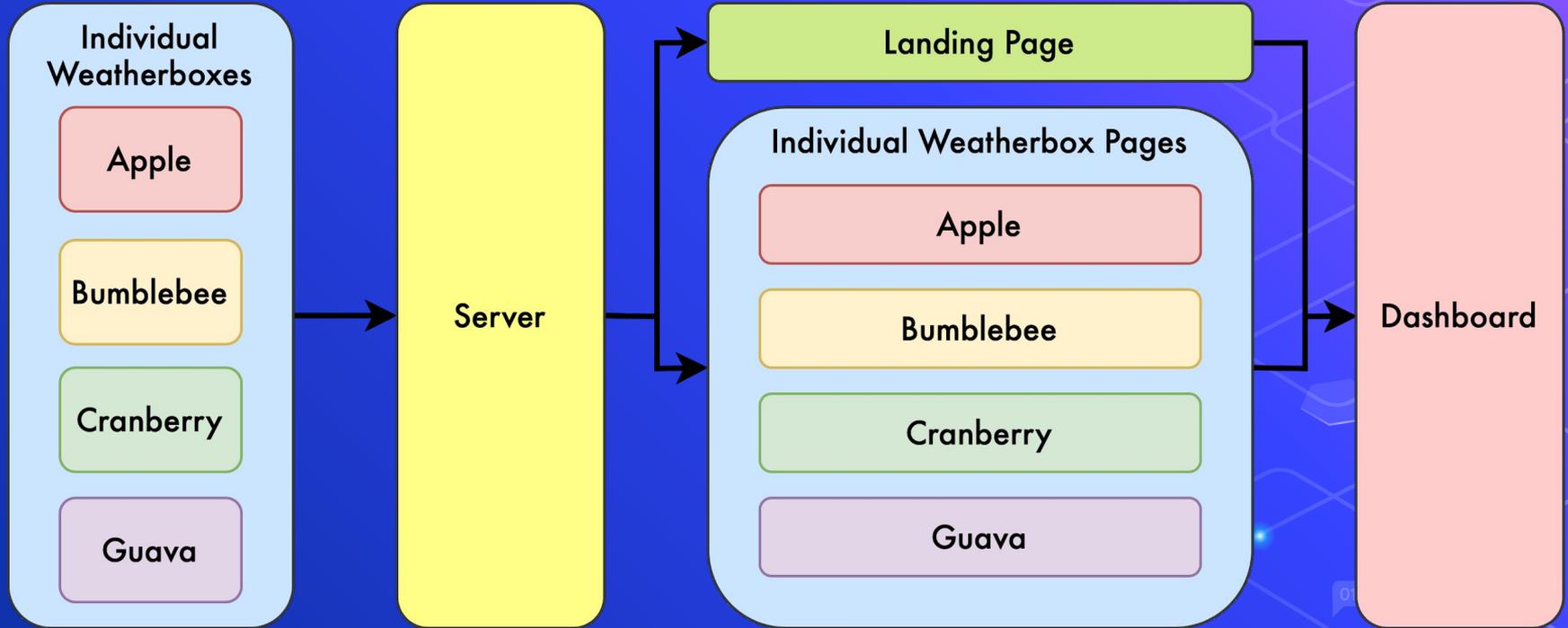
- Redesign previous Dashboard Web Application using ReactJS framework
- Develop back-end API to link database results to front-end dashboard
- Present data from gateway aesthetically & accurately onto dashboard

Project Approach



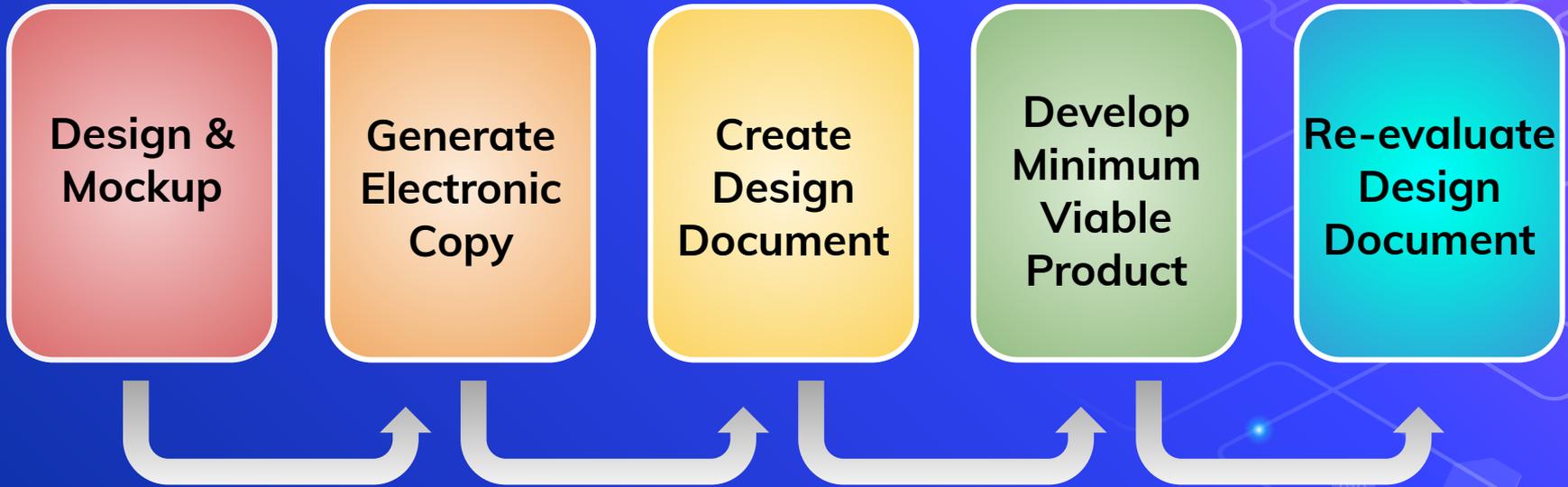


Overall Block Diagram

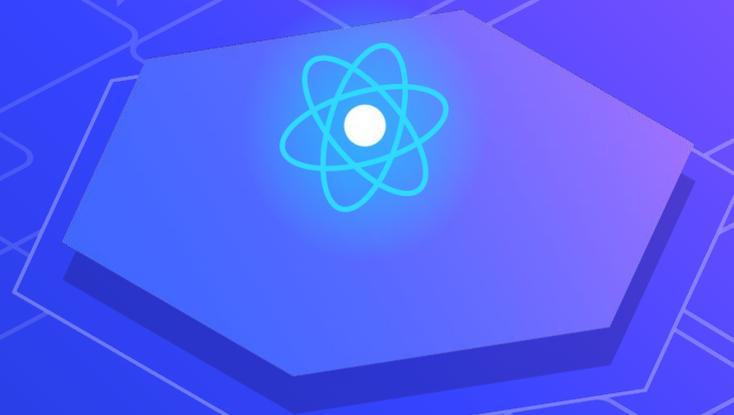




Design Procedure



Encountered Problems & Solutions

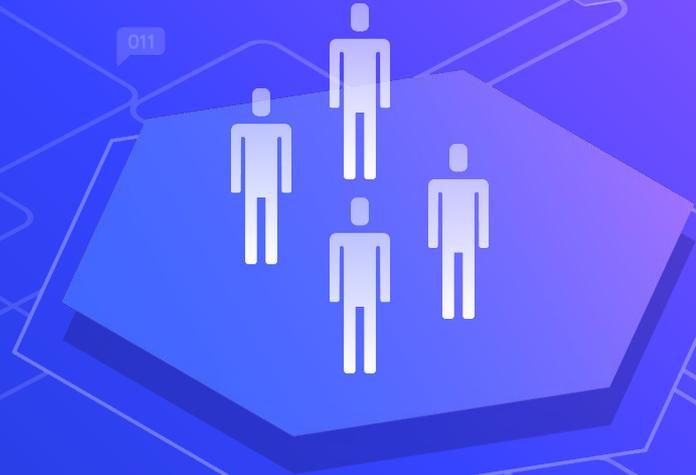




Encountered Problems & Solutions

- ◊ Understanding full-stack development
 - Front-end → back-end → server
 - Learning PostgreSQL
- ◊ Connecting database to dashboard
 - Where to start?
 - Utilized RESTful API to query database
 - Dashboard to fetch data via API fetch call
 - Manipulating data
- ◊ Time Delays: ...COVID-19

Team's Progress & Final Status





Team's Progress & Final Status

- ◊ Translated HTML application to use ReactJS framework
 - Created separate components & website layouts
- ◊ Successfully connected database & dashboard with RESTful API
 - SSH Tunnel to lab database server
 - Host API `index.js` locally on port: **3001**
 - Host dashboard `App.js` locally on port: **3000**
- ◊ Linked database result to dashboard components
 - Main Weatherbox Page uses API to fetch data
 - Passed to `Graphs & AverageSelector` components



SCEC DASHBOARD

Home

Apple

Bumblebee

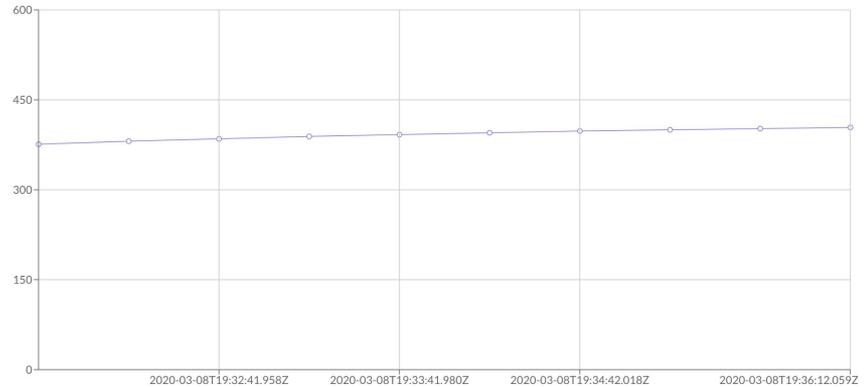
Cranberry

Guava

SCEC Dashboard - Overview

Last Updated: 5/1/2020, 5:45:04 PM

Latest Weatherbox Reading: 3/8/2020, 9:36:12 AM



AVERAGE SOLAR IRRADIANCE

324.6 W/M²

AVERAGE TEMPERATURE

392.2 °C

AVERAGE PRESSURE

1018.316 MB

AVERAGE HUMIDITY

65532



Dashboard Home Page



SCEC DASHBOARD

Home

Apple

Bumblebee

Cranberry

Guava

AVERAGE SOLAR IRRADIANCE

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AVERAGE PRESSURE

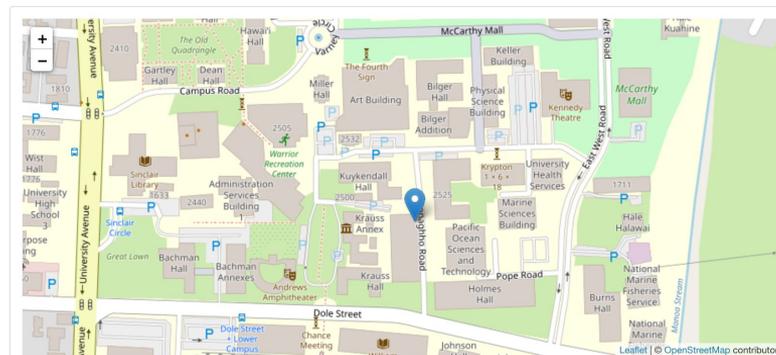
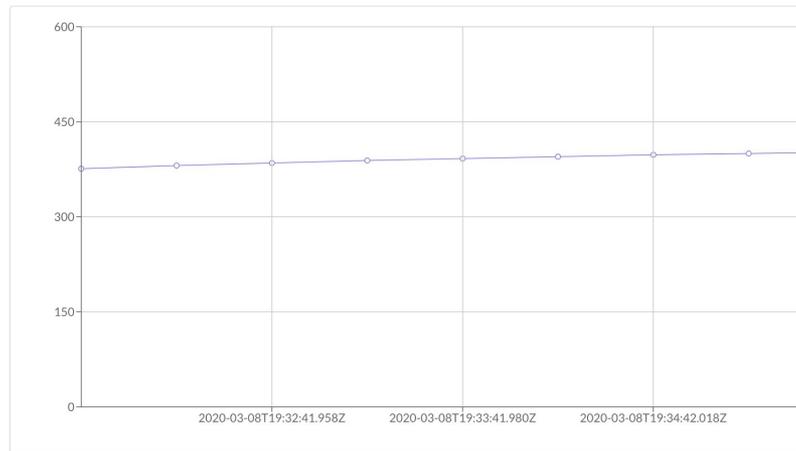
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AVERAGE HUMIDITY

65532

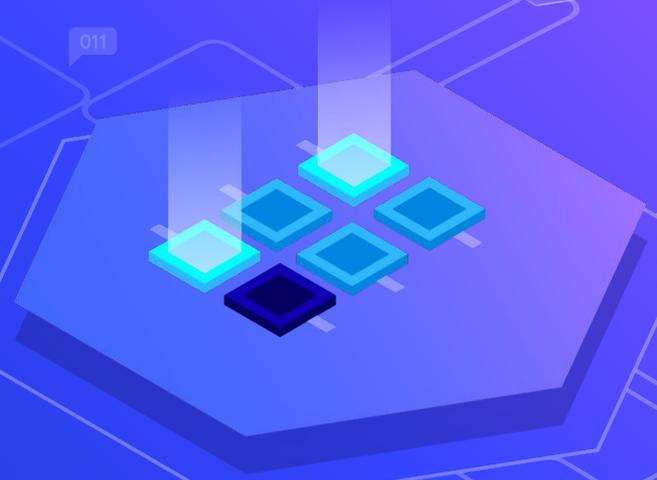
Apple Data

Last Updated: 3/8/2020, 9:36:12 AM



Dashboard Apple Page

Future Tasks & Improvements





Future Tasks & Improvements

Tasks

- Clean/Update CSS styling of Dashboard
- Documentation for Future Dashboard teams
- EE 496 Poster Session
- Complete EE Final Report

Improvements

- Deploy website on online server instead of locally
- Connect Map component when GPS tracking is available
- Change graphs according to what the user clicks on
- Update database to accept online requests rather than SSH tunneling
- Clean up data requests in backend → frontend
 - e.g. using Redux
- Work closer with firmware to get real time data flowing into dashboard



Gantt Chart (revised)

001



010



Questions?

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