sddec24-11

Team Members

Tayler Barnhart - Team Leader, Cloud Integration

Amanda Friis - Full Stack Developer, Documentation

Nathan Geater - Full Stack Developer (Back End)

Alex Brown - Front End Development Leader

Muralikrishna Patibandla - Integration & Back End Development Lead

Who is this for?

User: Butterfly Pavilion Entomologists

What they do:

- Track butterfly shipment data
- Track daily release data
- Track butterfly longevity

Why this is difficult:

- Not user-friendly
- Time-consuming
- Tedious

User: Guests

What they want:

- Learn about butterflies
- Have memorable experiences
- Connect with the pavilion

Why this is difficult:

- Often rely on volunteers
- No easy way to find species that are in the pavilion

How can we solve these problems?

Two Main Deliverables

flutr.org

flutr

Kiosk

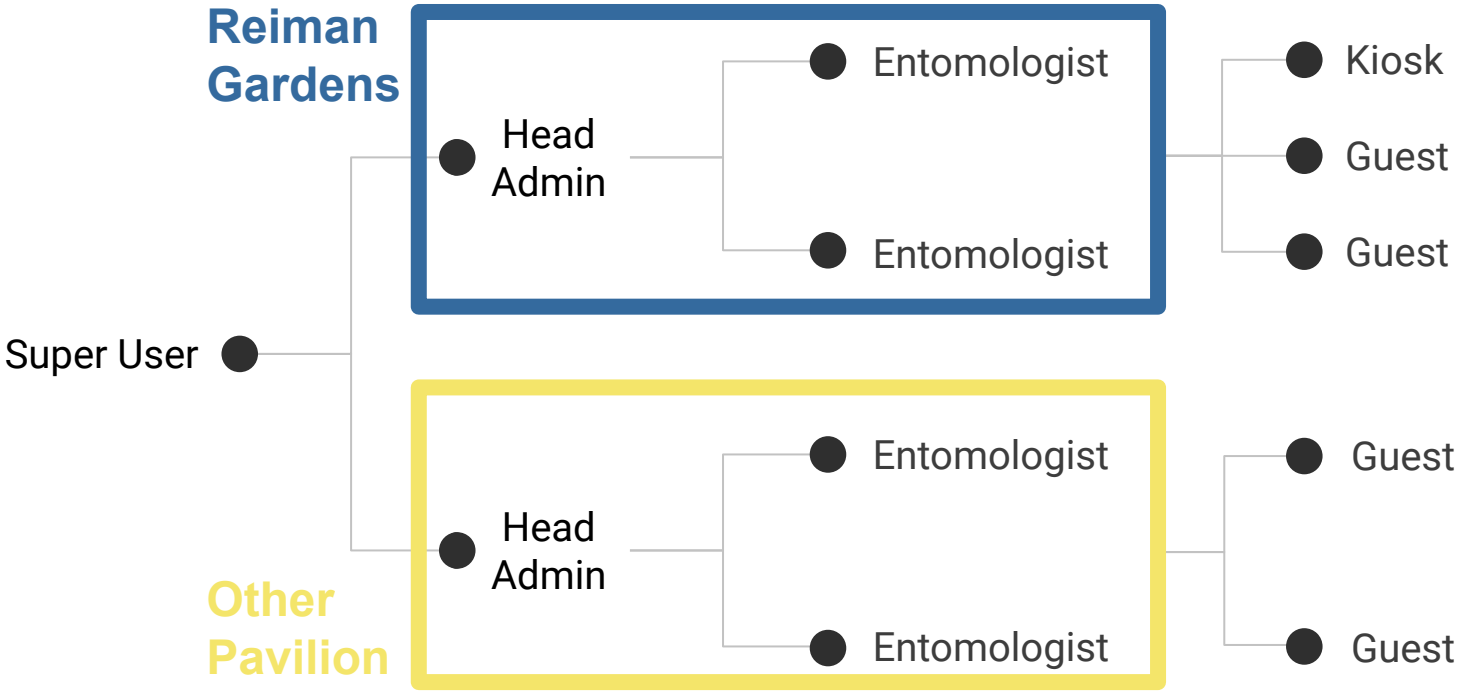
flutr.org

Overall Goal

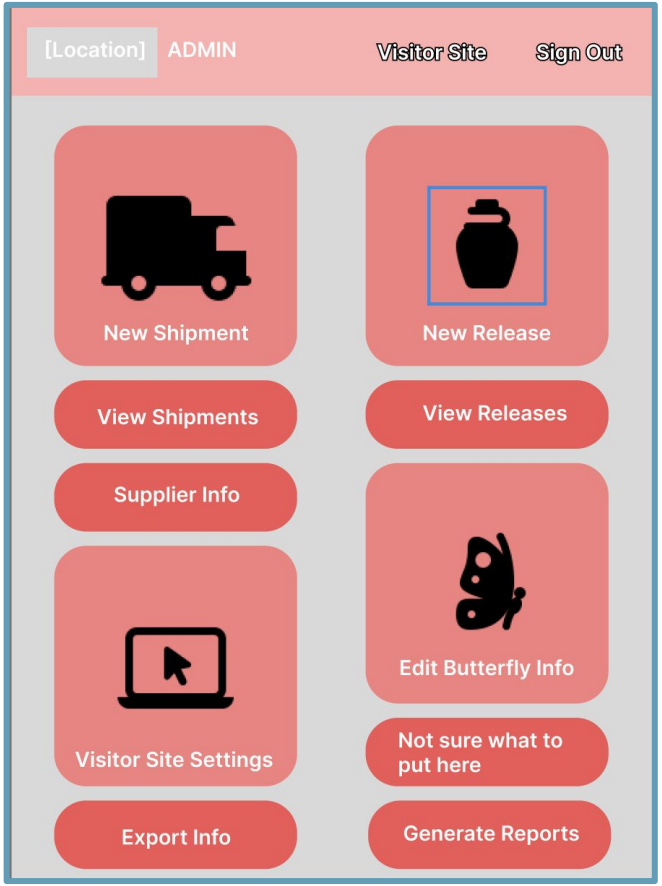
Create an application that can:

- Assist entomologists
- Educate and connect to guests
- Be customizable and distributable
- Be user-friendly

User Hierarchy



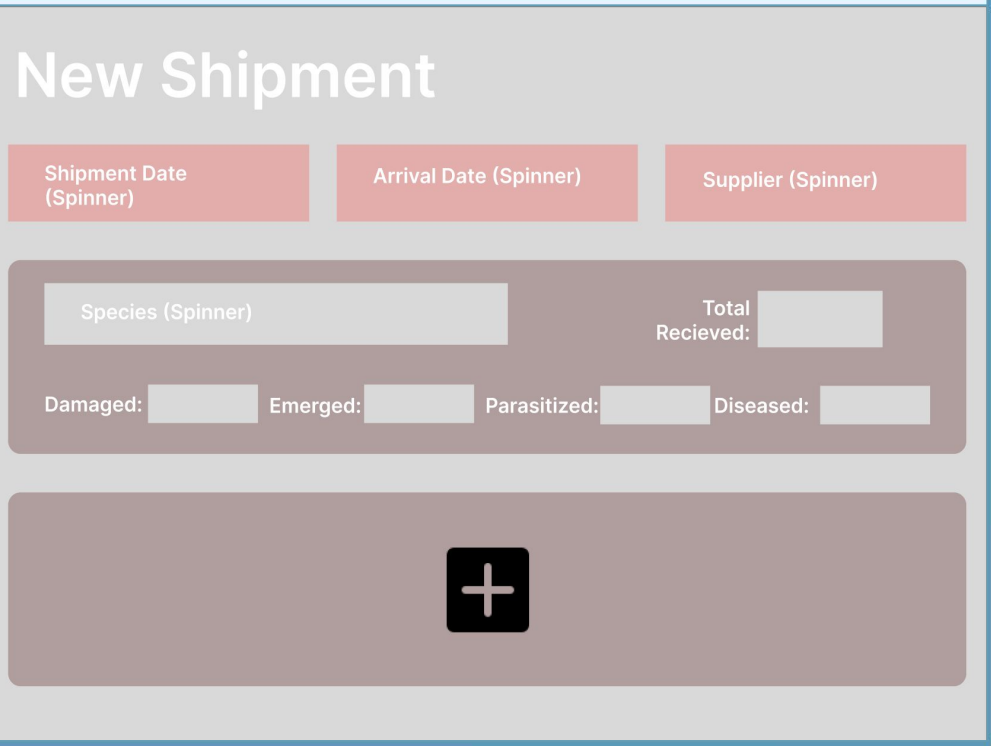
Functionality for Admins



Tracking Shipments

How this helps our user:

- Faster than by hand
- Less prone to human error
- Makes daily releases easier
- Data can be exported and sent to USDA



Tracking Daily Releases & Butterfly Longevity

How this helps our user:

- Keeps track of how many butterflies released vs incubated
- Butterflies ‘dropped’ after expected lifespan
- Information used for guest facing statistics

Functionality for Guests

A Place to Learn

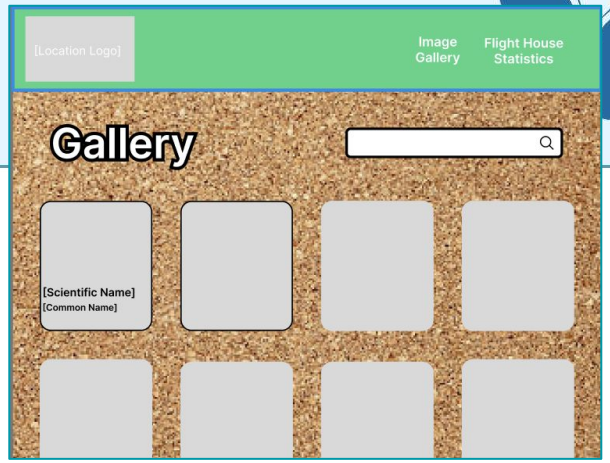
How this helps our user:

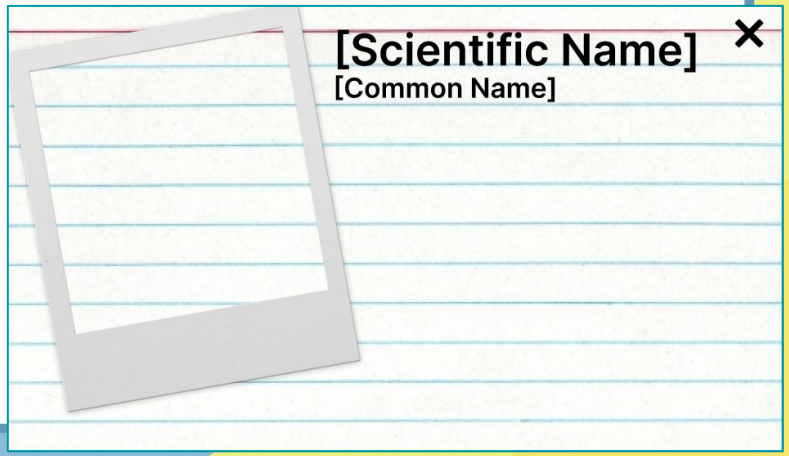
- Acts as homepage for guests
- Fully customizable
- Promote events
- Guests can find pavilion information
- Guests can view statistics

Adding Interactive Elements

How this helps our user:

- Lists all butterfly species
- Can expand a butterfly to find more information
- Can toggle to only see butterflies within a pavilion
- Accessible within pavilion





Project Plan

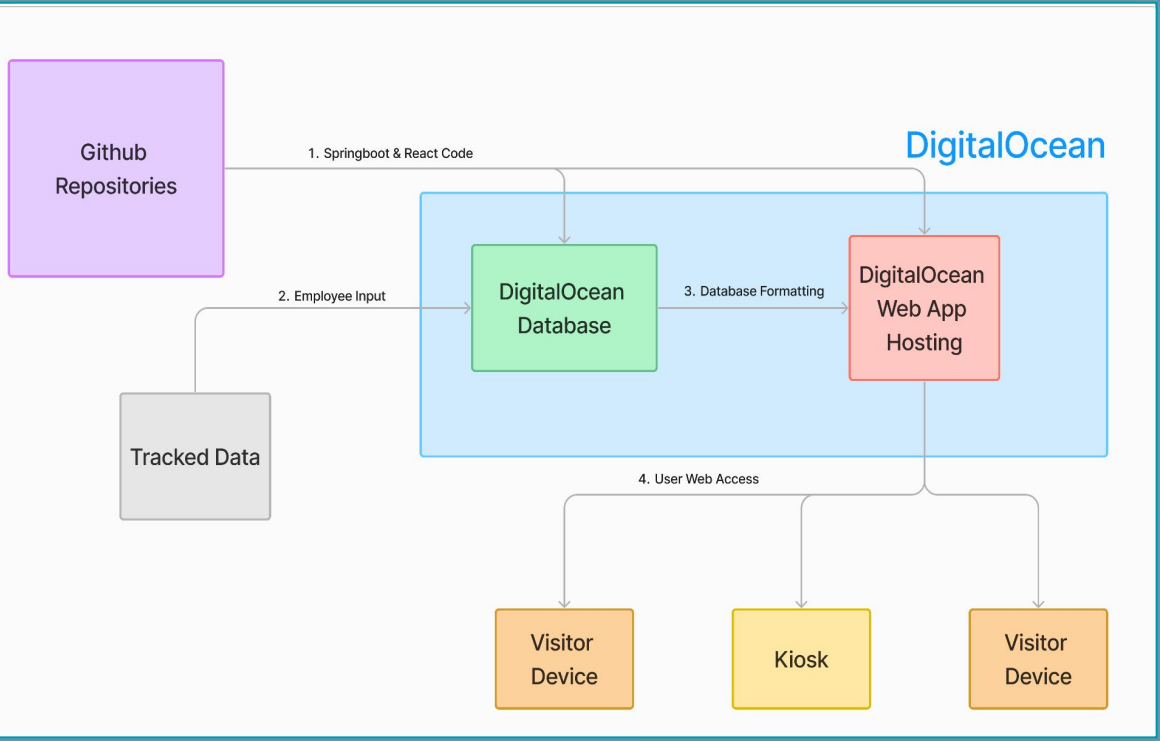
Design Overview

Cloud System - DigitalOcean

Backend - Springboot + MongoDB

Frontend - React Javascript

Code Management - Github



Cloud System - Digital Ocean

What Does DigitalOcean Offer?

“Droplets”

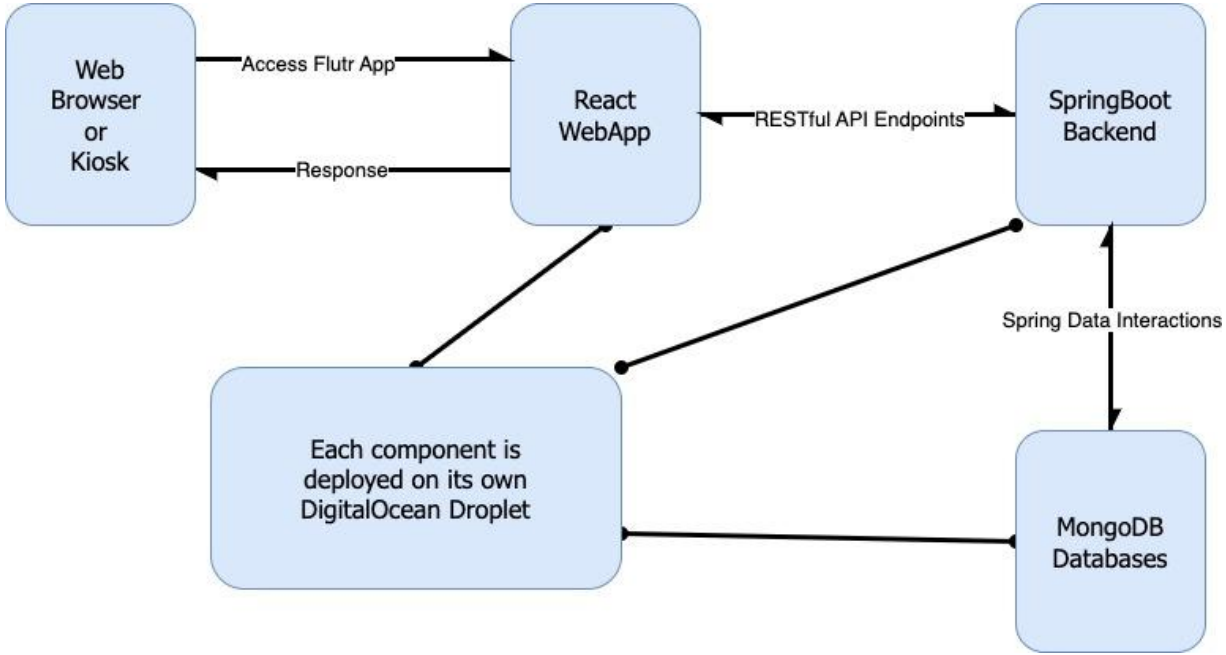
- Virtually Hosted Linux Machine
- Easily Scalable
- Very Reliable

Why DigitalOcean?

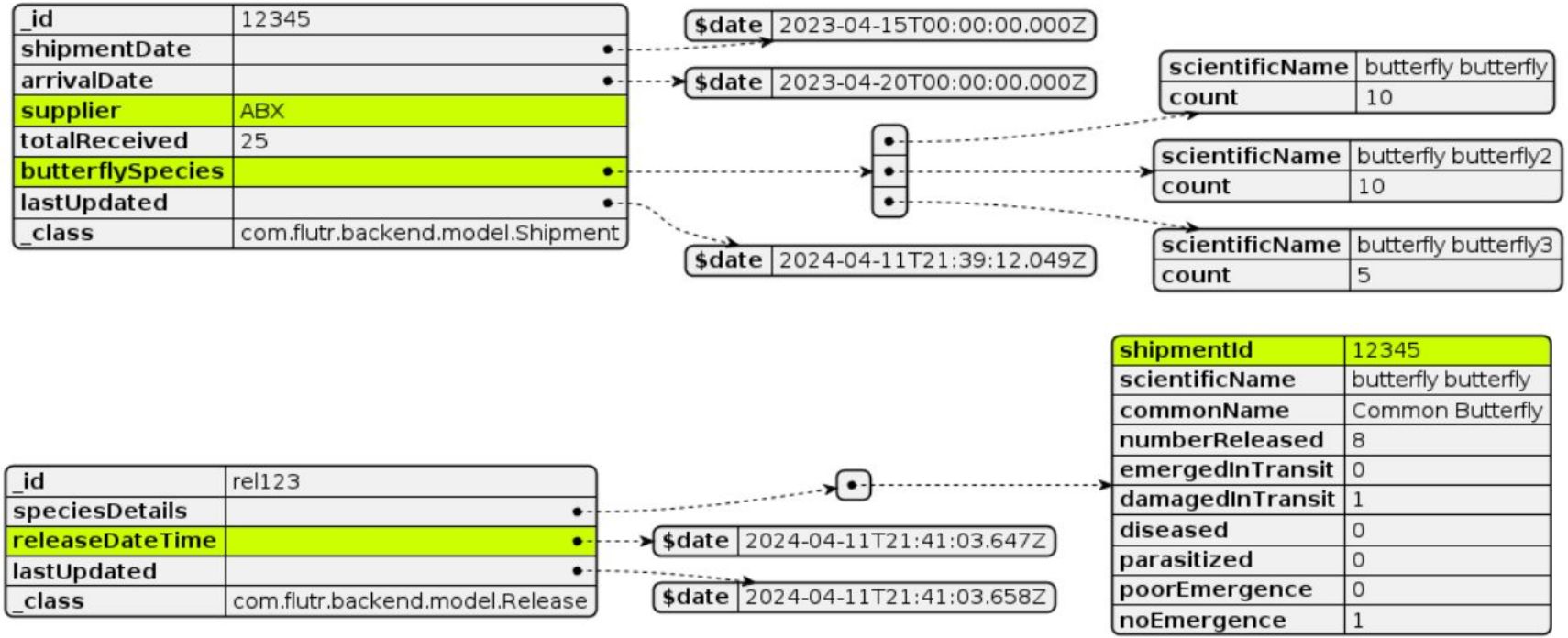
- Simple Hosting Interface
- Cheaper than Alternatives
- Previous system is on DigitalOcean

Backend

- SpringBoot Backend and RESTful endpoints
- MongoDB database architecture
- Digital Ocean Cloud hosting



Database Schemas



Next Steps/Challenges

Being Developed in React.js:

- Logic for automatic database updates
- User Authentication and Security
- Importing and Exporting Data
- Integration with Frontend and Cloud

Challenges:

- Data Security, User Authorization
- Data Mapping with old data

Frontend

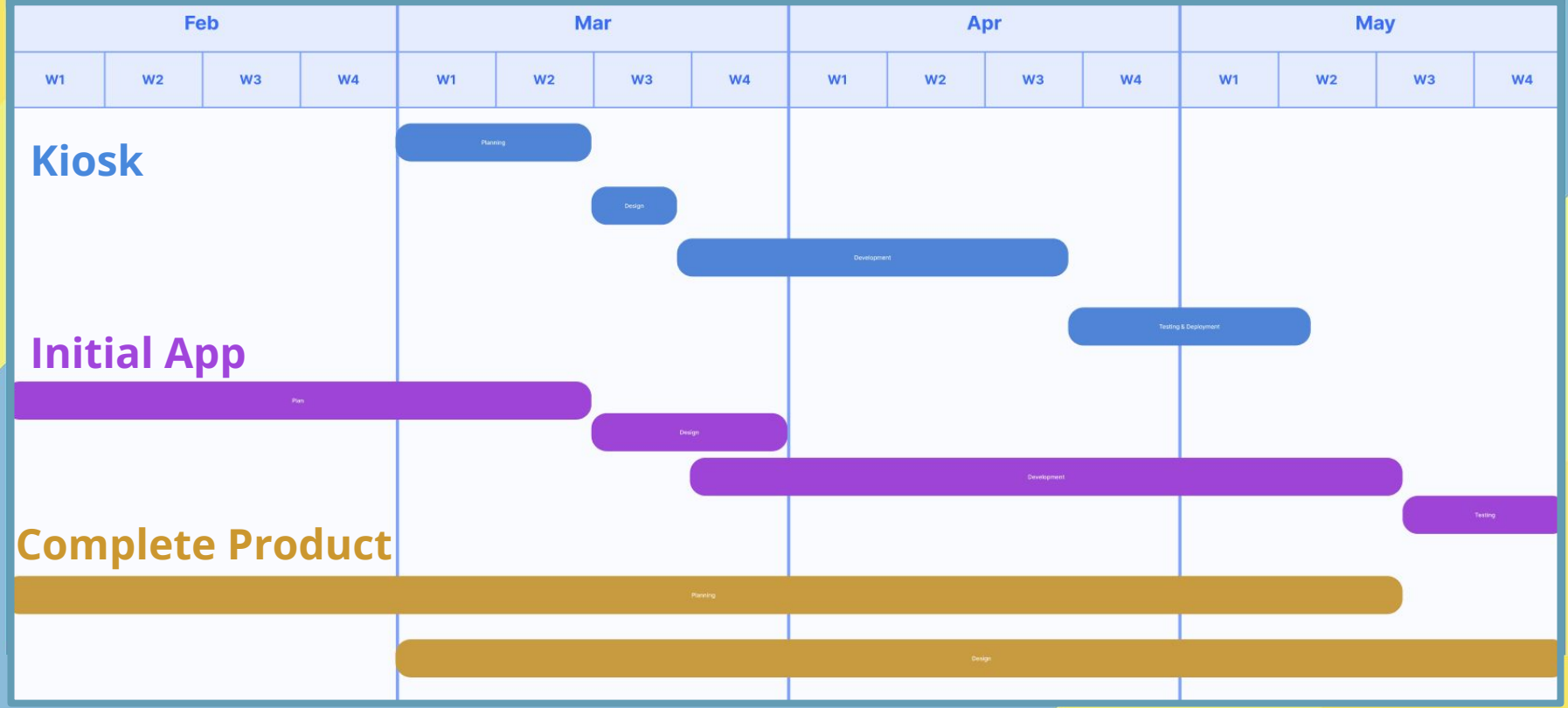
Being Developed in React.js:

- Client wanted a balance of new cutting edge technology, and proven technology
- React is backed by major players, yet open source.

Next Steps:

- More Page Templates
- Backend Integration
- Work on Security

Timeline


Feb
Mar
Apr
May
W1
W2
W3
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W4
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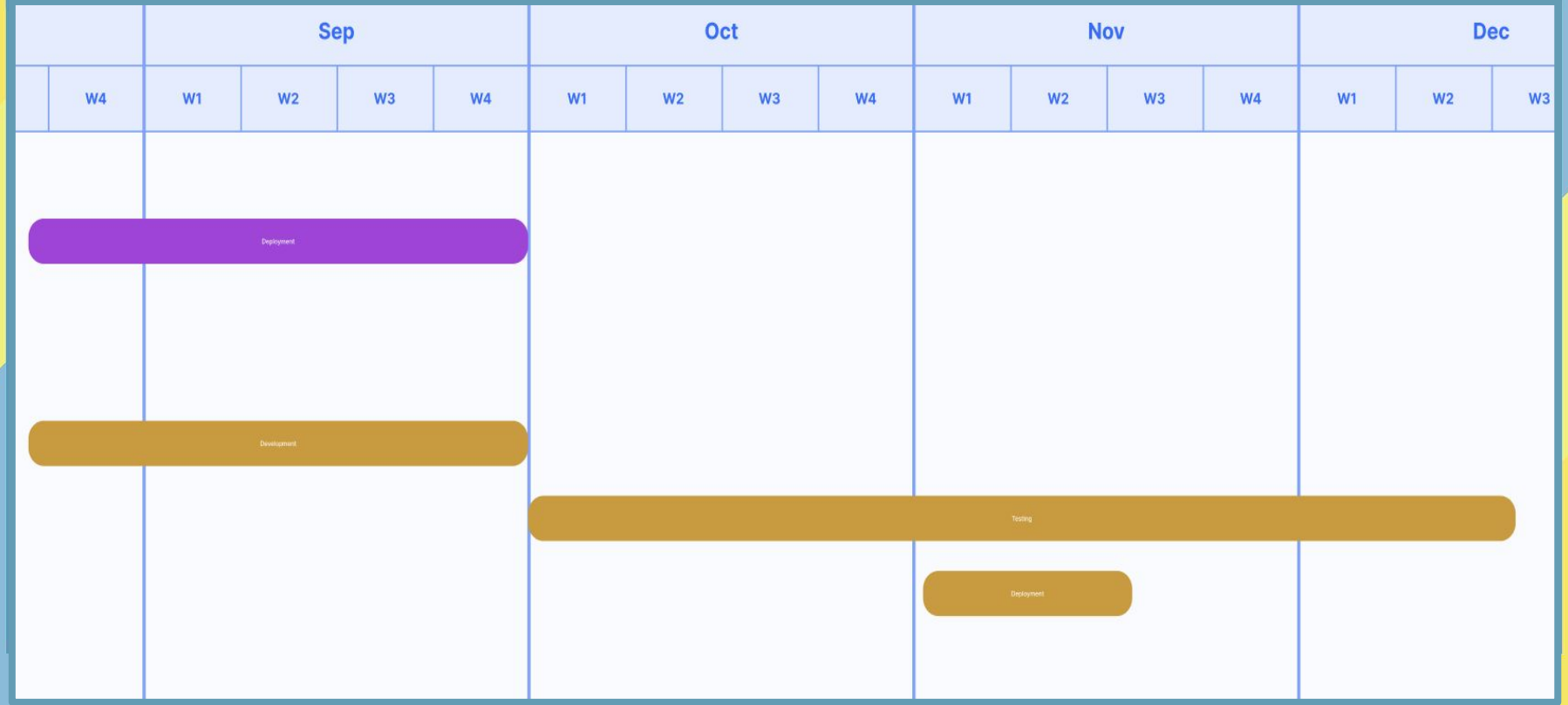
W2
W3
W4
Kiosk
Planning
Design
Development
Testing & Deployment
Initial App
Plan
Design
Development
Testing
Complete Product
Planning
Design

Timeline Continued...



Kiosk

Kiosk

What's the problem?

- Current kiosk is broken
- Access to Flutr.org website might be limited for visitors
    - Internet problems, no mobile device, etc

Who does this problem affect?

- Visitors!

Kiosk

What's our solution?

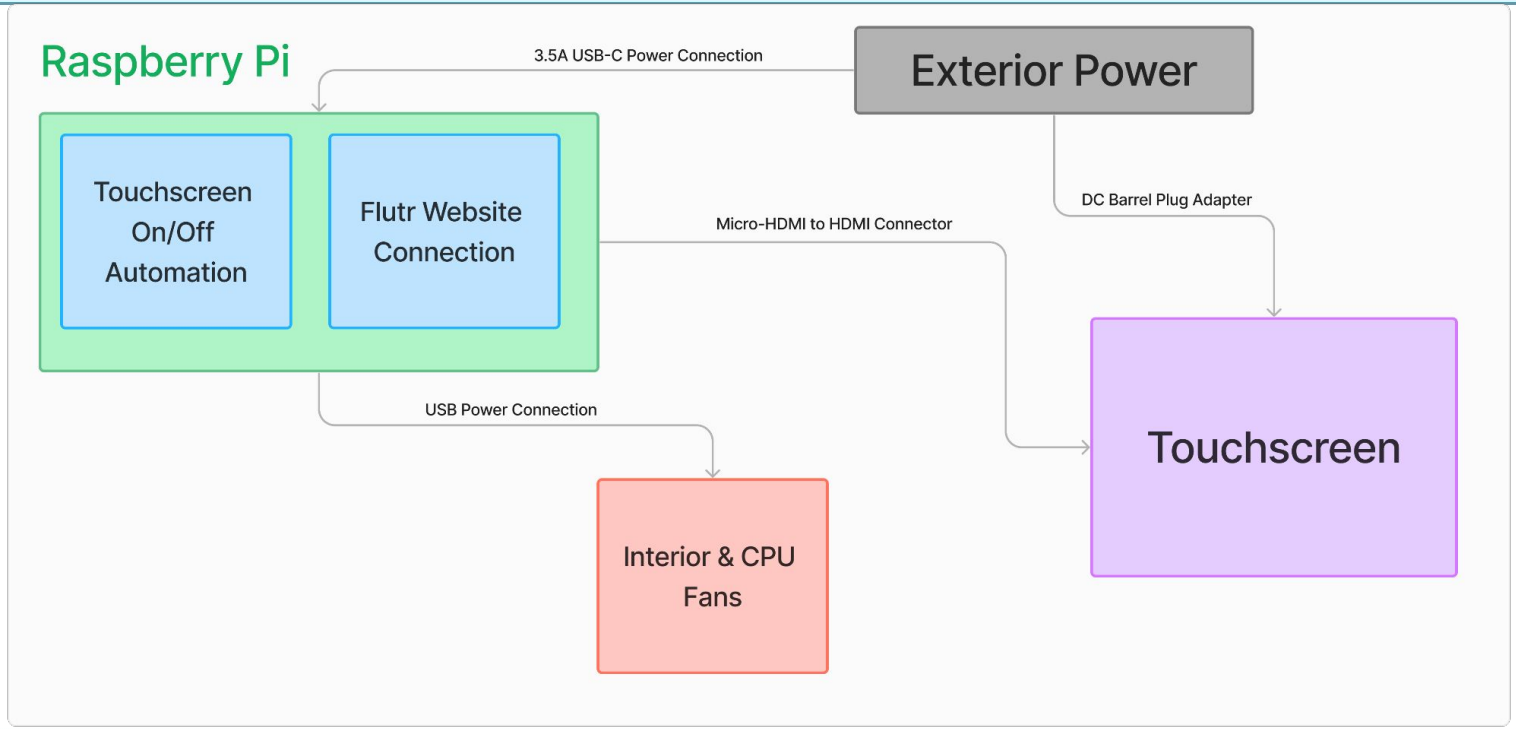
Replace the inner-kiosk computer parts

- Relatively simple process
- Wide range of possible solutions

Design Decision - Raspberry Pi

- Cheap
- Lots of online libraries & support
- Small form factor
- Previous team member experience

Kiosk Connection Overview



Kiosk Potential Problems

Heat

The computer area is HOT!

- 80℉, 80% Humidity

Solution

- Lots of interior fans
- Using a Raspberry Pi
- Heat monitoring command

Inner Access

- Someone will always try to “break” the system
- Preventing access outside of the Flutr.org website

Solution

- Custom “Kiosk mode” for the Flutr.org website

Conclusion

How does this help our users?

Entomologists

- Simplifies tracking
- Shipment data exporting
- Easily customizable

Guests

- Improves learning
- More interactivity
- Better gallery view
- Kiosk
    - Easier access

Thank you!