

# Internal Infrastructure Web Application



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Client: Hinckley Medical LLC

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## Problem Statement:

The sponsor company Hinckley Medical LLC does not currently have an effective way of tracking and managing internal operations. To improve day-to-day operations we created a web application to offer these services.

## Intended Users and Uses:

- Uses are to be able to check Inventory data, Shipment Data and Servability Data
- Users:
  - Guest
    - No user credentials
  - Department Head
    - Control what departments would like to access/control
  - Employee
    - Hinckley Medical employee, contractor, intern, etc
    - Access to all pages in application
  - Administrator
    - Hinckley Medical founders and managers
    - Access and control on all pages

## Design Requirements:

### Functional Requirements

- Login Page
- Home Page
- Inventory Page
- Shipment Page
- Serviceability Page

### Non-Functional Requirements

- System needs to be reliable and interactive
- Needs to be able to store user data safely and securely
- Needs to require low maintenance

### Engineering Constraints:

- Working product after two semesters
- Low cost web application
- Offline compatibility

### Operating Environment

- Web app developed using AWS
- Website able to accessed by both clients and admins of Hinckley Medical

## Relevant Standards

- AES-256 encryption - The Advanced Encryption Standard (AES) specifies a FIPS-approved cryptographic algorithm that can be used to protect electronic data. The AES algorithm is a symmetric block cipher that can encrypt (encipher) and decrypt (decipher) information.
- IEEE-23026-2015 - Systems and software engineering- Engineering and management of websites for systems, software, and services information

## Design Approach:

- Stage 1: Planning
  - Tool: Miro Boards
  - We used our team's Miro Board to document the functionality and design of each page in our webapp.
  - For functionality, we conferred with Hinckley Medical employees to ensure that our product would meet their needs.
  - Once we knew what our sponsor company needed from our project, we discussed high level designs such as what core UI elements would be needed for each page.
- Stage 2: Prototyping
  - Tool: Figma Wireframes
  - Once we knew the basic UI elements we needed on each page, we developed mock-ups of each page using Figma.
  - More conversations with our sponsor company lead to minor tweaks in our initial page mock-ups.
- Stage 3: Iterative Implementation
  - Once we knew how we wanted to lay out the UI and what the functionality for each page needed to be, we created functional pages.
  - Regular conversations with our sponsor company ensured that we were able to get fast feedback on each page as it was being developed.

## Technical Details:

- AWS Amplify
  - AWS Amplify to develop our website with a cloud based backend
  - Provides Amplify Studio UI for development
- Amplify Data Store
  - Serverless website approach
- AWS Cognito
  - Amazon Cognito provides authentication, authorization, and user management for your web and mobile apps.
  - Users can login with account credentials or third party (Google, etc)
- AWS AppSync
  - Syncs local database changes to the cloud

## Testing:

- Development backend environment in AWS amplify
- Created unit tests that run and confirm the functionality of the pages
- All units tests were inserted into the CI/CD pipeline
- All merges must pass units tests
- After milestones were reached system testing was performed to ensure working
- Interface testing was performed on all AWS service calls to ensure proper use
- Acceptance testing was from the client company Hinckley Medical