MICHIGAN STATE UNIVERSITY

Project Plan Presentation

DRIVEN-4 Connect Application

The Capstone Experience

Team DRIVEN-4

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Fall 2024

From Students…
…to Professionals

Project Sponsor Overview

- DRIVEN-4 is an IT consulting firm
- Based out of St. Joseph, MI with global partners: Microsoft, Siemens, PTC, Planview…
- Numerous service offerings
- Currently developing hardware solution for IIoT

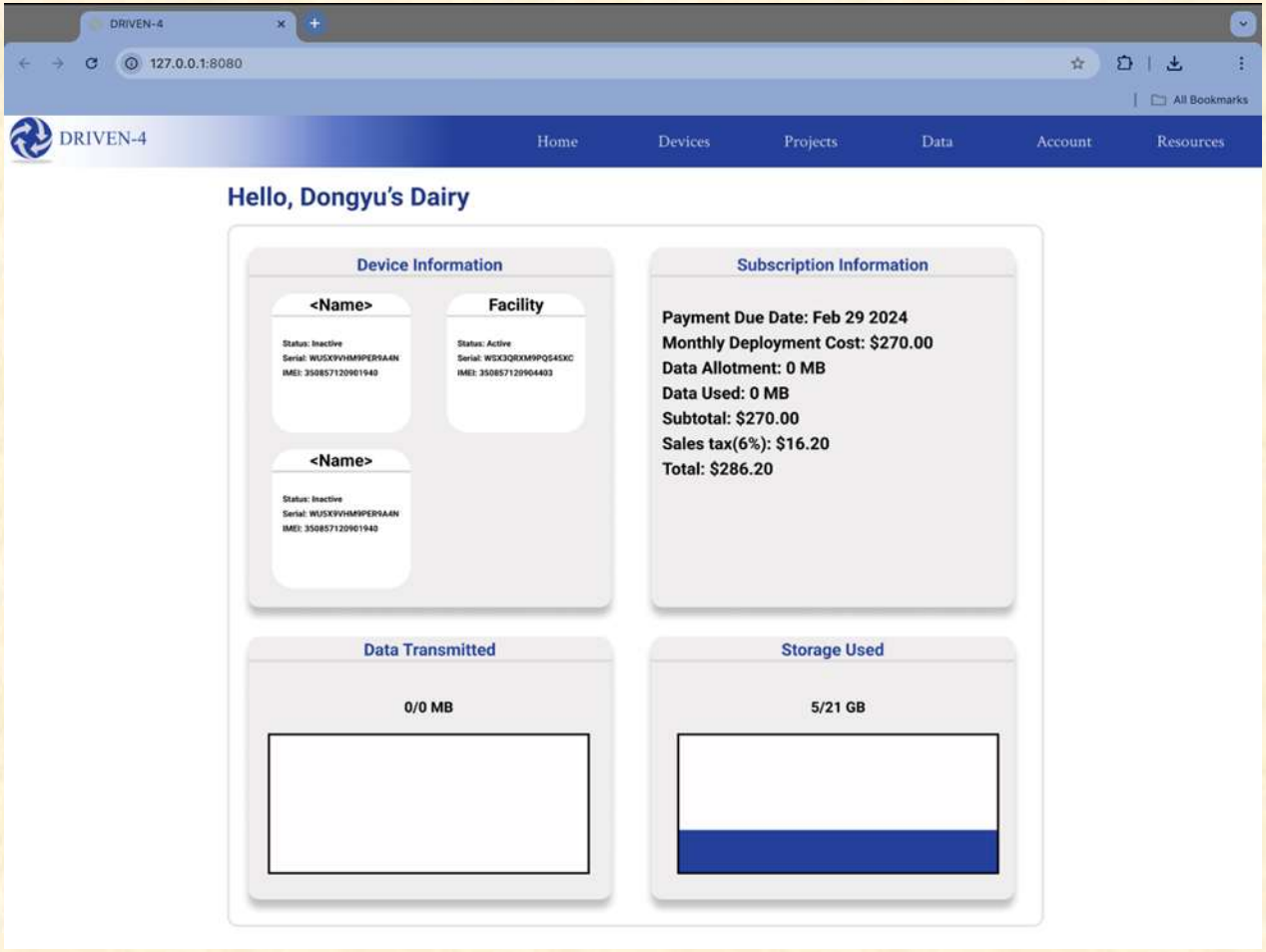
Project Functional Specifications

- Dashboard Enhancement
  - Automatically provide insights on consistent data stream
- Custom Scripting Capabilities
  - Improved data analysis capabilities
- API Management
  - Customizable data flow allowing external system integration
- Payment System Integration
  - Transaction processing, management, and security
- Hardware Library
  - Support to make hardware management seamless

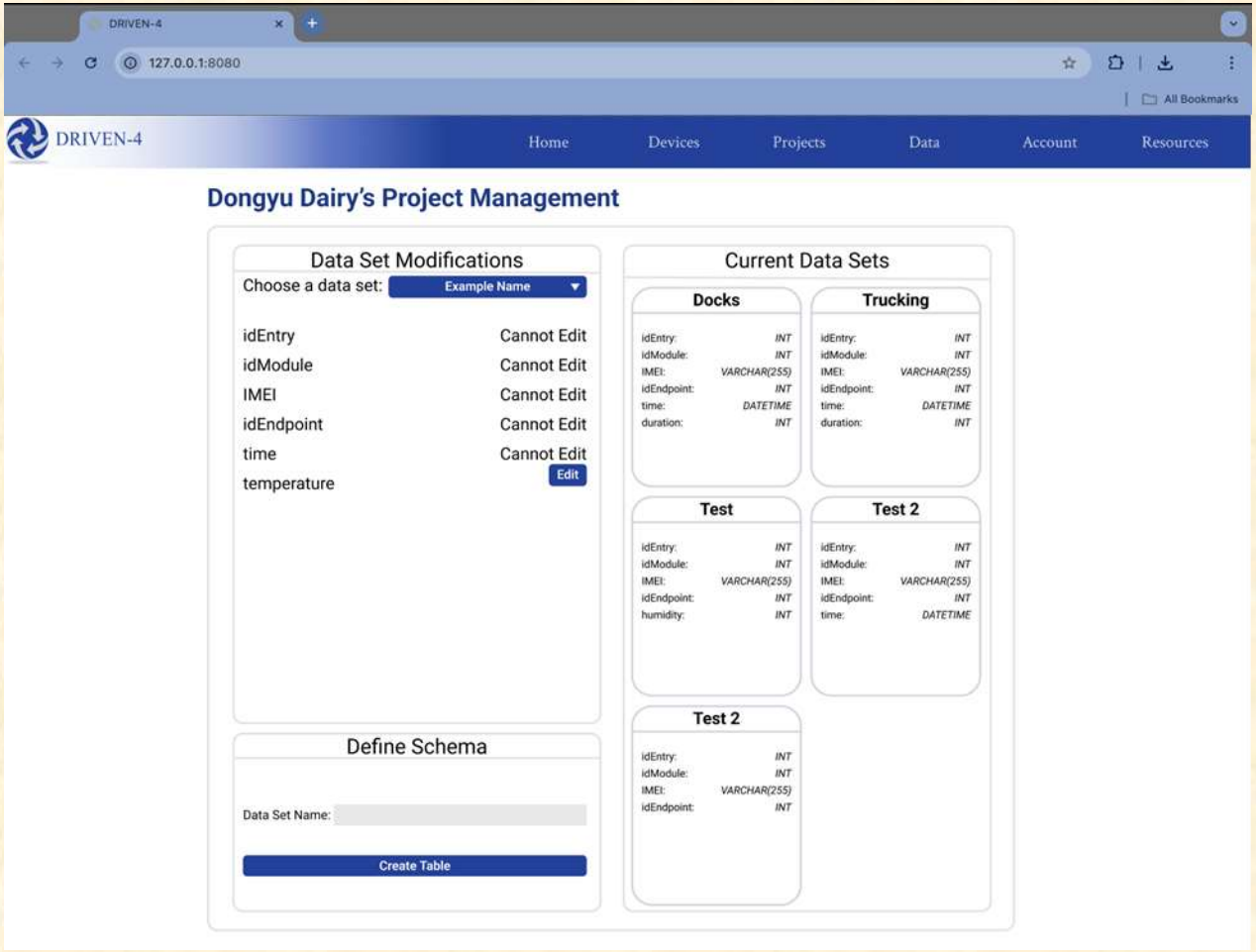
Project Design Specifications

- Company projects are displayed and can be modified
- Device interface where users can edit, update, or delete their devices
- Collected data is graphable and editable using data analysis scripts
- Account admin can view and manage user permissions
- Account admin interacts with payment information

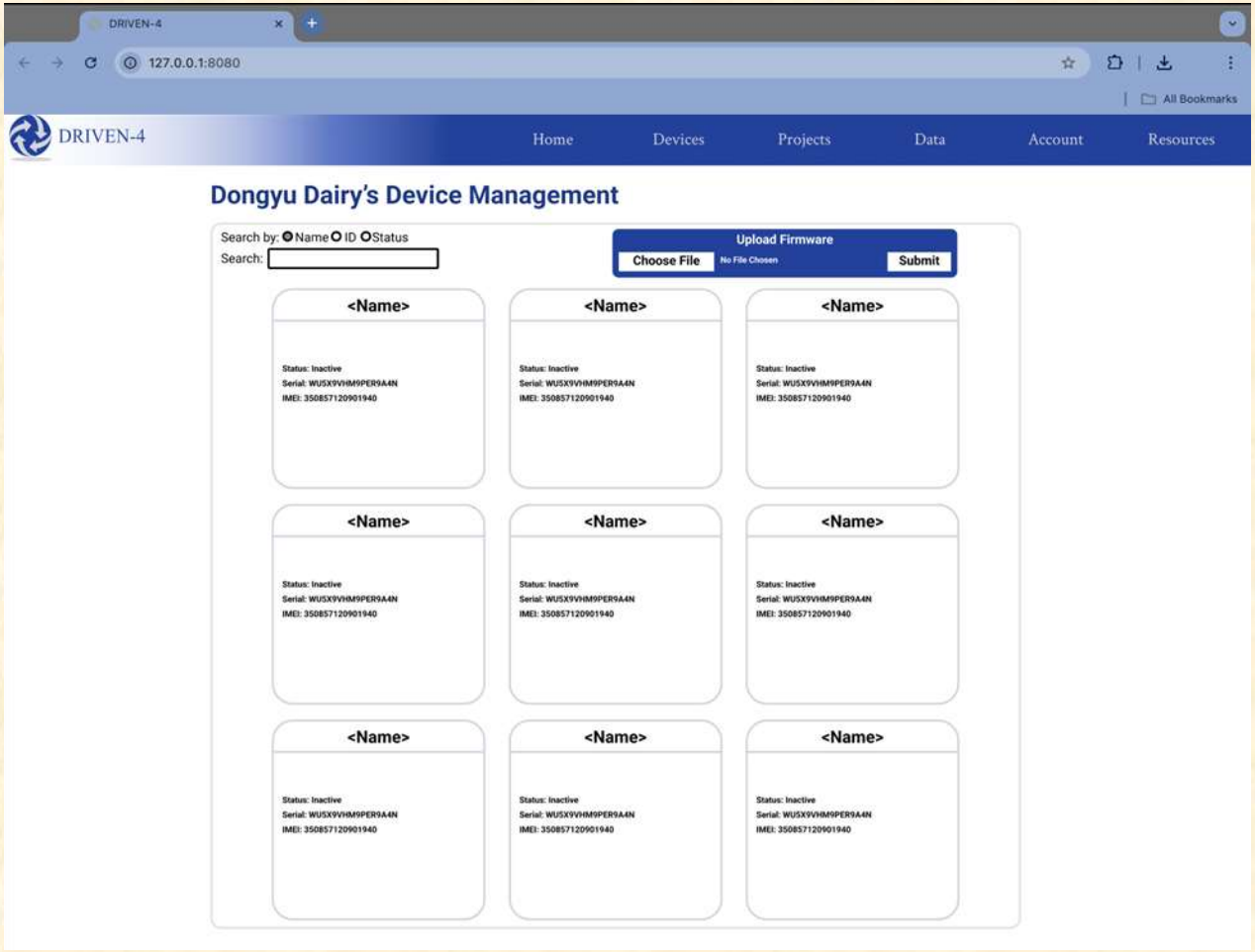
Screen Mockup: Home Page



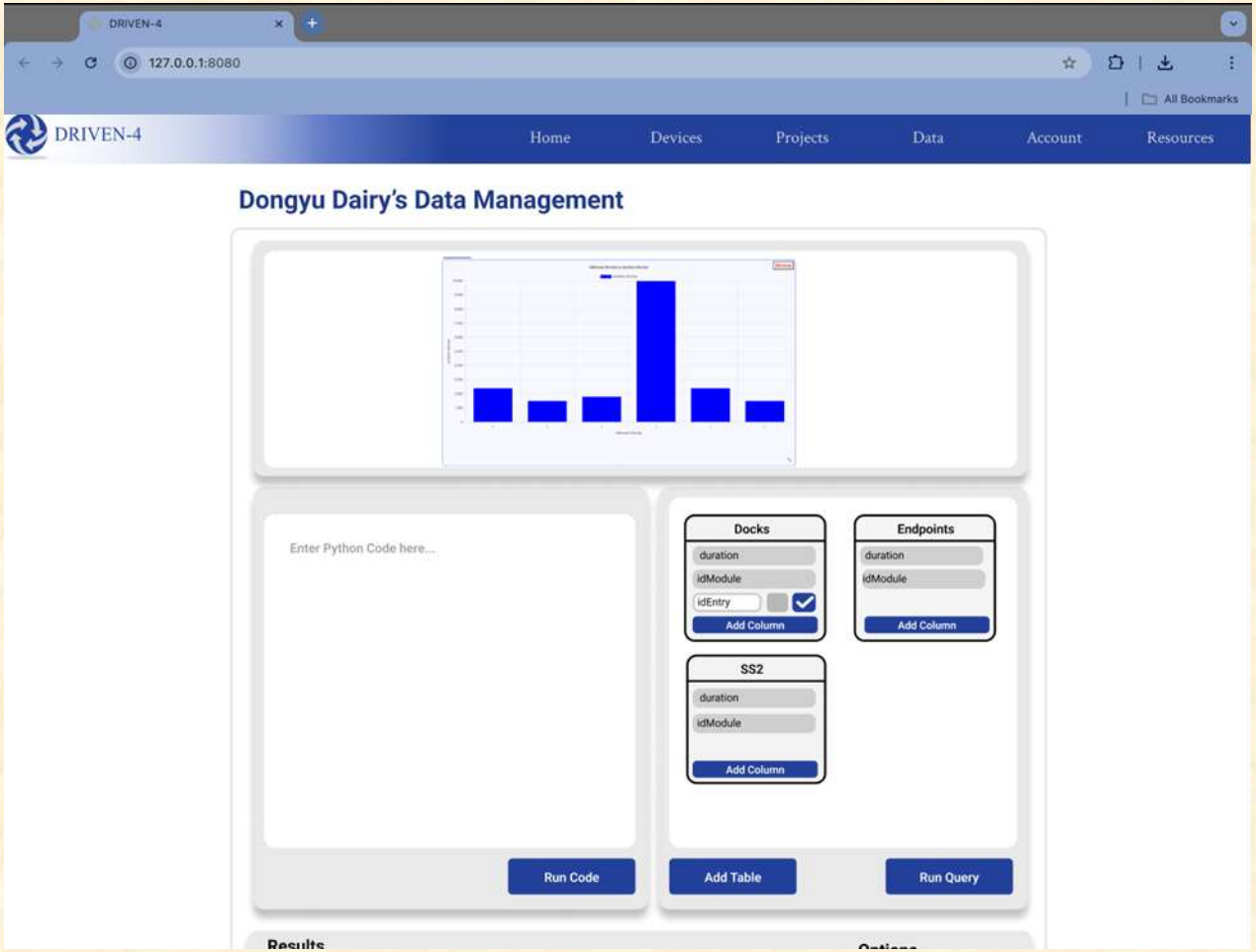
Screen Mockup: Project Management



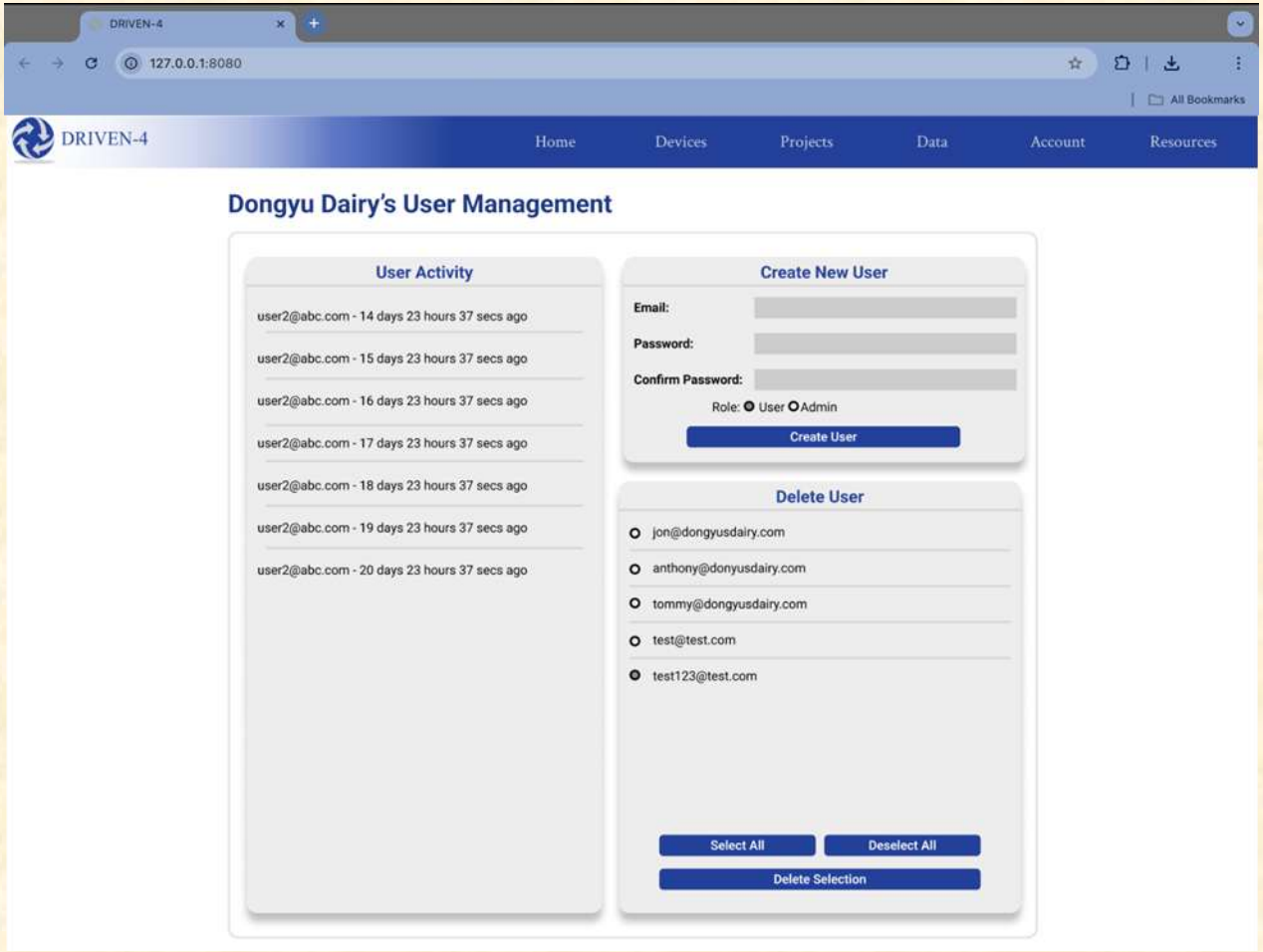
Screen Mockup: Device Management



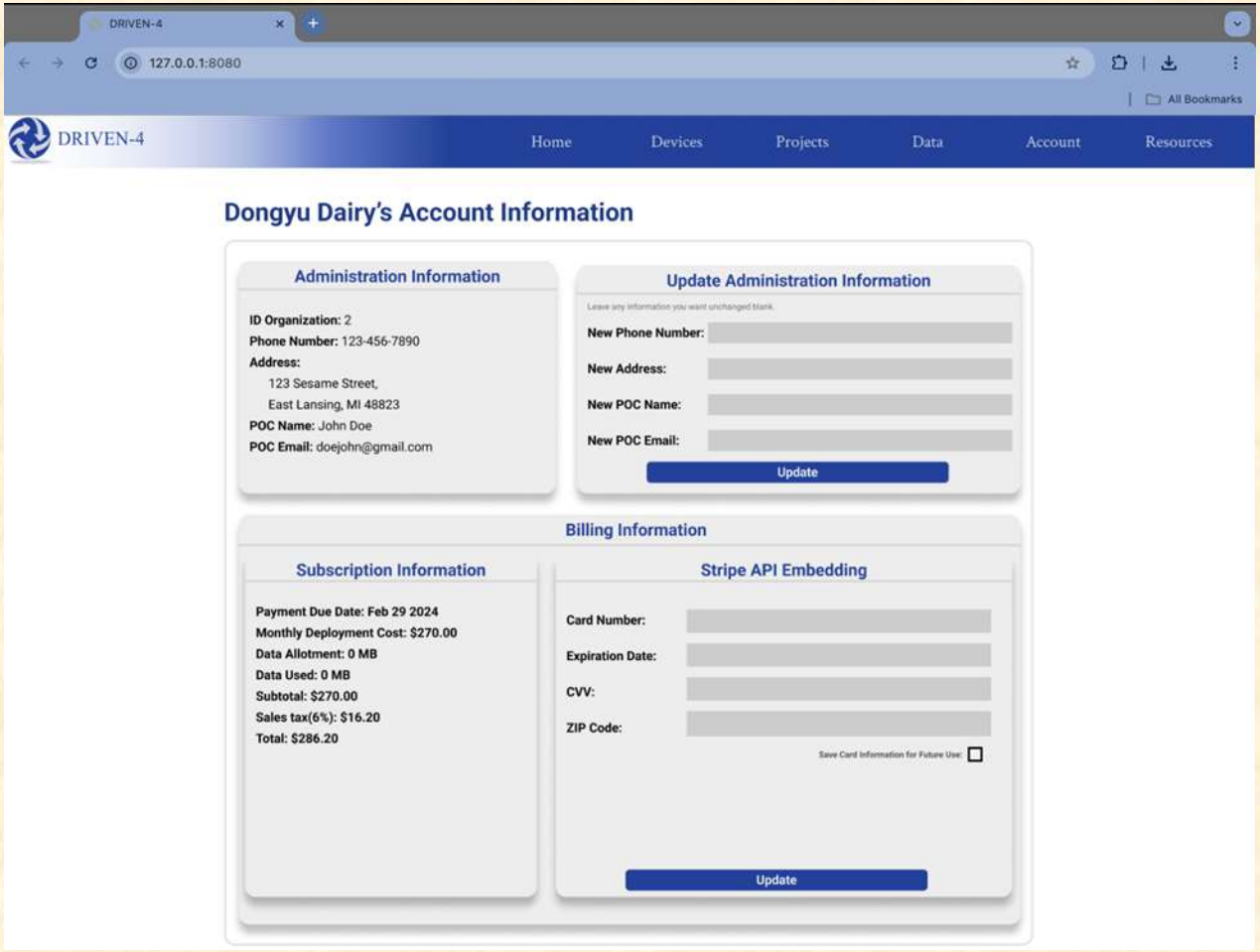
Screen Mockup: Data Management



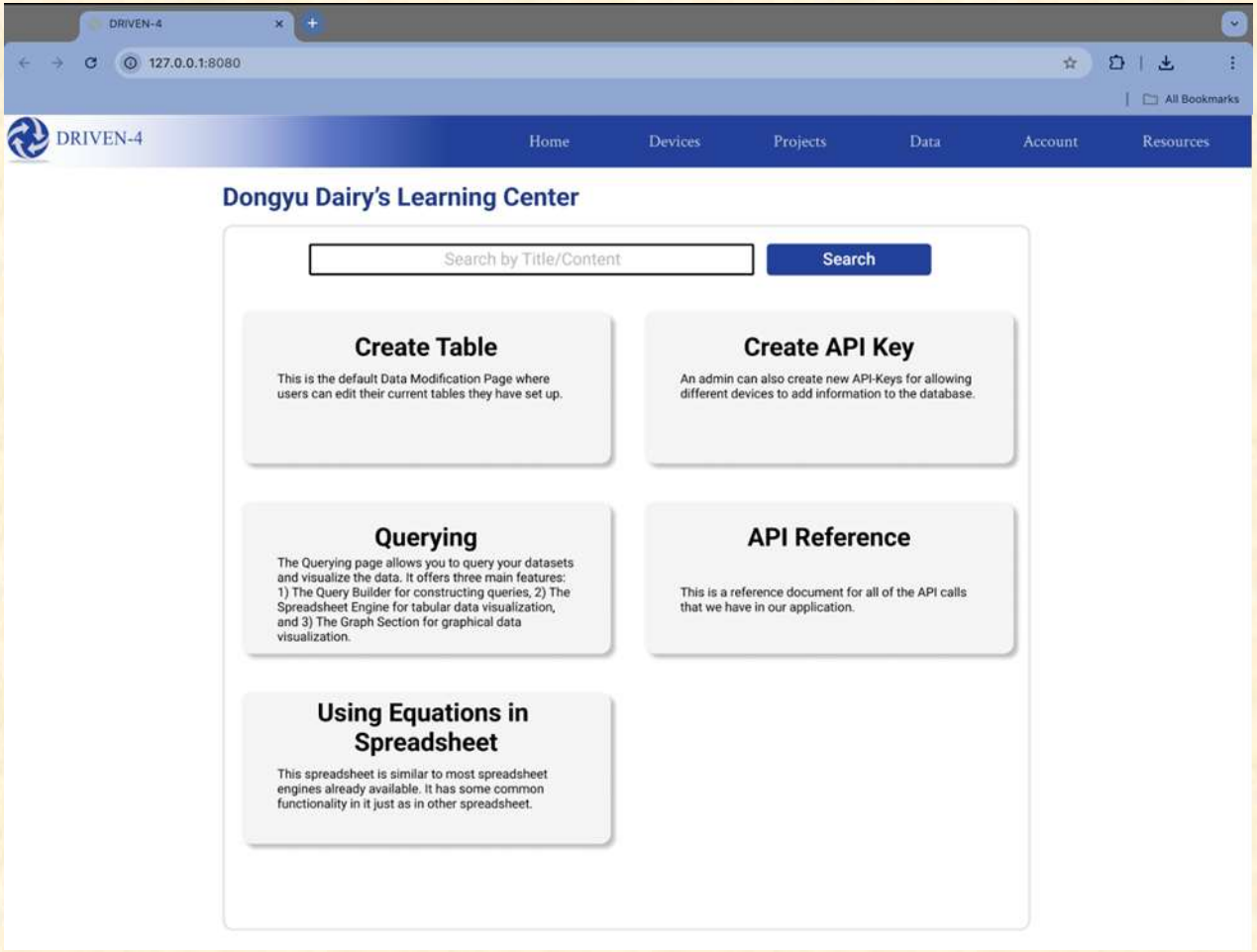
Screen Mockup: User Management



Screen Mockup: Account Page



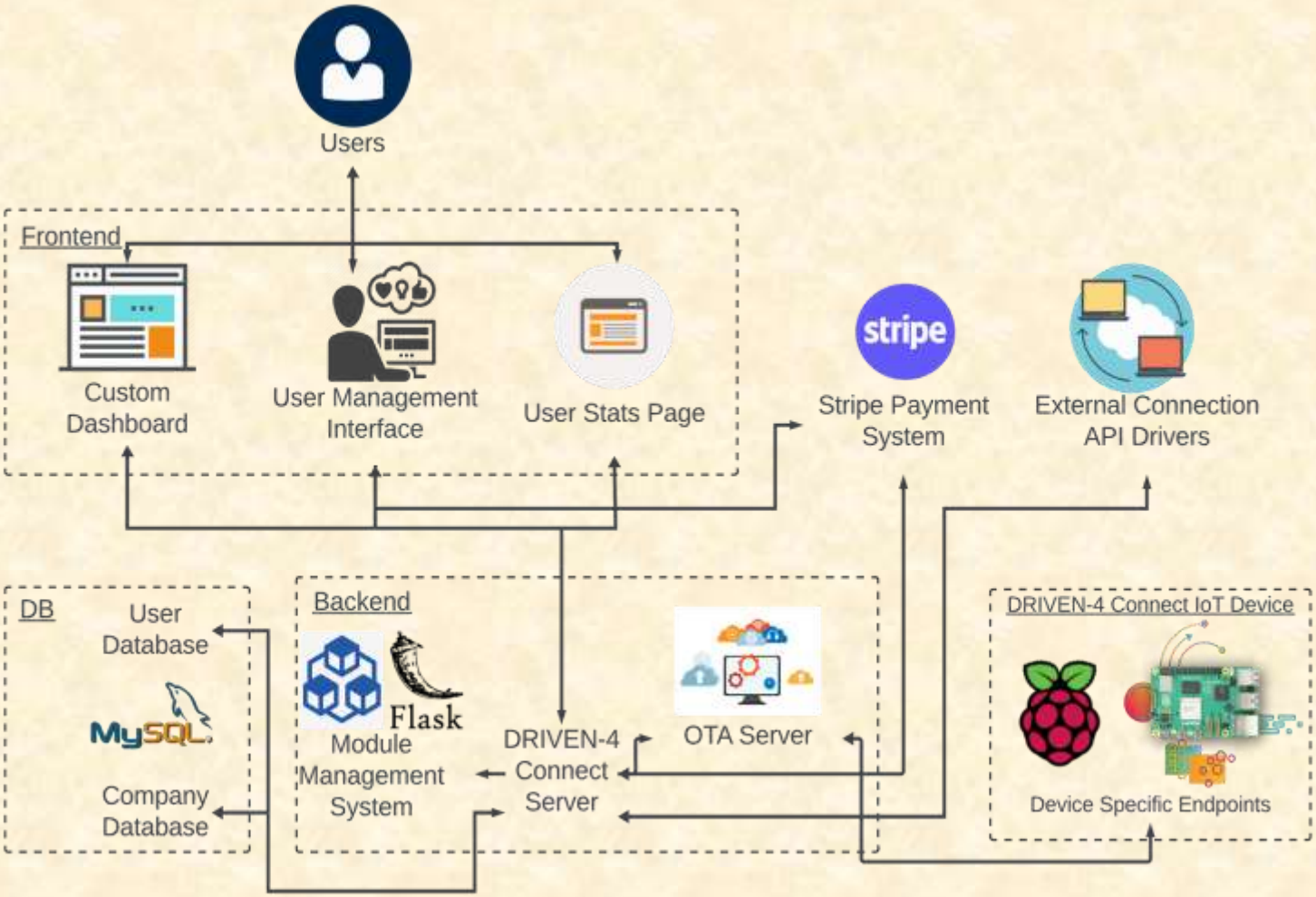
Screen Mockup: Learning Center



Project Technical Specifications

- AWS EC2 will host a web application
- Flask will serve HTML content for users and manage permissions
- Raspberry Pi devices will generate data and send it to an API endpoint
- Customers will maintain subscriptions and settle account balances using Stripe
- Users can create Python scripts and utilize SQL commands to interact with data directly

Project System Architecture



Project System Components

- Hardware Platforms
  - AWS EC2
  - MySQL database server
  - Raspberry Pi devices
- Software Platforms / Technologies
  - Flask
  - MySQL Workbench
  - Stripe

Project Risks

- Hardware Library Creation
  - Hardware libraries should provide flexibility and ease of use
  - Test hardware with provided equipment and C hardware functions
- Python Interpreter
  - Web app should consume Python instructions to create reusable executables that are stored within the customer database
  - Determine appropriate file storage method and create a prototype
- Interpreter Security
  - Client-entered data manipulation scripts cannot endanger the system
  - Utilize threat detection libraries and penetration testing to ensure deterrent
- Stripe Invoicing
  - Stripe payments platform needs to integrate with system database to track account status and billable amount
  - Use client-provided stripe API keys and test environment to mock all possible account statuses

Questions?