

MICHIGAN STATE

UNIVERSITY

Project Plan Presentation

DRIVEN-4 Connect Application

The Capstone Experience

Team DRIVEN-4

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*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

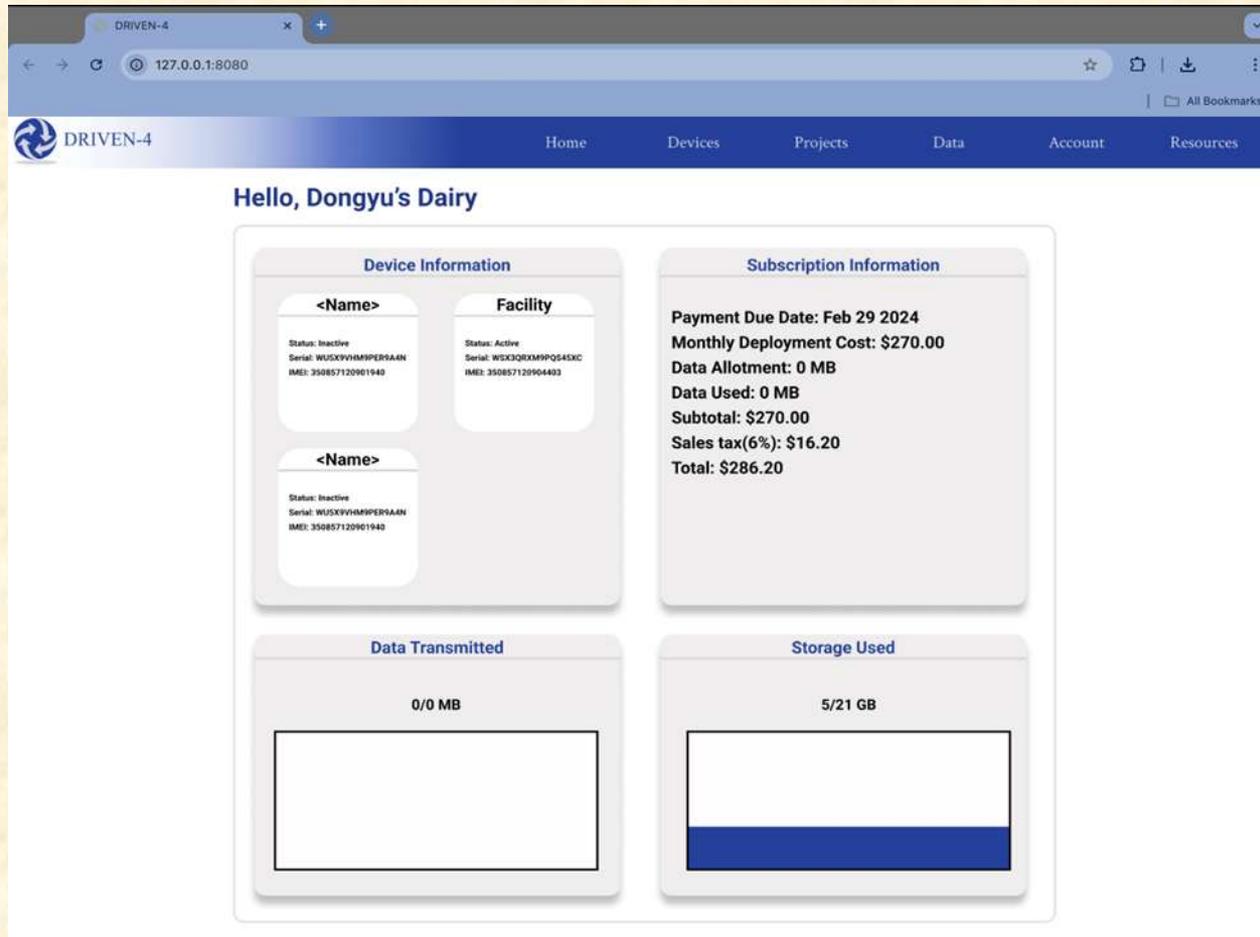


Project Design Specifications

- 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

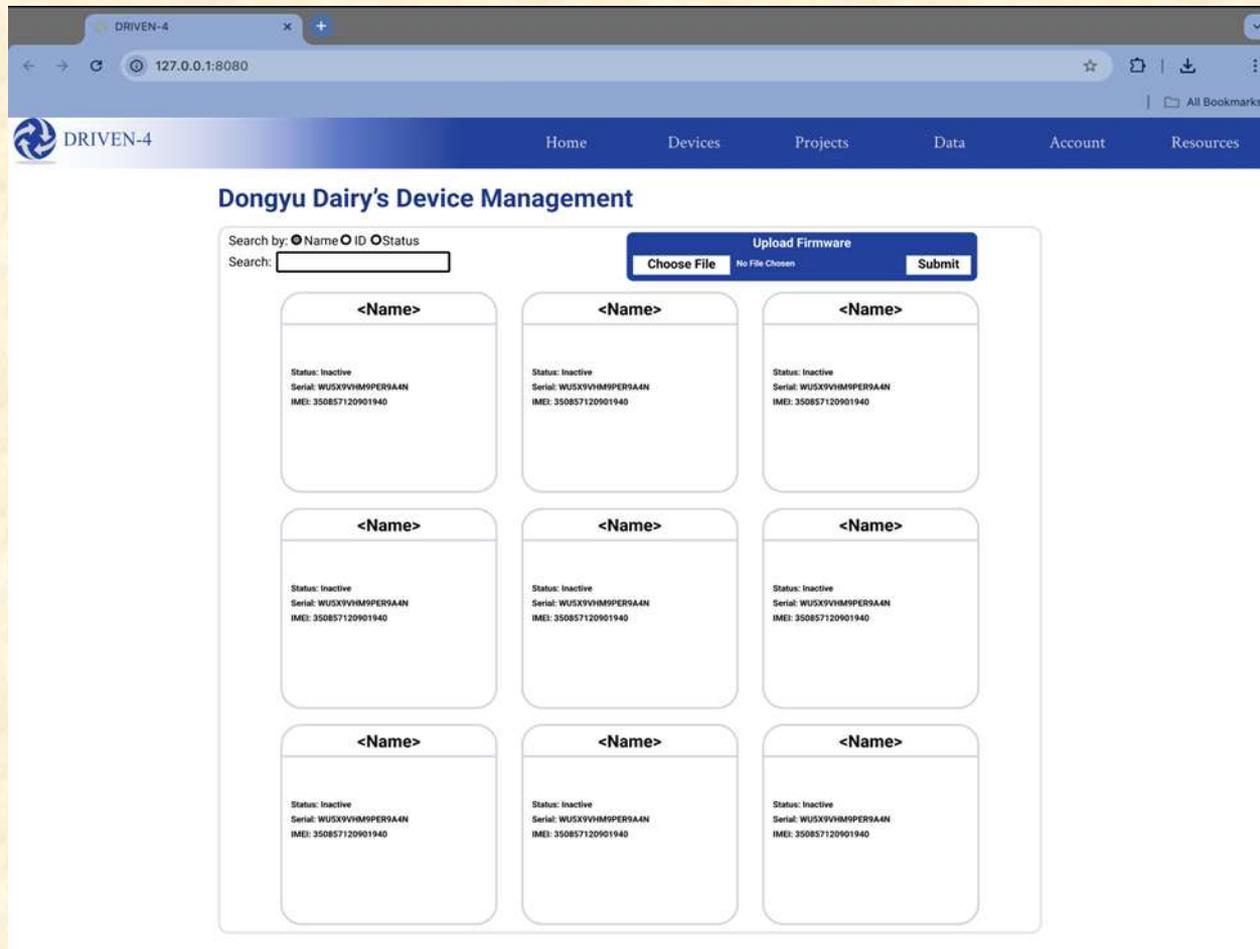


Screen Mockup: Project Management

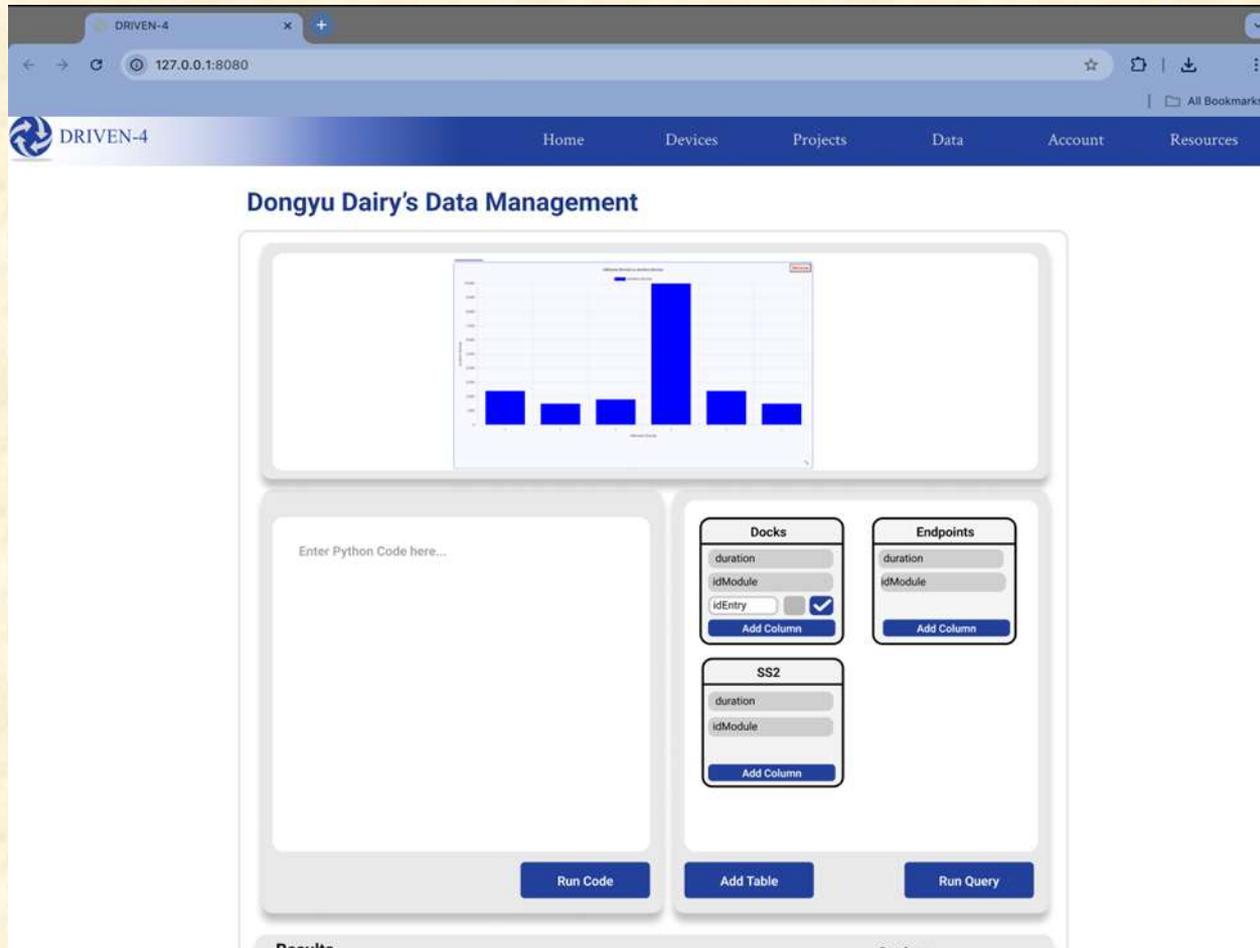
The screenshot displays a web browser window with the URL 127.0.0.1:8080. The application header includes the logo 'DRIVEN-4' and navigation links for Home, Devices, Projects, Data, Account, and Resources. The main content area is titled 'Dongyu Dairy's Project Management' and is divided into three sections:

- Data Set Modifications:** A section for editing existing data sets. It features a dropdown menu labeled 'Choose a data set:' with 'Example Name' selected. Below this, a list of fields is shown with their editability status:
 - idEntry: Cannot Edit
 - idModule: Cannot Edit
 - IMEI: Cannot Edit
 - idEndpoint: Cannot Edit
 - time: Cannot Edit
 - temperature: Cannot Edit (with an 'Edit' button next to it)
- Define Schema:** A section for creating new data sets. It includes a text input field for 'Data Set Name:' and a 'Create Table' button.
- Current Data Sets:** A section displaying four data set schemas:
 - Docks:** idEntry: INT, idModule: INT, IMEI: VARCHAR(255), idEndpoint: INT, time: DATETIME, duration: INT.
 - Trucking:** idEntry: INT, idModule: INT, IMEI: VARCHAR(255), idEndpoint: INT, time: DATETIME, duration: INT.
 - Test:** idEntry: INT, idModule: INT, IMEI: VARCHAR(255), idEndpoint: INT, humidity: INT.
 - Test 2:** idEntry: INT, idModule: INT, IMEI: VARCHAR(255), idEndpoint: INT, time: DATETIME.

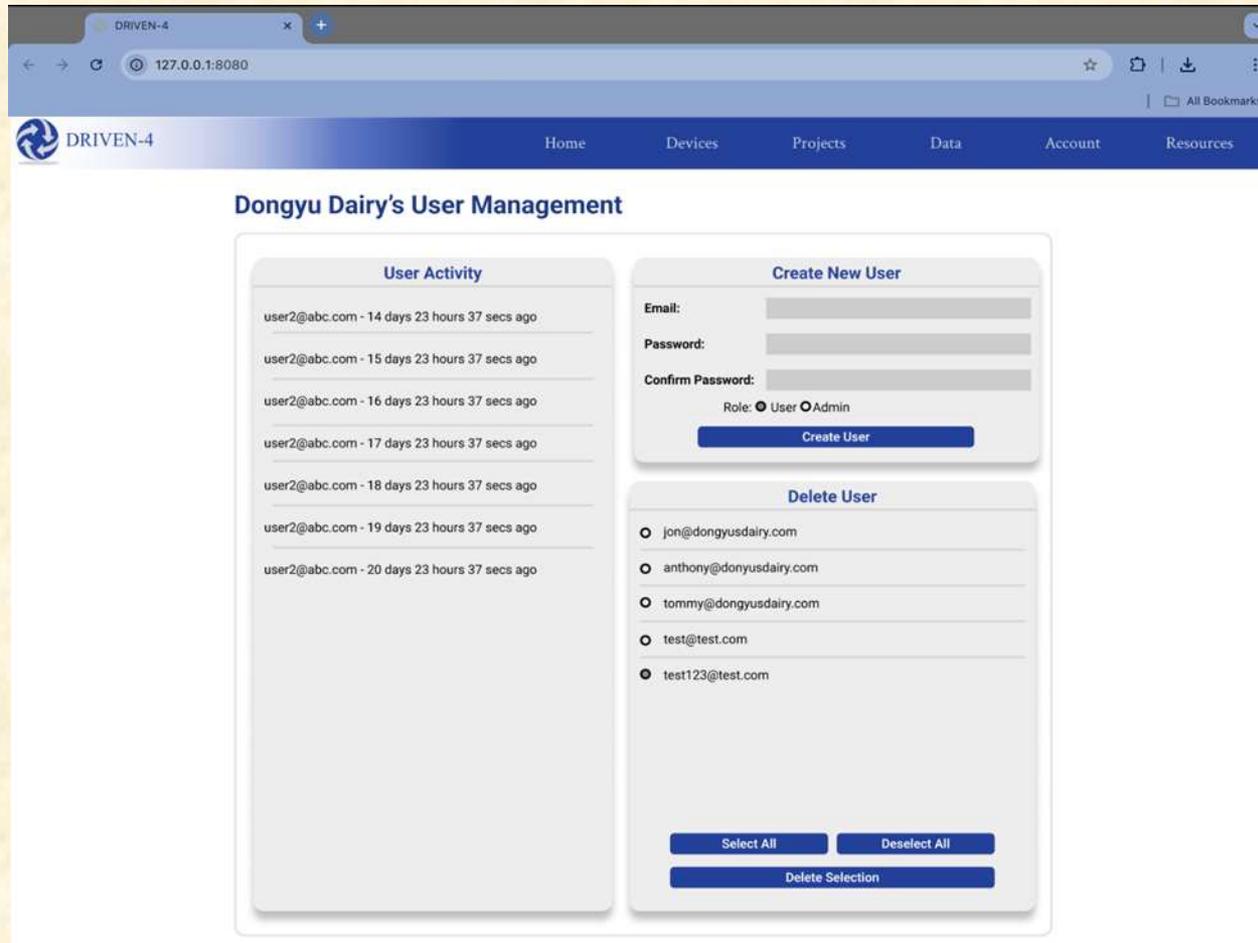
Screen Mockup: Device Management



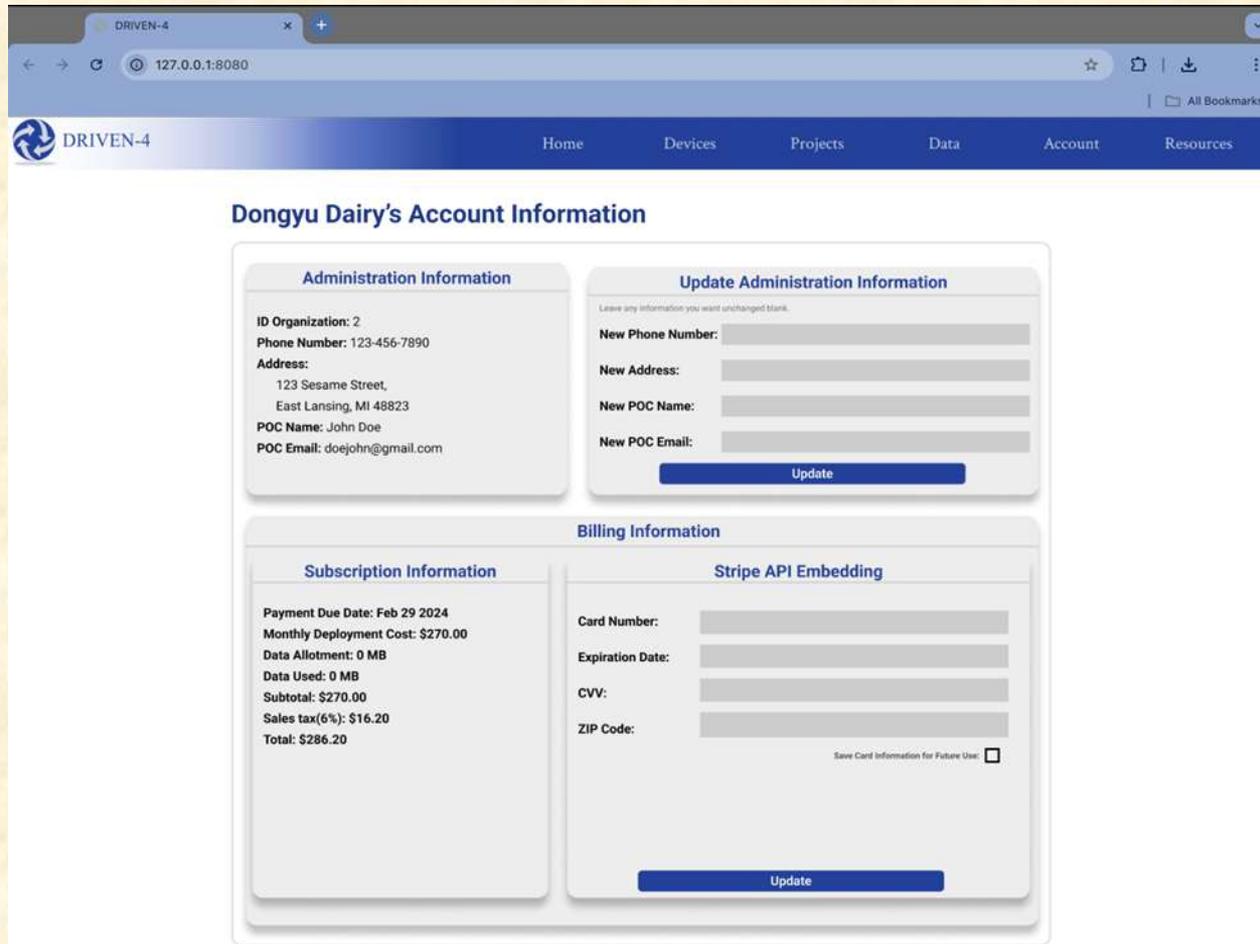
Screen Mockup: Data Management



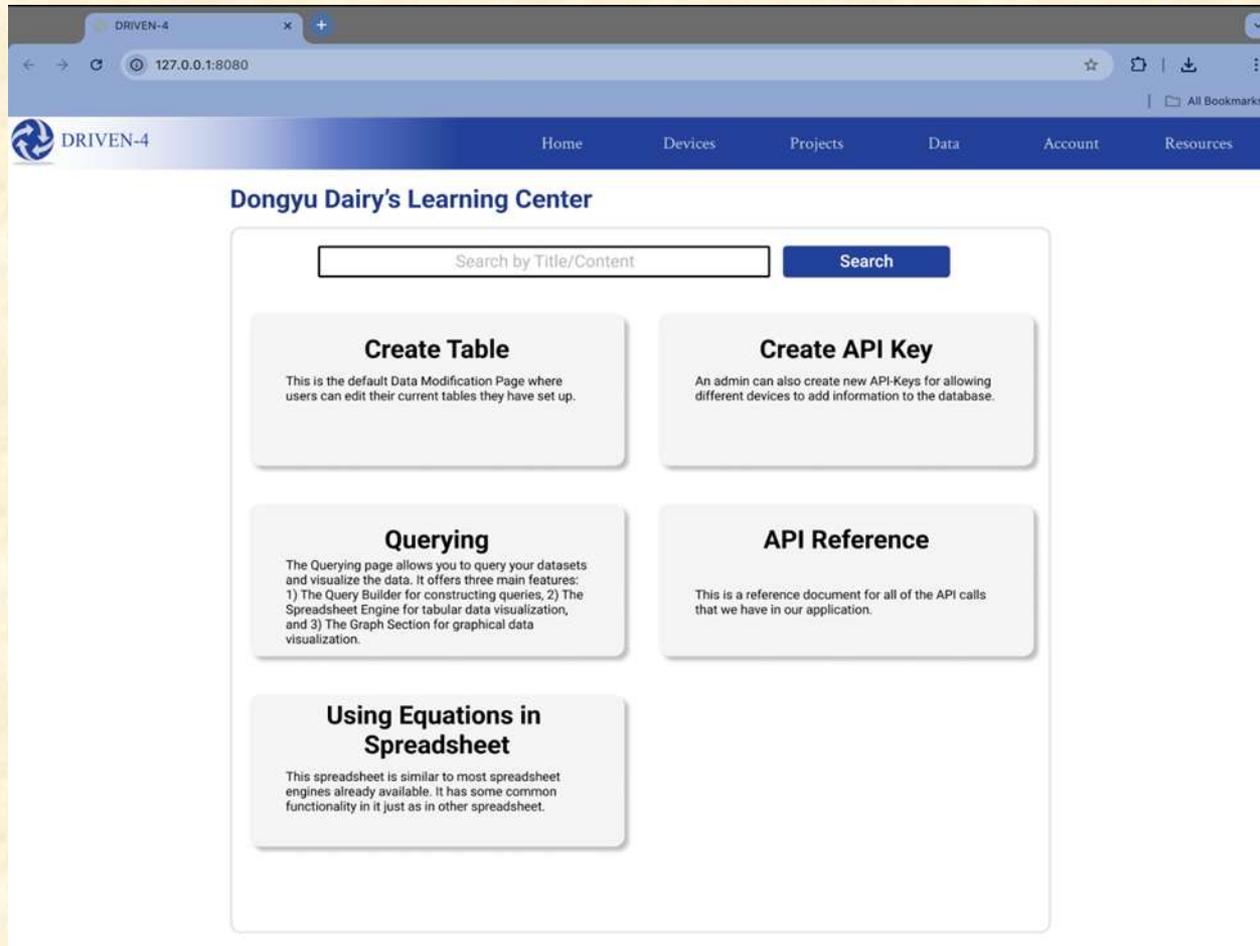
Screen Mockup: User Management



Screen Mockup: Account Page



Screen Mockup: Learning Center

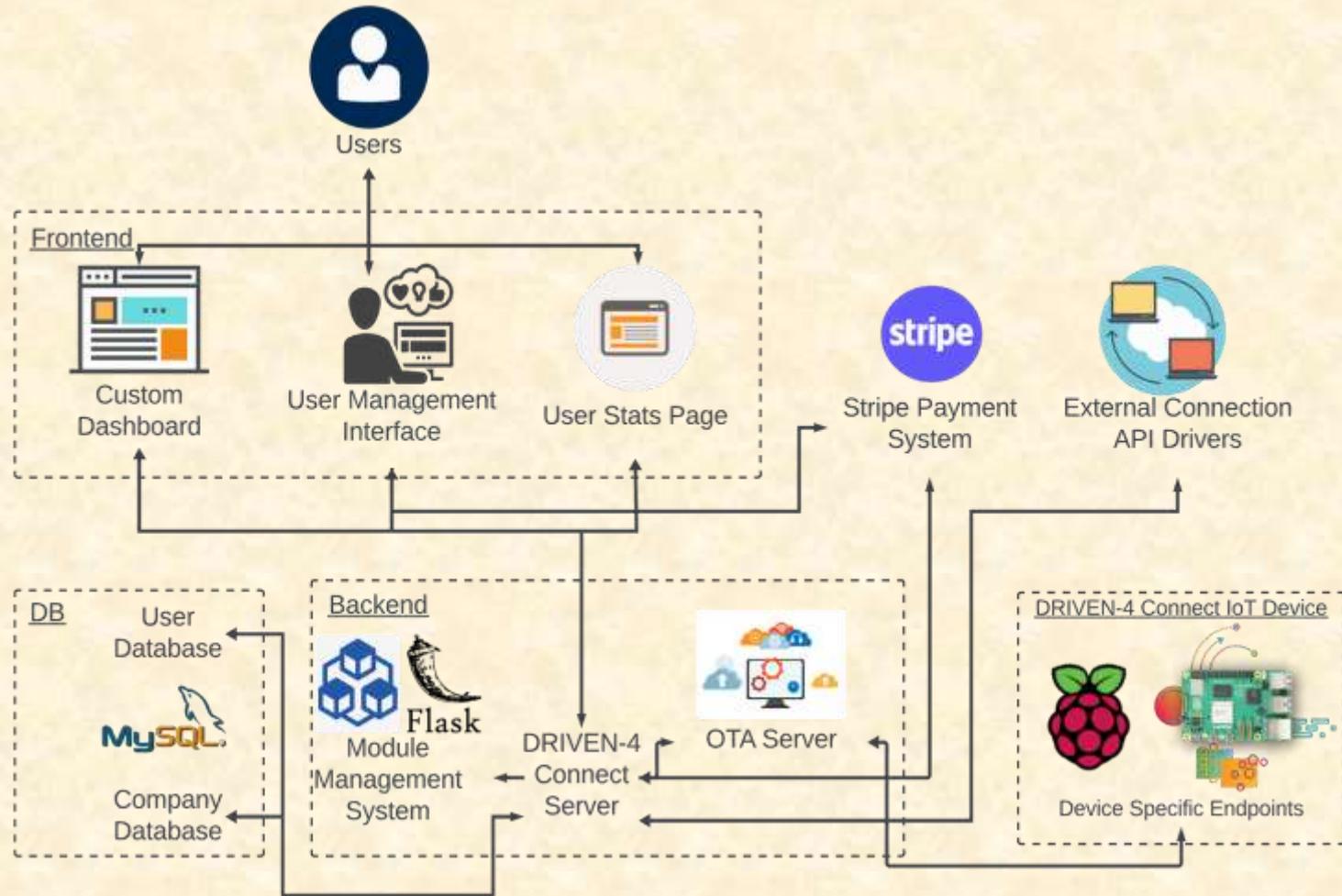


Project Technical Specifications

- 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?

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