

**MICHIGAN STATE**  

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**UNIVERSITY**

# Beta Presentation

Offline–Ready Mobile App for Delivery Optimization

The Capstone Experience

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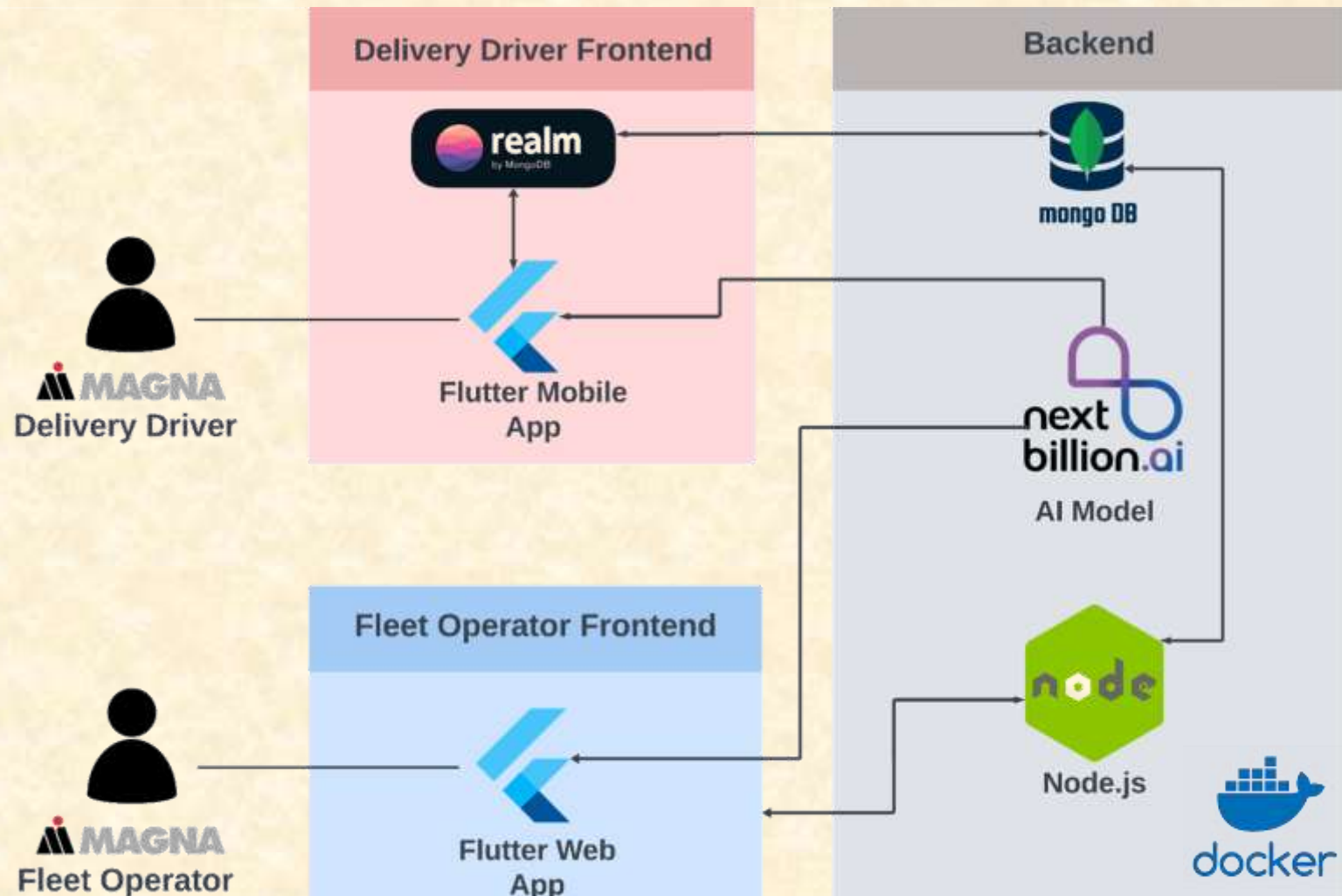
*From Students...  
...to Professionals*

# Project Overview

- The mobile app enhances delivery efficiency by optimizing routes and tracking real-time progress.
- Artificial intelligence batches orders based on pickup and drop-off locations and determines the most efficient route.
- The web application enables fleet operators to track drivers and deliveries in real time, providing full visibility into operations.
- The web app also supports integration of new orders via CSV uploads, automatically optimizing the batching process for greater operational efficiency.



# System Architecture



# Web app (Login page)



# Web app (Order Overview)

The screenshot shows a web browser window with the URL `localhost:53568/#/order`. The application header includes the Magna logo and navigation tabs for **Order Overview**, **Batch Overview**, and **Past Orders**. A search bar is present with the placeholder text "Search by Order Number".

The main content area displays three order cards:

- Order Number: YC0RM5**  
**Weight: 65 kg**  
**Pick Up Location:** South Meridian Road, Deerfield Township, Isabella County, Michigan, 48858, United States  
**Drop Off Location:** 10053, Riley Street, Zeeland, Holland Charter Township, Ottawa County, Michigan, 49464, United States
- Order Number: YZARJT**  
**Weight: 72 kg**  
**Pick Up Location:** 138, Leslie Street, Fairview, Half Barn Farm, Lansing, Ingham County, Michigan, 48912, United States  
**Drop Off Location:** 6619, Slosser Road, Plainfield Township, Iosco County, Michigan, 48739, United States
- Order Number: L985WQ**  
**Pick Up Location:** Coster  
**Drop Off Location:** 9363

A red button labeled "Optimize Into Batches" is located below the third order card.

The right sidebar is titled "Available Drivers" and lists three drivers:

- Driver Name:** John Adams  
**Truck ID:** BFHOUY304  
**Truck Size:** 1500 kg
- Driver Name:** Daniel Haggen  
**Truck ID:** KHFRDH207  
**Truck Size:** 2100 kg
- Driver Name:** Jake Williams  
**Truck ID:** OIPMSJ1021  
**Truck Size:** 2300 kg
- Driver Name:** Mike Johnson  
**Truck ID:** OIPMSJ1022  
**Truck Size:** 1300 kg



# Web app (Batch Overview)

The screenshot shows a web browser window with the URL `localhost:52593/calendar#/batch`. The page title is "Magna Fleet Operator". The navigation bar includes "Order Overview", "Batch Overview" (highlighted in red), and "Past Orders".

**Batch ID: 0**

- Order Summary:** Click to view orders
- Driver Details:** Driver Name: Mike Johnson - Truck OIPMSJ1022

**Batch ID: 1**

- Order Summary:** Click to view orders
- Driver Details:** Driver Name: Jackson Drake - Truck HDKE01801

**Unbatched Orders**  
Select a batch to add the order to

- Order ID: L985WQ**  
Select Batch  
Available Batches
- Order ID: 5UH6ZK**  
Select Batch  
Available Batches



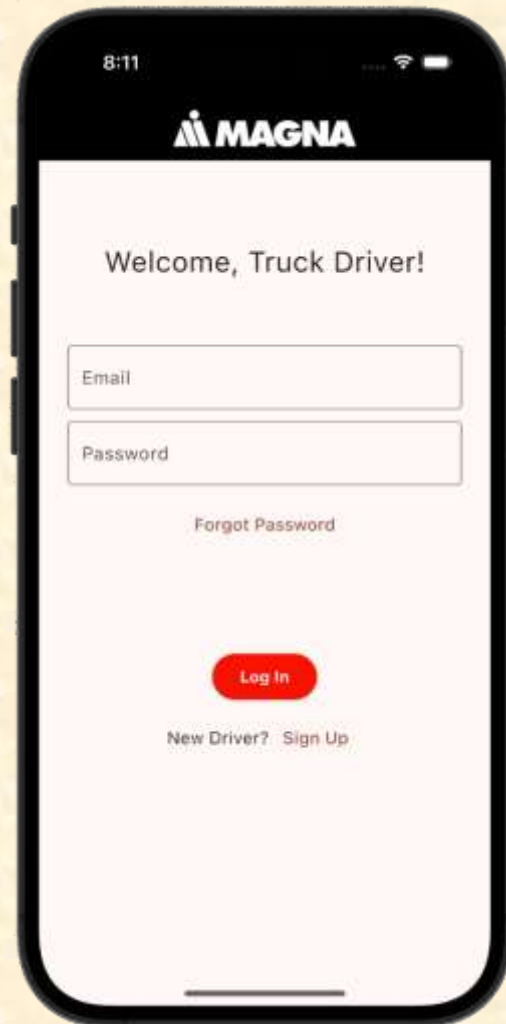
# Web app (History)

The screenshot shows a web browser window with the title "Magna Fleet Operator" and the URL "localhost:52593/calendar#/calendar". The navigation bar includes the Magna logo, "Order Overview", "Batch Overview", and "Past Orders" (which is highlighted in red). Below the navigation bar, the main content area displays a calendar for "November 2024" with the heading "Select a date to view history". The calendar grid shows days from Monday to Sunday. The dates 11, 12, and 13 are highlighted with red circles, indicating they are the selected dates for viewing history.

Mon	Tue	Wed	Thu	Fri	Sat	Sun
28	29	30	31	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	1



# Mobile app (Login)

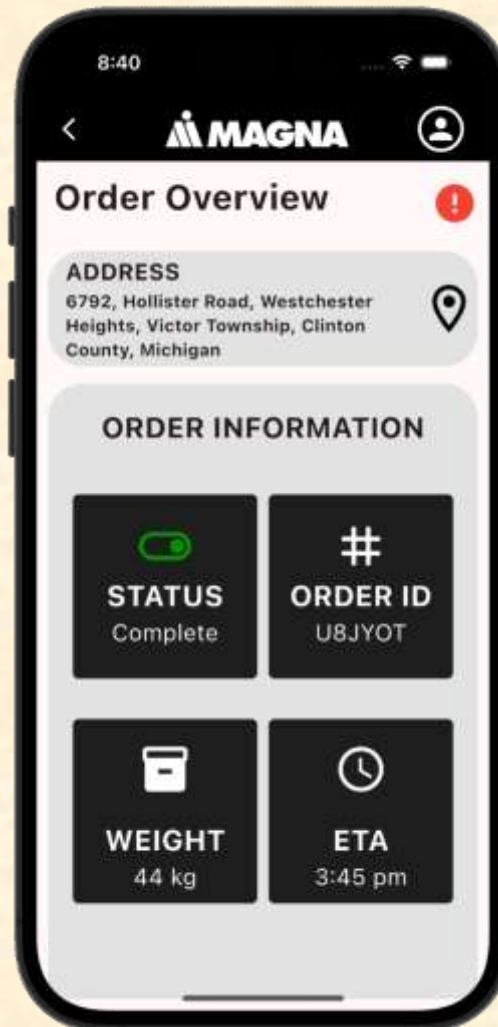




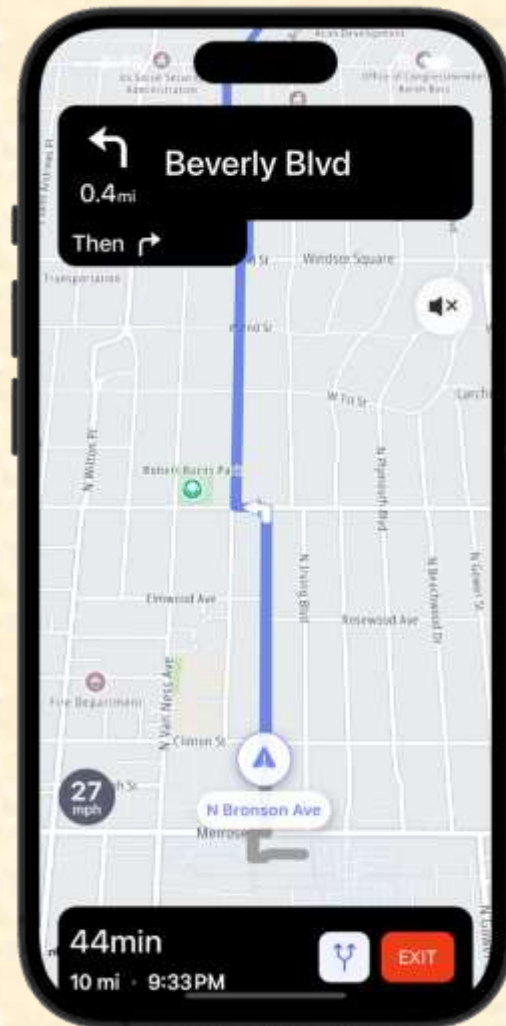
# Mobile app (Today's Overview)



# Mobile app (Order Overview)



# Mobile app (Navigation)



# What's left to do?

- Stretch Goals
  - Implement a system for the fleet operator to intervene in case a delivery driver is not able to complete a delivery and manually reassign them in real time to another batch.
- Other Tasks
  - Improve the UI in Navigation to make the delivery process seamless especially when the driver reaches a pickup/delivery point.
  - Enhance the UI elements on the upload CSV page, making it easier to identify 'why' a CSV was rejected, currently we only inform the user about the order IDs that failed to upload.
  - Make more informative loading screens to improve the user experience.
  - Improve the UI feedback when the fleet operator presses the Optimize button.
  - Make other stylistic UI improvements.



# Questions?

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