

MICHIGAN STATE

UNIVERSITY

Beta Presentation

Dashboard for Data Visualization

The Capstone Experience

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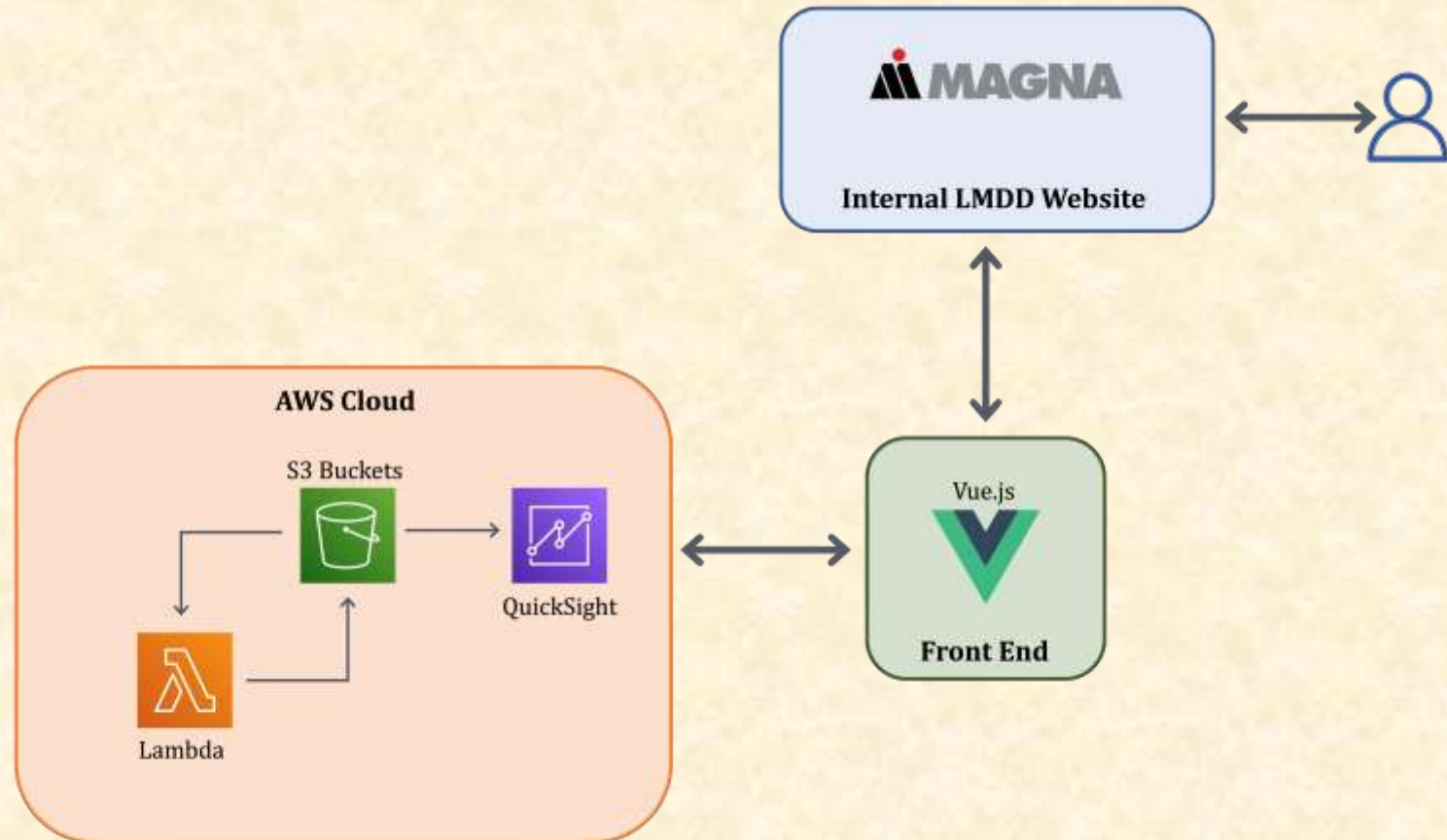
*From Students...
...to Professionals*

Project Overview

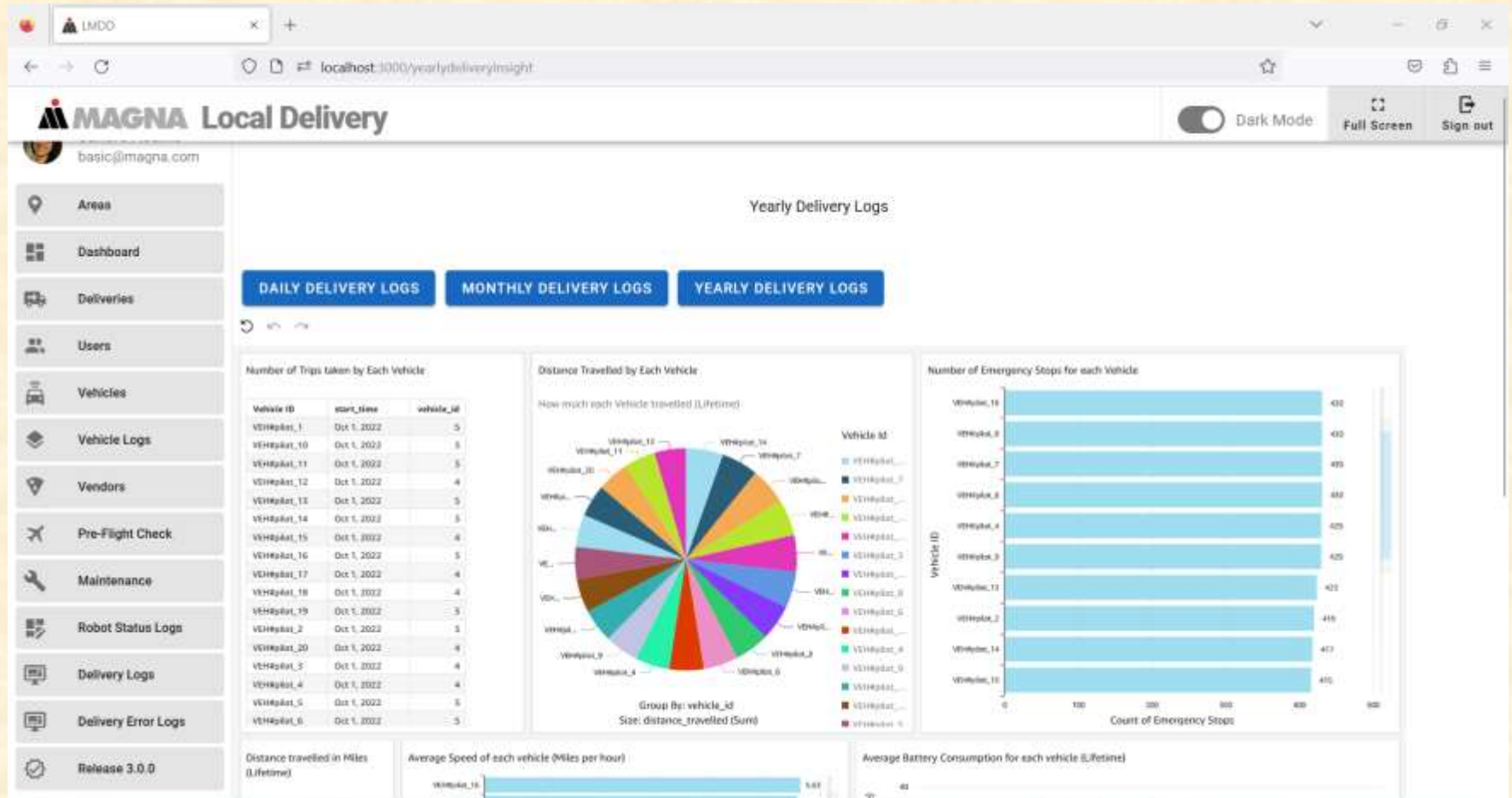
- Our Dashboard for Data visualisation provides real time data from autonomous delivery robots in a Web Application for employees at Magna:
 - Data for each individual robot (robot health)
 - Fleet status data (deliveries and packages)
- Dynamically update QuickSight with new data from the robots on the ground using S3.
- Implement testing for existing LMDD website, including our newly added features.



System Architecture



Delivery Dashboard



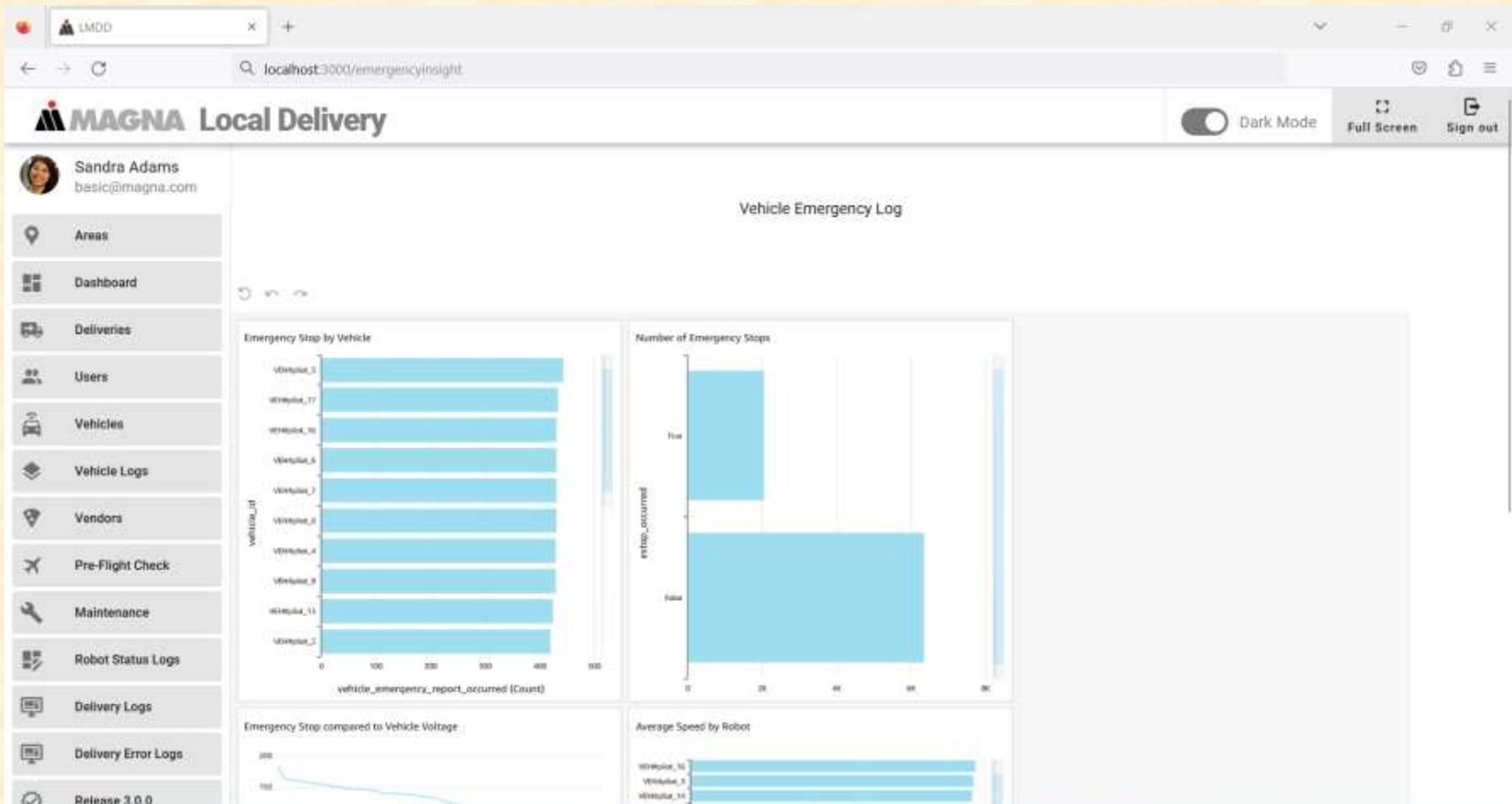
Robot Status Dashboards

The screenshot displays the MAGNA Local Delivery web interface. The top navigation bar includes the company logo, user information (basic@magna.com), and utility buttons for Dark Mode, Full Screen, and Sign out. A left sidebar contains a menu with items like Areas, Dashboard, Deliveries, Users, Vehicles, Vehicle Logs, Vendors, Pre-Flight Check, Maintenance, Robot Status Logs, Delivery Logs, and Delivery Error Logs. The main content area is titled "Daily Robot Logs" and features three filter buttons: DAILY ROBOT LOGS, MONTHLY ROBOT LOGS, and YEARLY ROBOT LOGS. Below these, there are tabs for "Daily Robot Logs" and "Yearly Robot Logs". A "Controls" section shows the current date as 2022/05/03. The dashboard is divided into several data visualization components:

- Emergency Stops by Time and Robot:** A table with columns for Vehicle ID, Timestamp, and Emergency Stops.
- Vehicle Control Unit Voltage by Time and Robot:** A table with columns for Vehicle ID, Timestamp, and VCU Voltage.
- Max Battery Voltage by Vehicle:** A bar chart showing a single green bar for Vehicle_2.
- Battery Current by Timestamp and Robot:** A table with columns for Vehicle ID, Timestamp, and Battery Current (amps).
- Battery Level by Timestamp and Robot:** A table with columns for Vehicle ID, Timestamp, and Battery Level.



Delivery Error Dashboard



Internal Testing Log

```
CSE498 --zsh-- 120x52
jannik@quicksilver CSE498 % python3 test.py
E
=====
ERROR: testLogin (_main_.MagnaLMDDTest)
=====
Traceback (most recent call last):
  File "/Users/jannik/Documents/CSE498/test.py", line 28, in testLogin
    browser.find_element(By.XPATH, self.loginButtonXPath).click()
  File "/usr/local/lib/python3.10/site-packages/selenium/webdriver/remote/webdriver.py", line 855, in find_element
    return self.execute(Command.FIND_ELEMENT, {
  File "/usr/local/lib/python3.10/site-packages/selenium/webdriver/remote/webdriver.py", line 428, in execute
    self.error_handler.check_response(response)
  File "/usr/local/lib/python3.10/site-packages/selenium/webdriver/remote/errorhandler.py", line 243, in check_response
    raise exception_class(message, screen, stacktrace)
selenium.common.exceptions.NoSuchElementException: Message: no such element: Unable to locate element: {"method":"xpath",
"selector":"/html/body/div/div/div/main/div/div/div/form/button"}
(Session info: chrome=111.8.5563.146)
Stacktrace:
0 chromedriver 0x0000000107516428 chromedriver + 4899880
1 chromedriver 0x0000000107493a23 chromedriver + 4364835
2 chromedriver 0x00000001070ddb6 chromedriver + 474182
3 chromedriver 0x00000001071214f0 chromedriver + 750832
4 chromedriver 0x0000000107121751 chromedriver + 751441
5 chromedriver 0x0000000107165834 chromedriver + 1038196
6 chromedriver 0x000000010714758d chromedriver + 906637
7 chromedriver 0x0000000107162b5b chromedriver + 1818715
8 chromedriver 0x0000000107147333 chromedriver + 906835
9 chromedriver 0x000000010711155f chromedriver + 685487
10 chromedriver 0x0000000107112a7e chromedriver + 690814
11 chromedriver 0x00000001074e379e chromedriver + 4691878
12 chromedriver 0x00000001074e8961 chromedriver + 4712881
13 chromedriver 0x00000001074ef2ff chromedriver + 4739839
14 chromedriver 0x00000001074e985a chromedriver + 4716634
15 chromedriver 0x00000001074bbfce chromedriver + 4538126
16 chromedriver 0x00000001075095c8 chromedriver + 4847848
17 chromedriver 0x0000000107509747 chromedriver + 4847431
18 chromedriver 0x000000010751e87f chromedriver + 4933759
19 libsystem_pthread.dylib 0x00007fff81359a259 _pthread_start + 125
20 libsystem_pthread.dylib 0x00007fff813595c7b thread_start + 15
=====
Ran 1 test in 6.082s

FAILED (errors=1)
jannik@quicksilver CSE498 % python3 test.py
.
=====
Ran 1 test in 4.597s

OK
jannik@quicksilver CSE498 %
```



What's left to do?

- Features
 - Finalize testing requirements and implementation
 - Finalize visualization requirements
- Stretch Goals
 - Improve efficiency of Lambda function
 - UI interface for testing
- Other Tasks
 - Resolve access permissions with Magna AWS
 - Integrate project into Magna's existing infrastructure



Questions?

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