MICHIGAN STATE
UNIVERSITY

Project Plan Presentation Dashboard for Data Visualization

The Capstone Experience

Team Magna

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From Students…
…to Professionals

Project Sponsor Overview

- Founded in 1957, Magna is the largest automotive parts manufacturer in North America

- They employ over 161,000 people

- They have manufactured cars for companies like Toyota and BMW

- They are committed to expanding the electric vehicle market

Project Functional Specifications

- Increase accessibility to deliver robot fleet data
- Provide daily updates on the status of bot fleet or individual robots
- Display fleet history for analysis
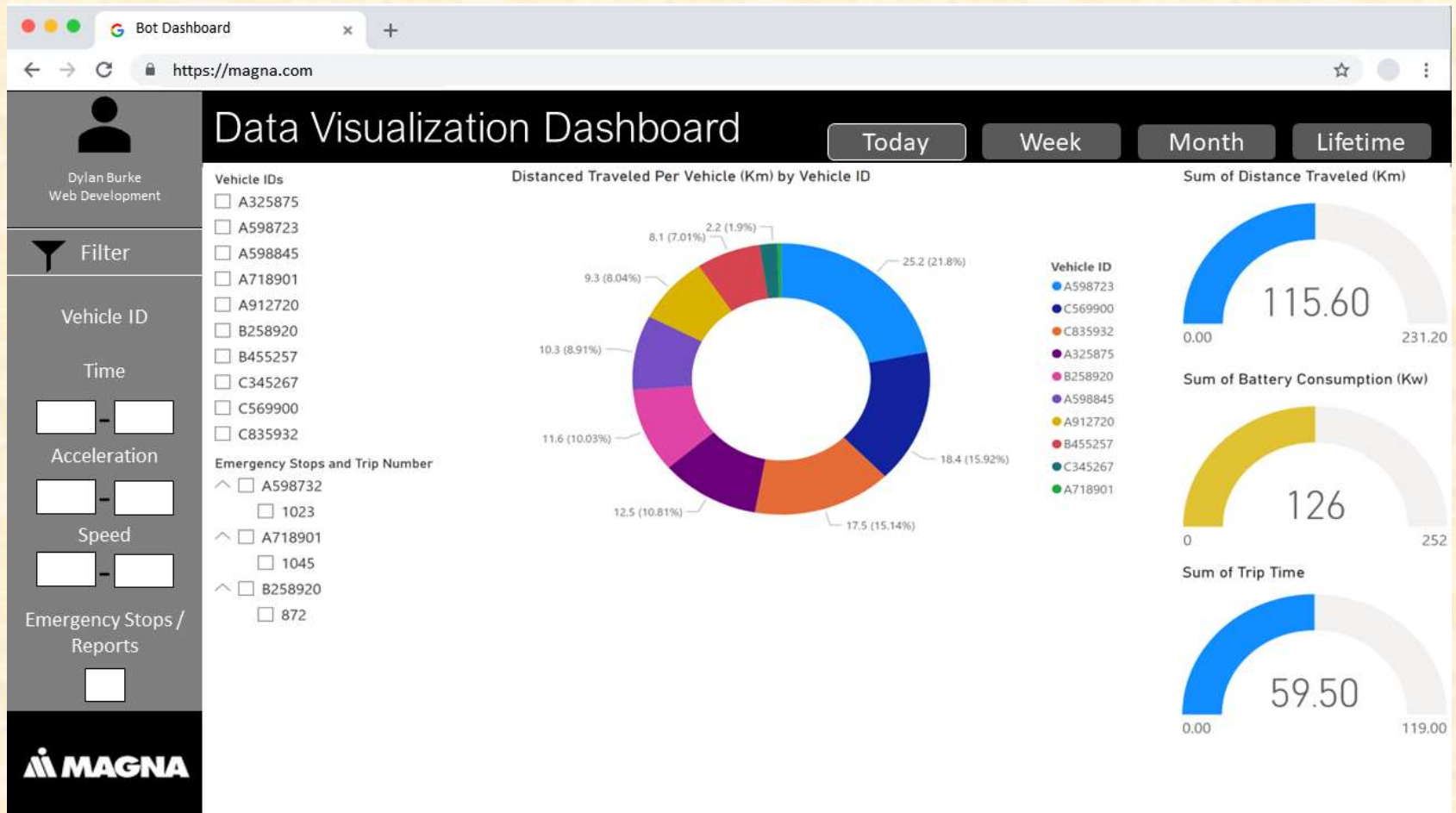- Allow for management of fleet by filtering data
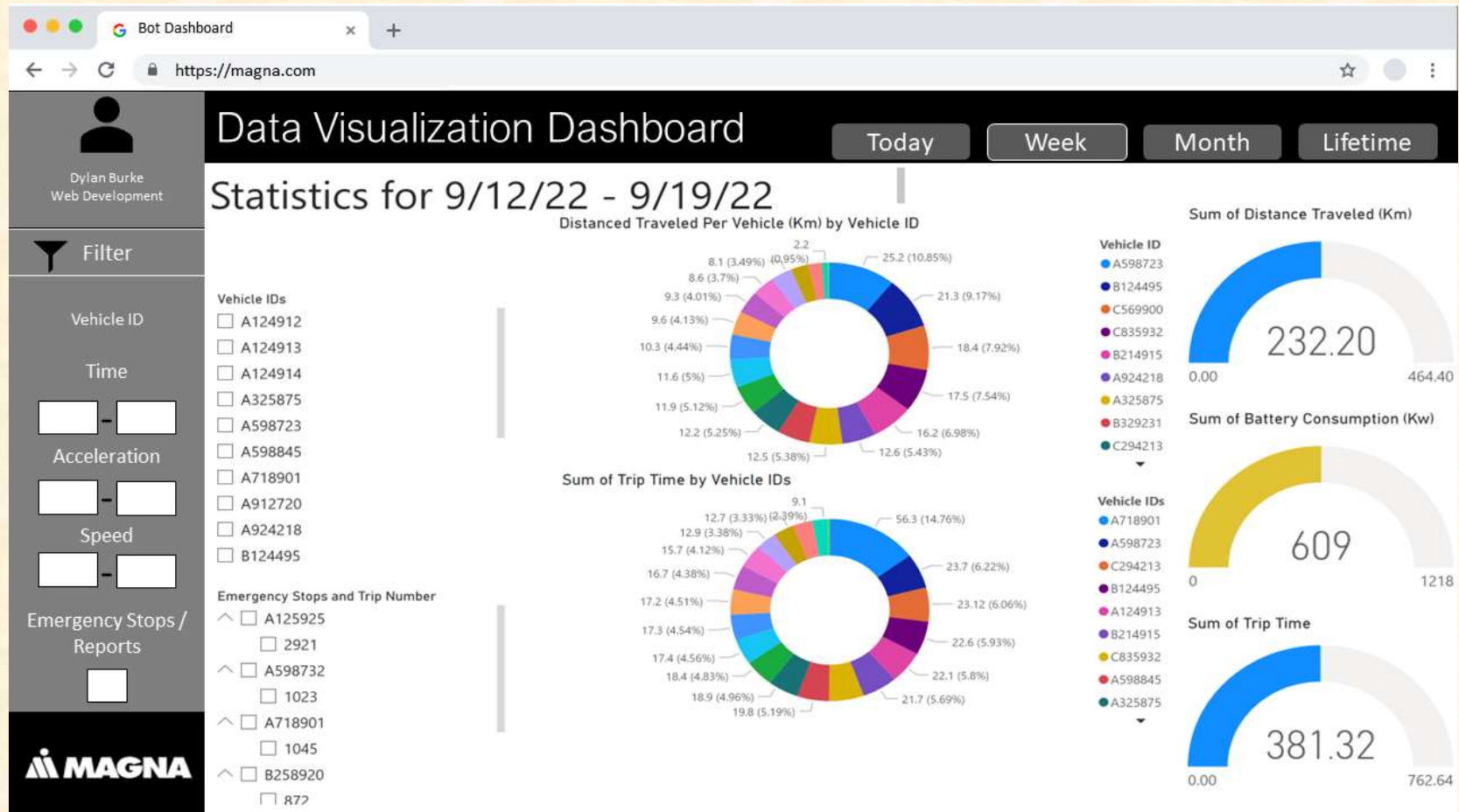
Project Design Specifications

- Display various metrics about Magna's fleet of automated delivery bots in an interactive dashboard

- Refresh automatically or by button

- Allow user to filter data

- Ability to change dashboard to display weekly, monthly, or lifetime reports

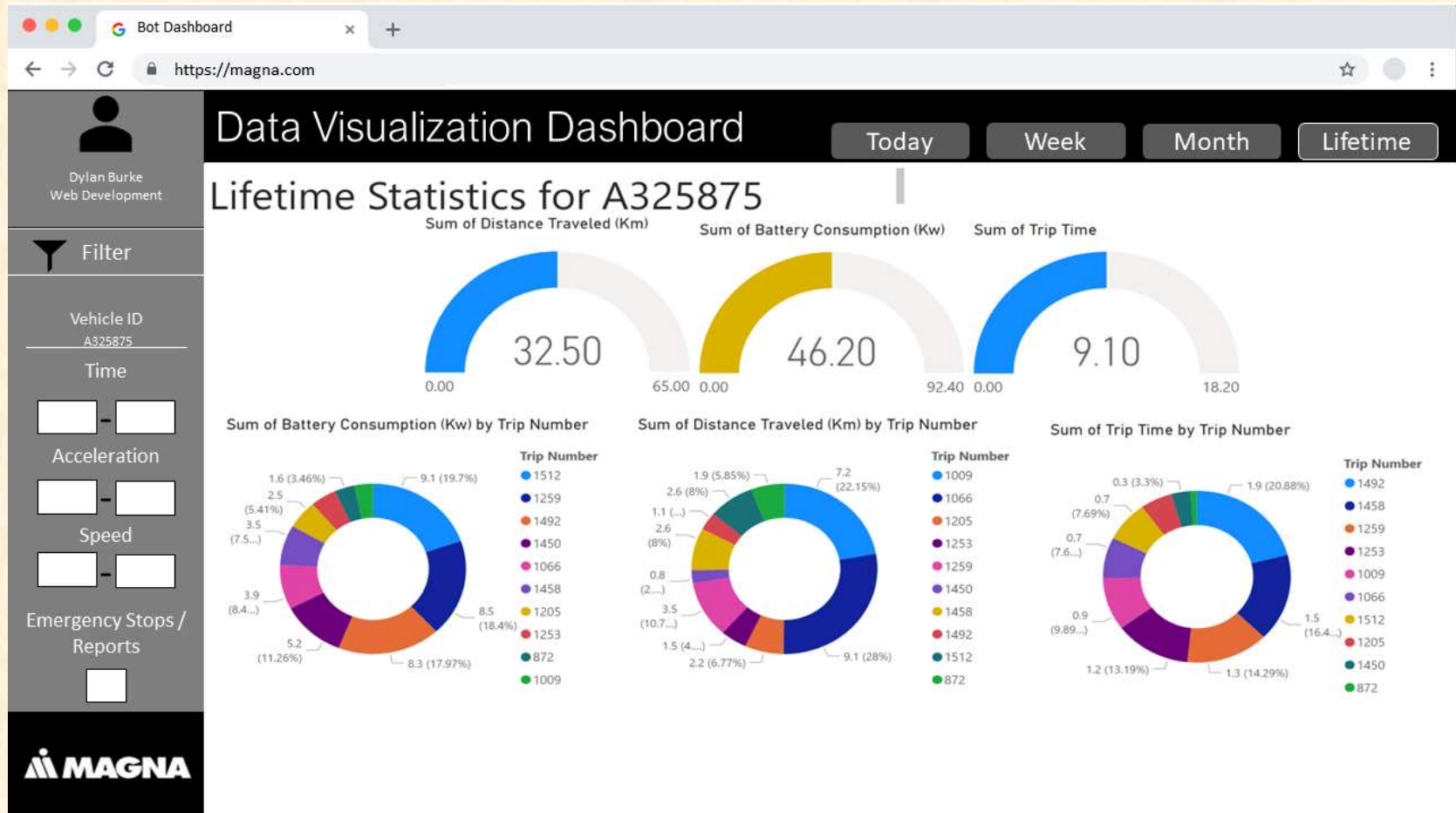- Dashboard integrated into Magna's website for employee use
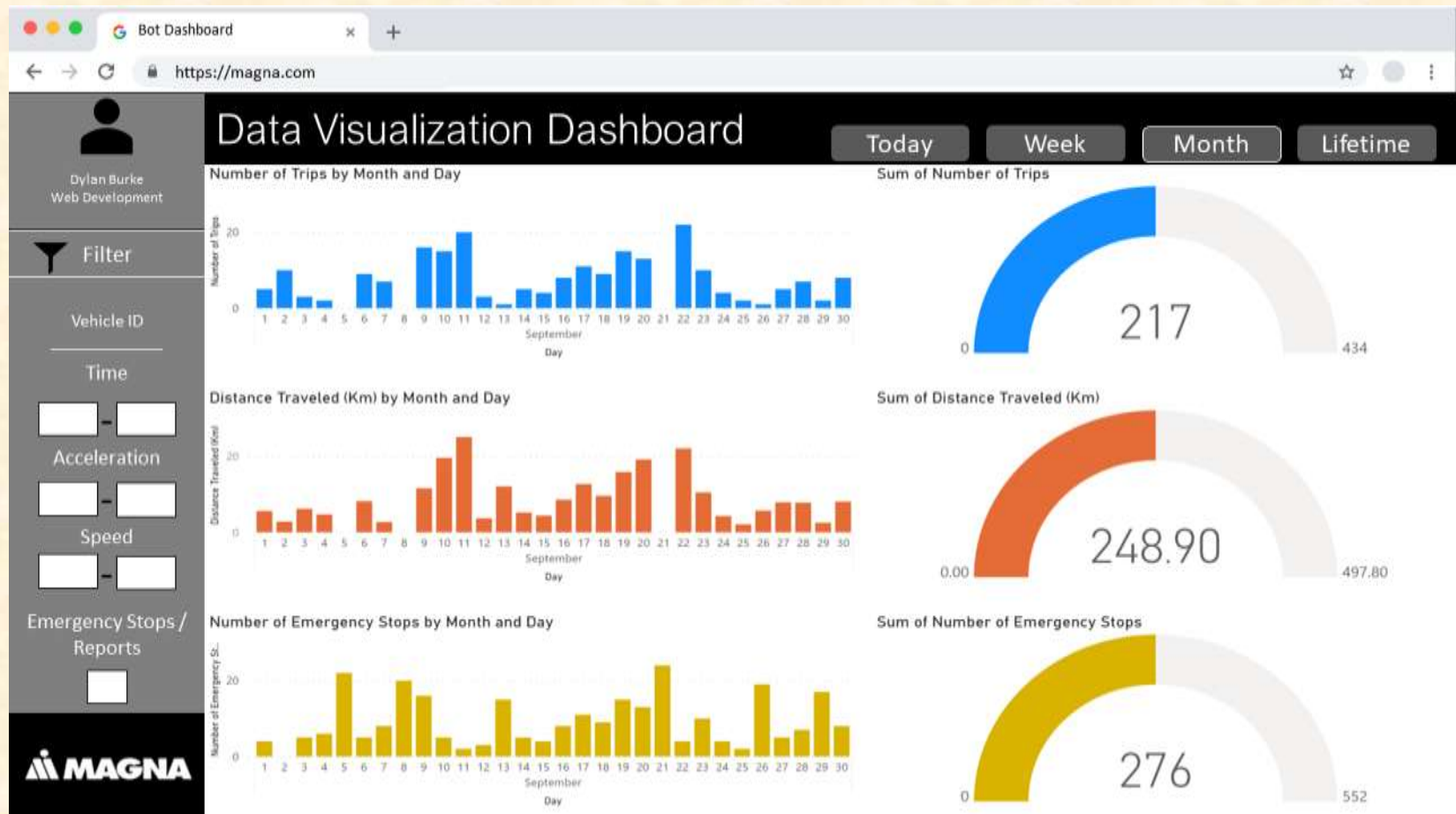
Screen Mockup: Daily Fleet Data

Screen Mockup: Weekly Fleet Data

Screen Mockup: Life Data for Single Bot

Screen Mockup: Monthly Breakdown
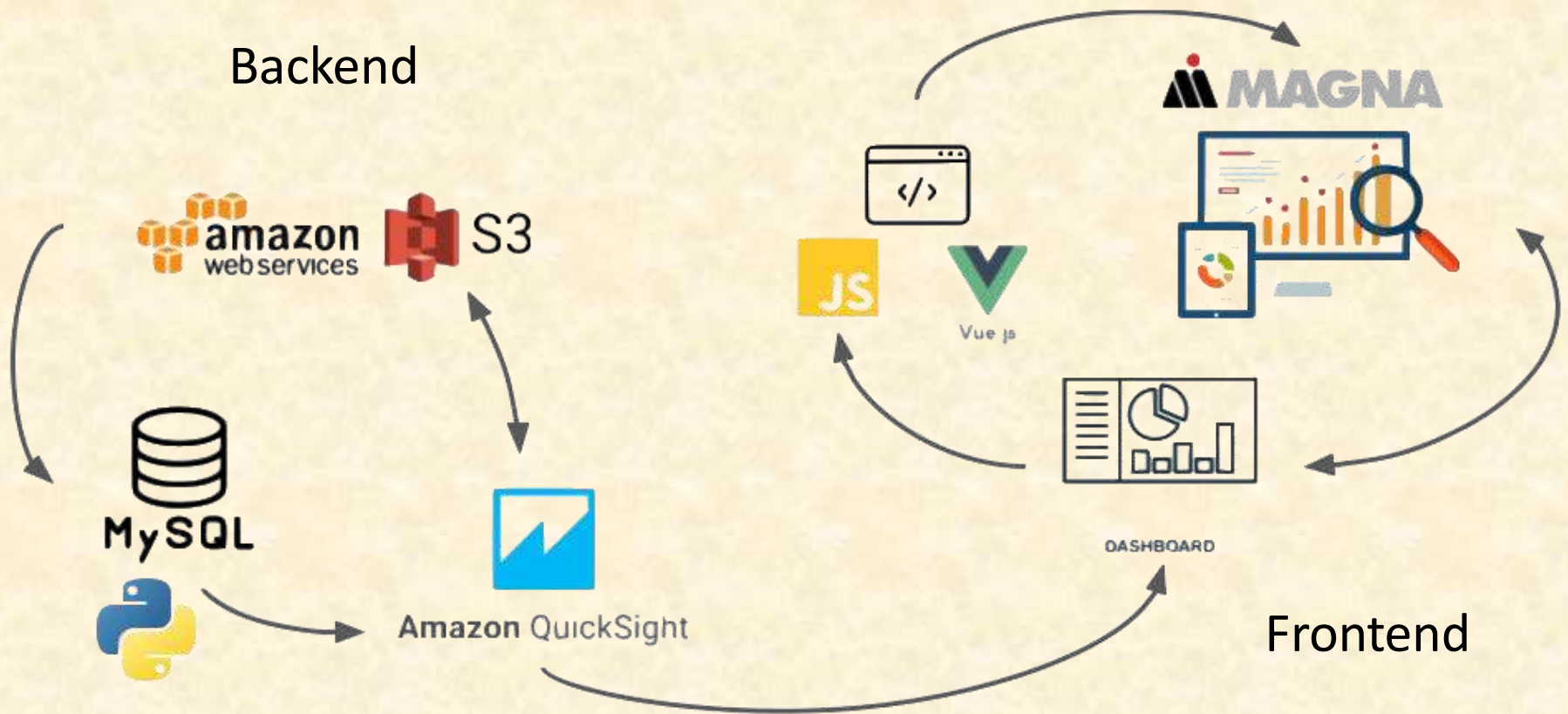
Project Technical Specifications

- Backend

  - Storage: AWS S3 database

  - Data Processing: MySQL/python script

  - Data Virtualization/Crafting: QuickSight

  - AWS SDK for python script and APIs allow frontend interactions with backend services

- Frontend

  - These dashboards will be integrated into Magna's website which is coded in JavaScript in the Vue.js format

Project System Architecture

Backend

Frontend

Project System Components

- Software Platforms / Technologies
  - Amazon Web Services
    - AWS Code Commit Repository
    - Amazon QuickSight
    - AWS S3 storage
    - Lambda – use to store functional code which is Python
    - Amazon API Gateway – easy way to pull data from database
  - Jira
  - JavaScript
  - MySQL
  - Visual Studio
  - Vue.js File Format

Project Risks

- Refreshing data in real time
  - Bots will collect large amounts of data on a consistent basis
  - Data will be pulled from database on a regular interval
- Integration of dashboards into Vue files
  - Connection and authentication between QuickSight and Vue
  - Format will be matched with existing files
- Displaying data in a user-accessible manner
  - Users of varying technical knowledge can use dashboard
  - Clear labels and UI, consistent check-ins with Magna
- Integration of visualization software with AWS
  - QuickSight is native to AWS, but Magna has free access to PowerBI
  - Amazon Quicksight has been chosen over PowerBI

Questions?