

MICHIGAN STATE

U N I V E R S I T Y

Project Plan

Autonomous Vehicle Fleet Connectivity Apps

The Capstone Experience

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Fall 2018



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

Functional Specifications

- Develop a scheduling app for a fleet of cars.
- Produce push notifications about upcoming appointments and car events
- Allow survey input after completion of drive.
- Produce diagnostics of every vehicle
- Allow all of these features to be usable in a mobile environment

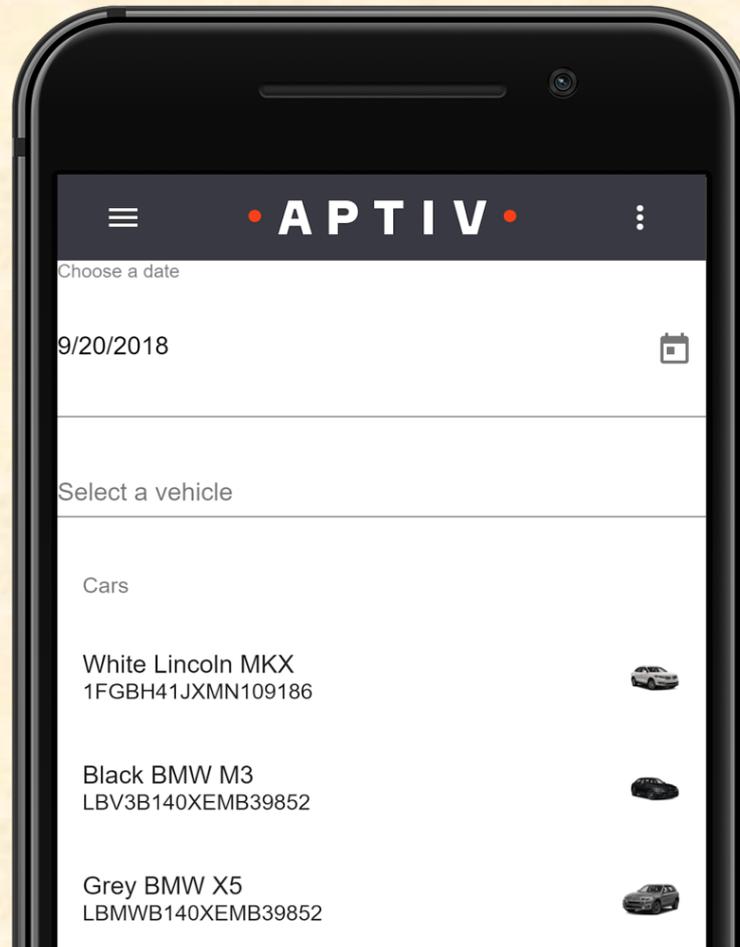


Design Specifications

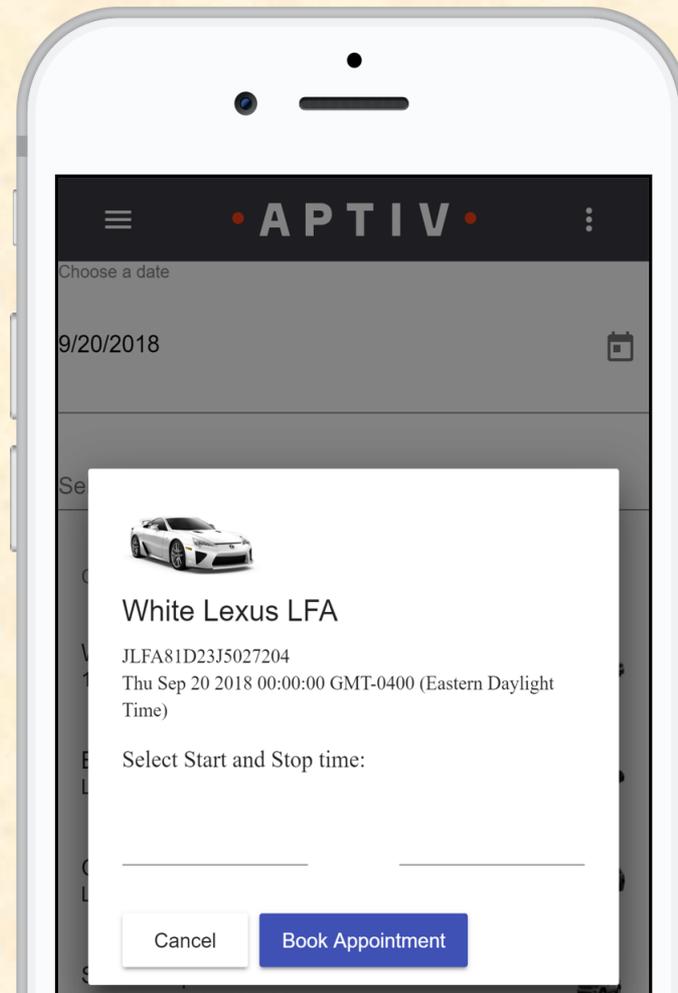
- Calendar view on main page
 - Searchable by car or day
 - Schedule time slots
 - Time slots viewable within 1 month calendar
- Notifications about upcoming appointments
 - Pushed directly to preferred device
- Must support mobile and desktop



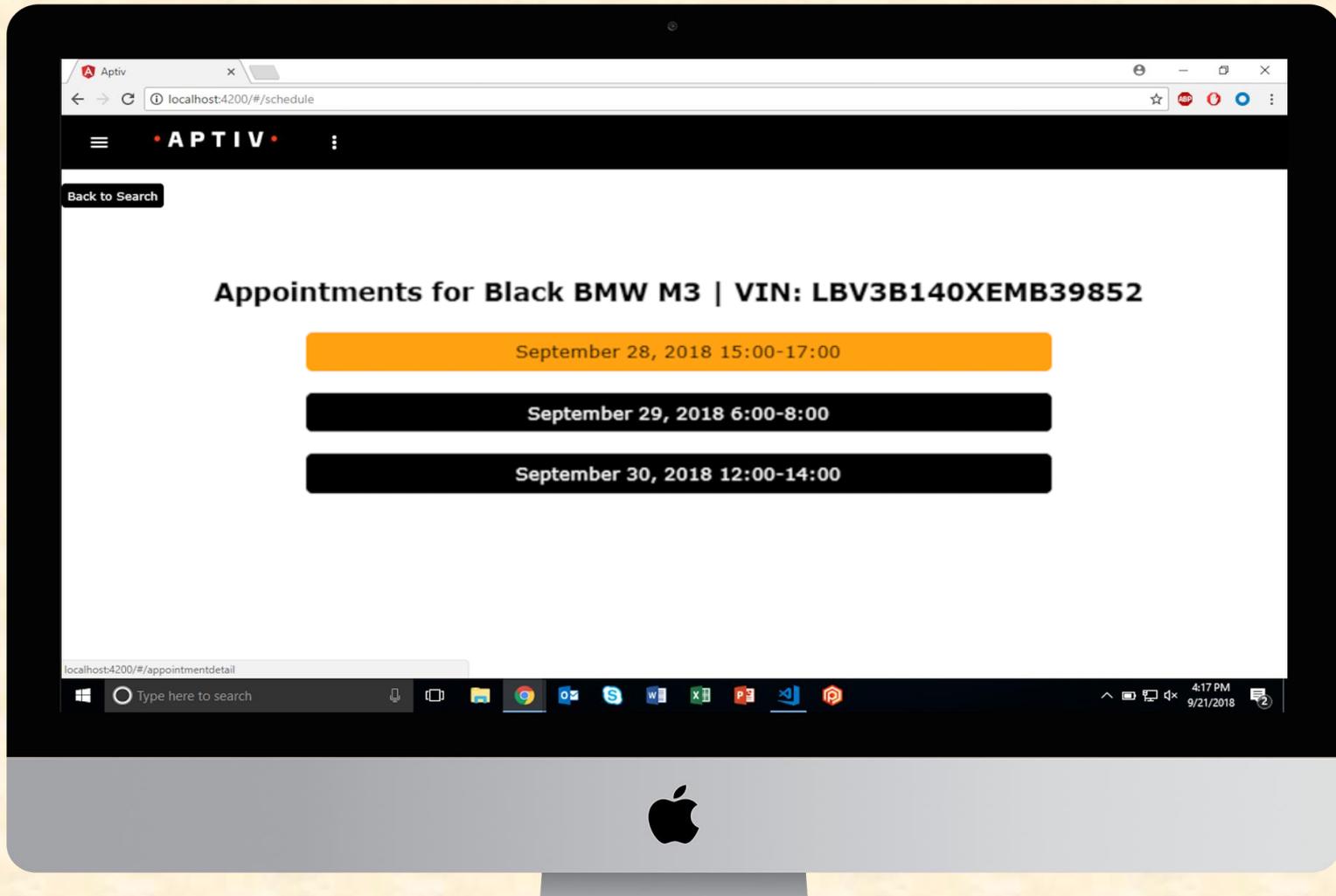
Screen Mockup: Mobile Main Screen



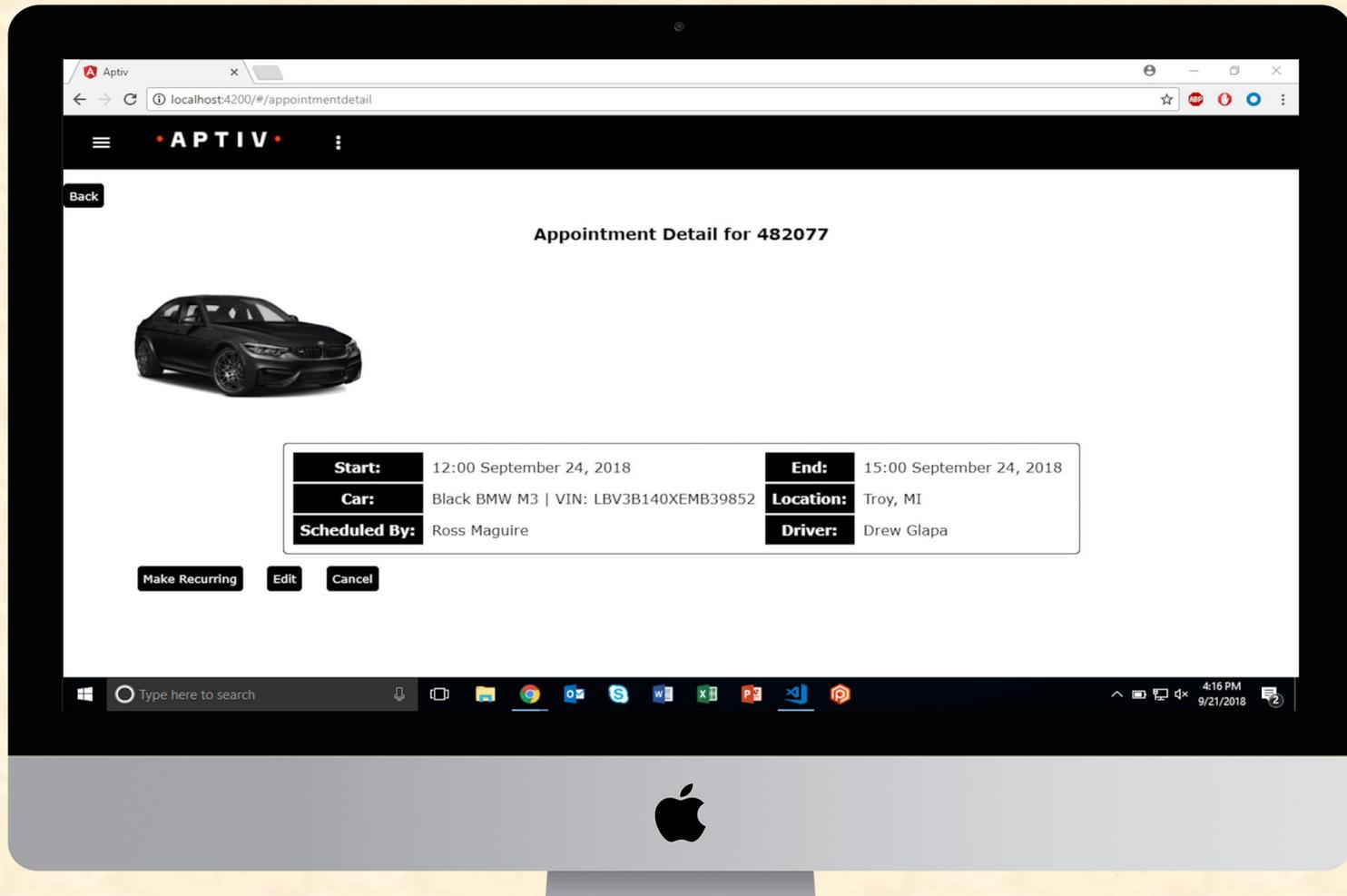
Screen Mockup: Mobile Car Selection



Screen Mockup: Desktop Appointment



Screen Mockup: Desktop Information



Technical Specifications

- Angular
 - Our front end programming language, used to create the GUI our users see.
- Visual Studio Code
 - The environment in which we code.
- Microsoft Azure SQL Database
 - The database systems Aptiv uses to organize and analyze their fleet.



System Architecture

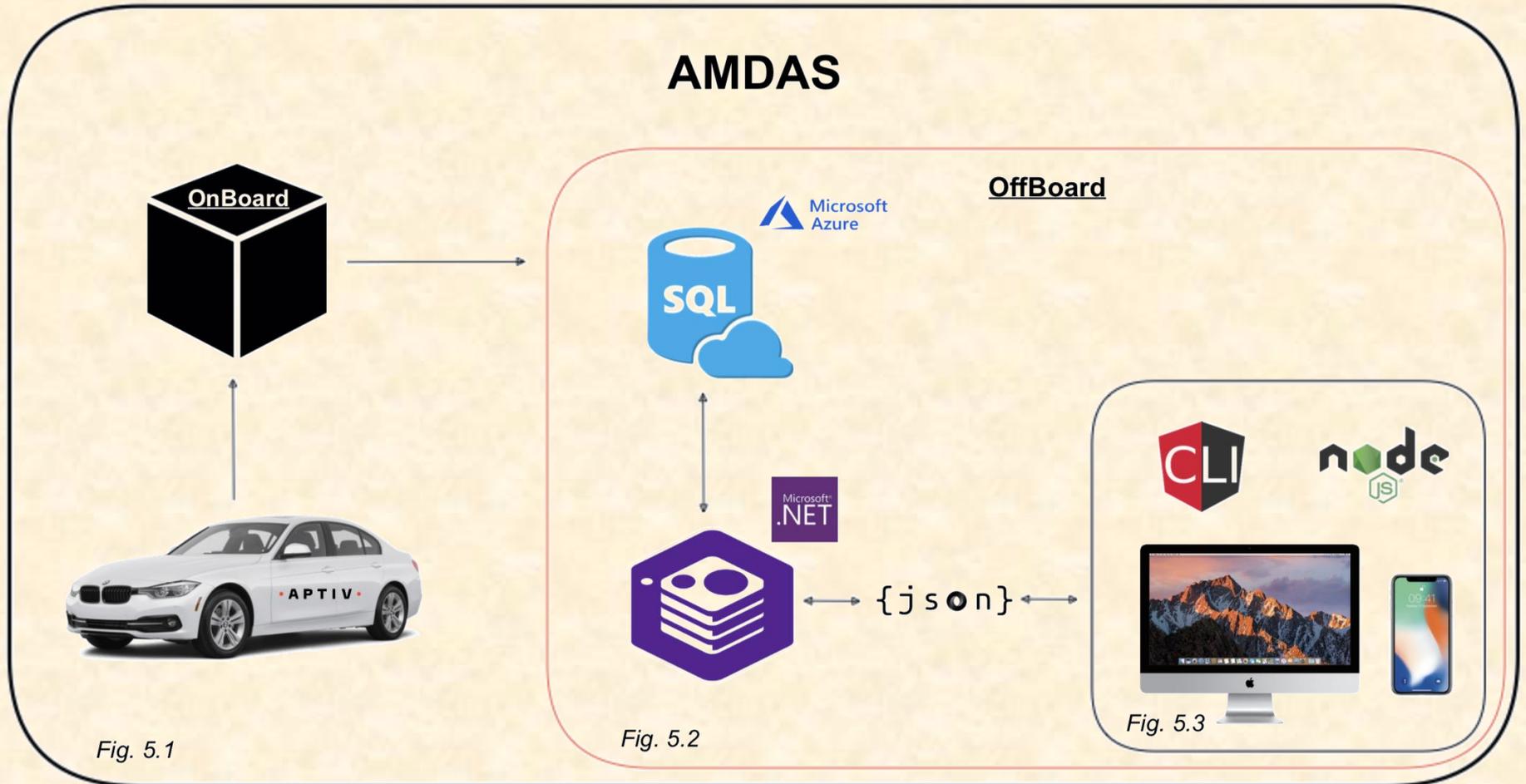


Fig. 5.1

Fig. 5.2

Fig. 5.3



System Component

- AMDAS
 - An onboard data collection system for autonomous vehicles
- Internet Capable Devices
 - Devices that will run our software
- Aptiv Servers
 - All the information we need to display
- Aptiv Fleet Cars
 - The vehicles producing all of the information



Risks

- User Authentication
 - Creating security rankings within the user data
 - Having identity variables checked before page accesses
- Push Notifications
 - Allowing the web app to push information to the user
 - Using native SQL database push methods
- AMDAS Database Access
 - AMDAS information is held and managed by the company
 - Avid communication with the company and its teams
- Standalone System Integration
 - AMDAS requires modular functionality of its features
 - Proper use of AMDAS components



Questions?

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