

MICHIGAN STATE
UNIVERSITY

Project Plan

Autonomous Vehicle Fleet Connectivity Apps

The Capstone Experience

Team Aptiv

Emilio Castillo

Drew Glapa

Klint Kaercher

Chad Krause

Alexander Patton

Department of Computer Science and Engineering
Michigan State University

Fall 2018



From Students...
...to Professionals

Functional Specifications

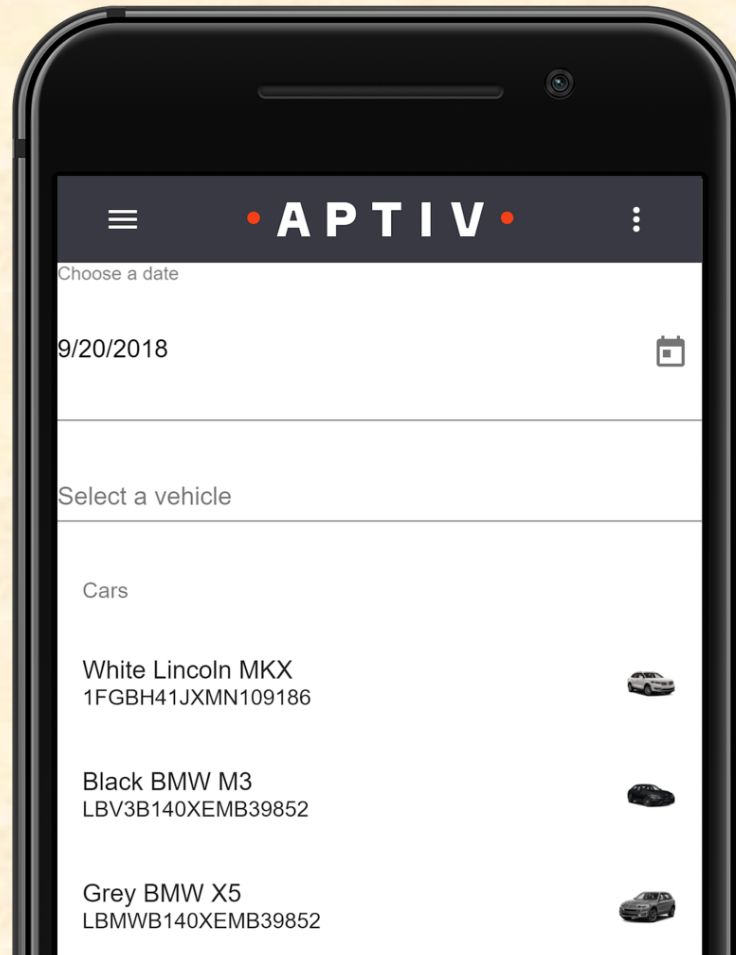
- Develop a scheduling app for a fleet of cars.
- Produce push notifications about upcoming appointments and car events
- Allow survey input after completion of drive.
- Produce diagnostics of every vehicle
- Allow all of these features to be usable in a mobile environment

Design Specifications

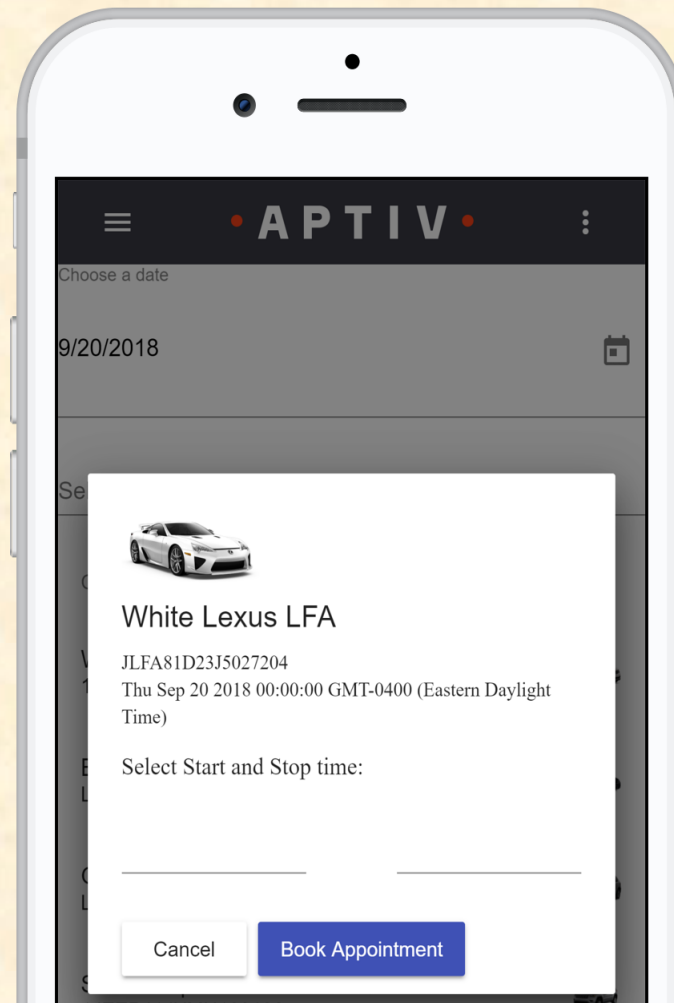
- Calendar view on main page
 - Searchable by car or day
 - Schedule time slots
 - Time slots viewable within 1 month calendar
- Notifications about upcoming appointments
 - Pushed directly to preferred device
- Must support mobile and desktop



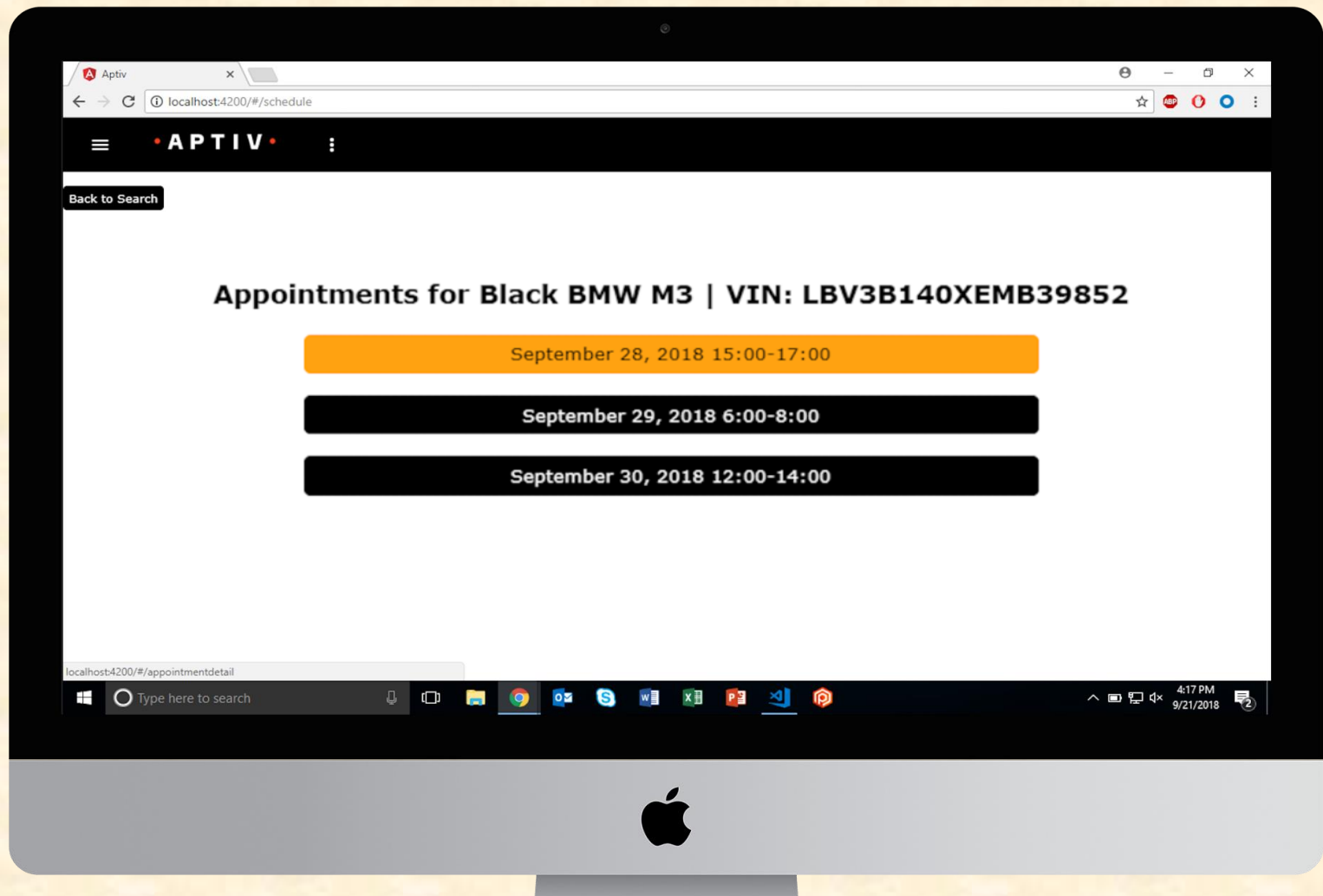
Screen Mockup: Mobile Main Screen



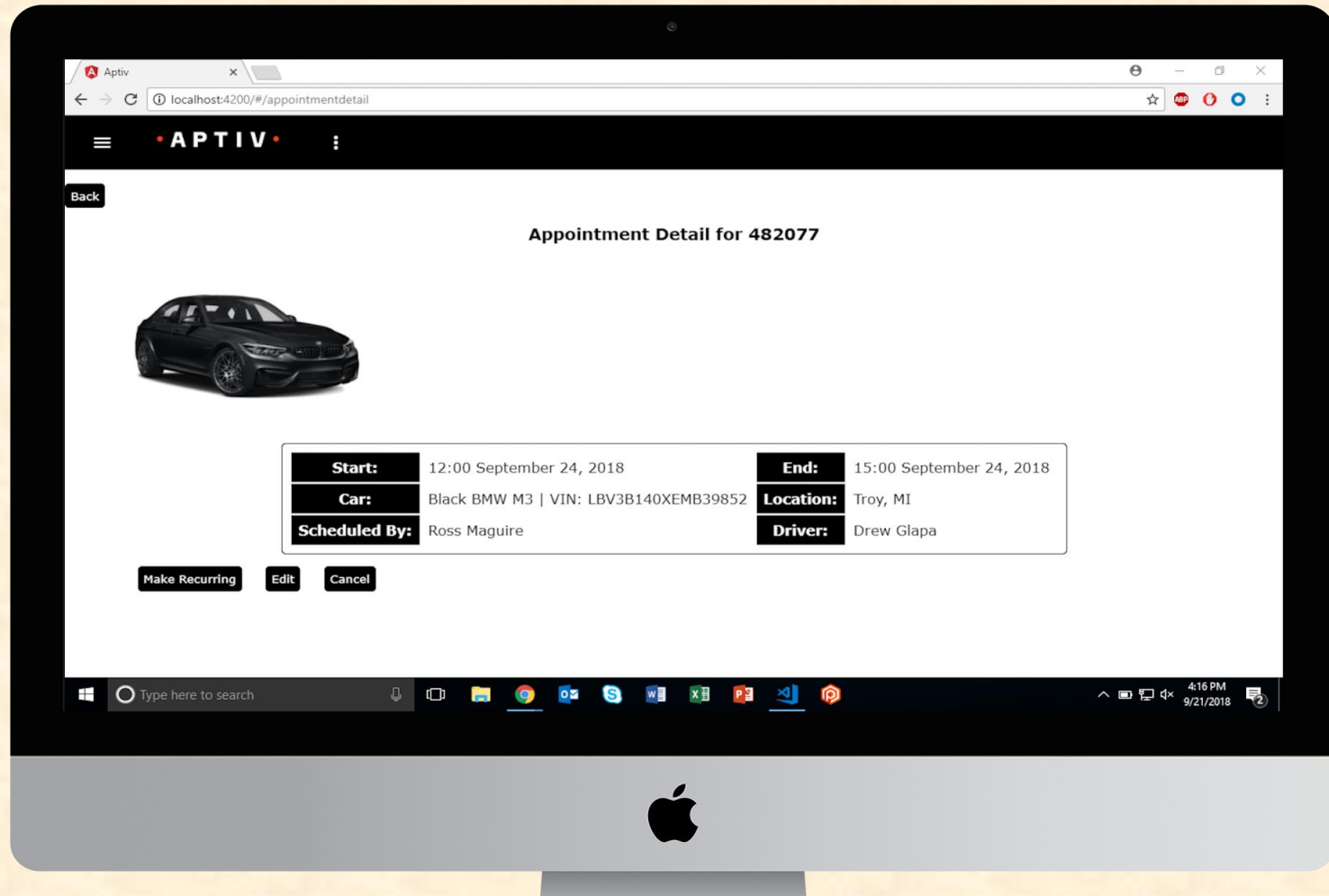
Screen Mockup: Mobile Car Selection



Screen Mockup: Desktop Appointment



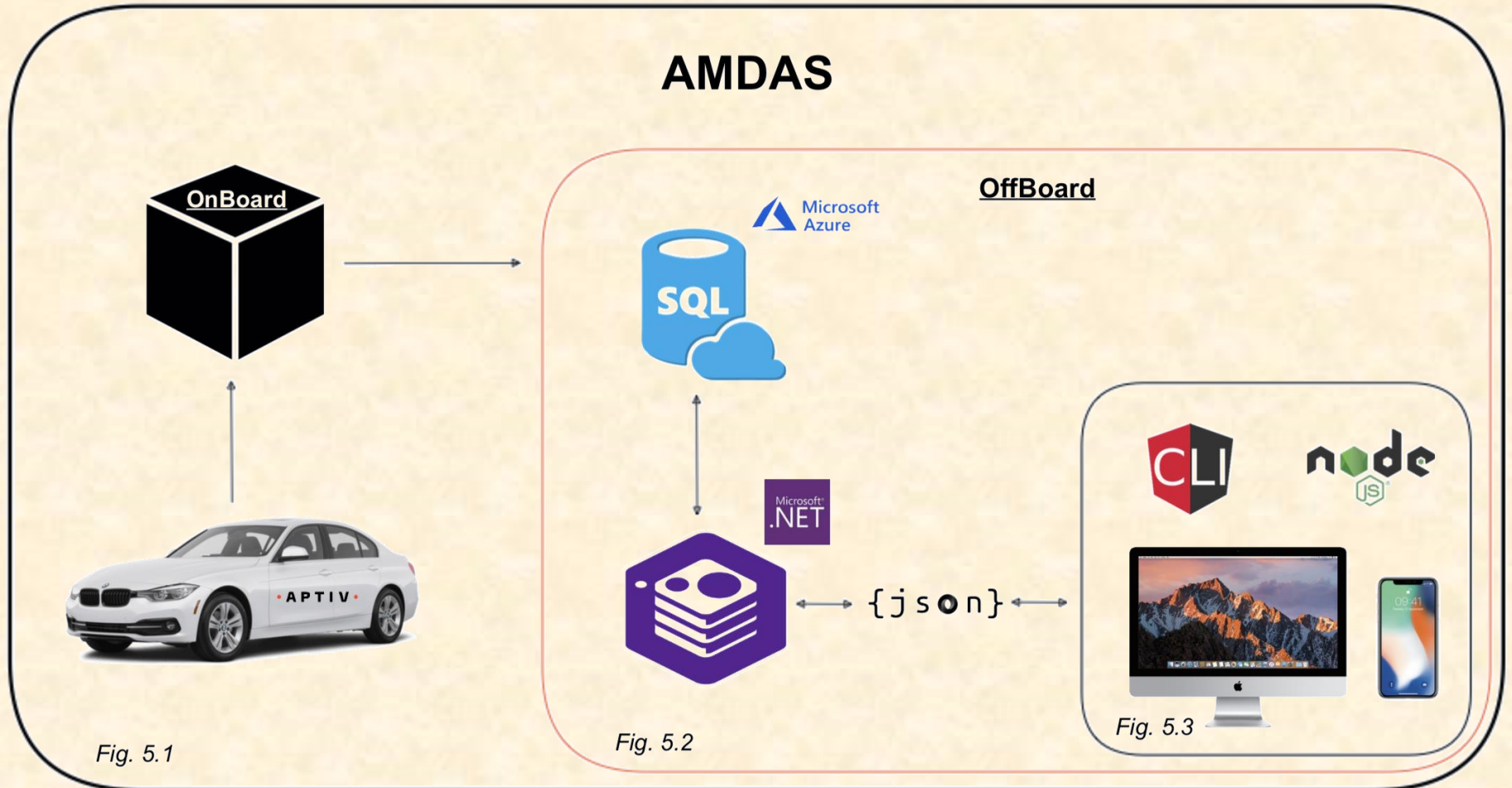
Screen Mockup: Desktop Information



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



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?

?

?

?

?

?

?

?

?

?