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
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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

Choose a date

9/20/2018

Select a vehicle

Cars

White Lincoln MKX
1FGBH41JXMN109186

Black BMW M3
LBV3B140XEMB39852

Grey BMW X5
LBMVB140XEMB39852
Screen Mockup: Mobile Car Selection
Screen Mockup: Desktop Appointment

Appointments for Black BMW M3 | VIN: LBV3B140XEMB39852

- September 28, 2018 15:00-17:00
- September 29, 2018 6:00-8:00
- September 30, 2018 12:00-14:00
Screen Mockup: Desktop Information

Appointment Detail for 482077

- **Start:** 12:00 September 24, 2018
- **End:** 15:00 September 24, 2018
- **Car:** Black BMW M3 | VIN: LBV3B140XEB39852
- **Location:** Troy, MI
- **Scheduled By:** Ross Maguire
- **Driver:** Drew Glapa
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?