

**MICHIGAN STATE**  

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**UNIVERSITY**

# Project Plan Presentation

## Automotive Service Advisor AI Assistant

### The Capstone Experience

#### Team Urban Science

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Michigan State University

Spring 2025



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

# Project Sponsor Overview

- Global leader in automotive data analytics
- Partnered with major automotive brands
- Headquartered in Detroit, MI
- Empower dealerships with actionable insights



# Project Functional Specifications

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- Improve the in-person automotive service experience
- Helps service advisors maximize sales opportunities
- Identify needed services for the customer
- Present customer with information on recommended services



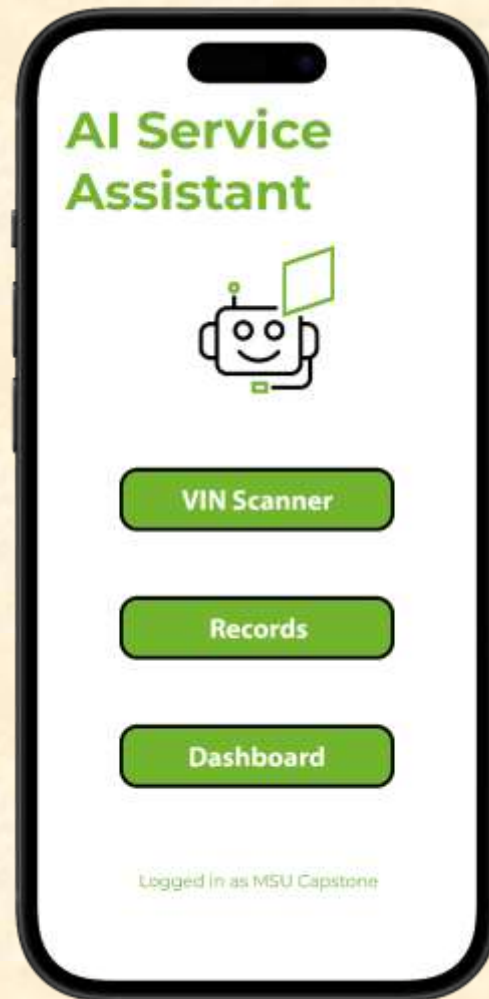
# Project Design Specifications

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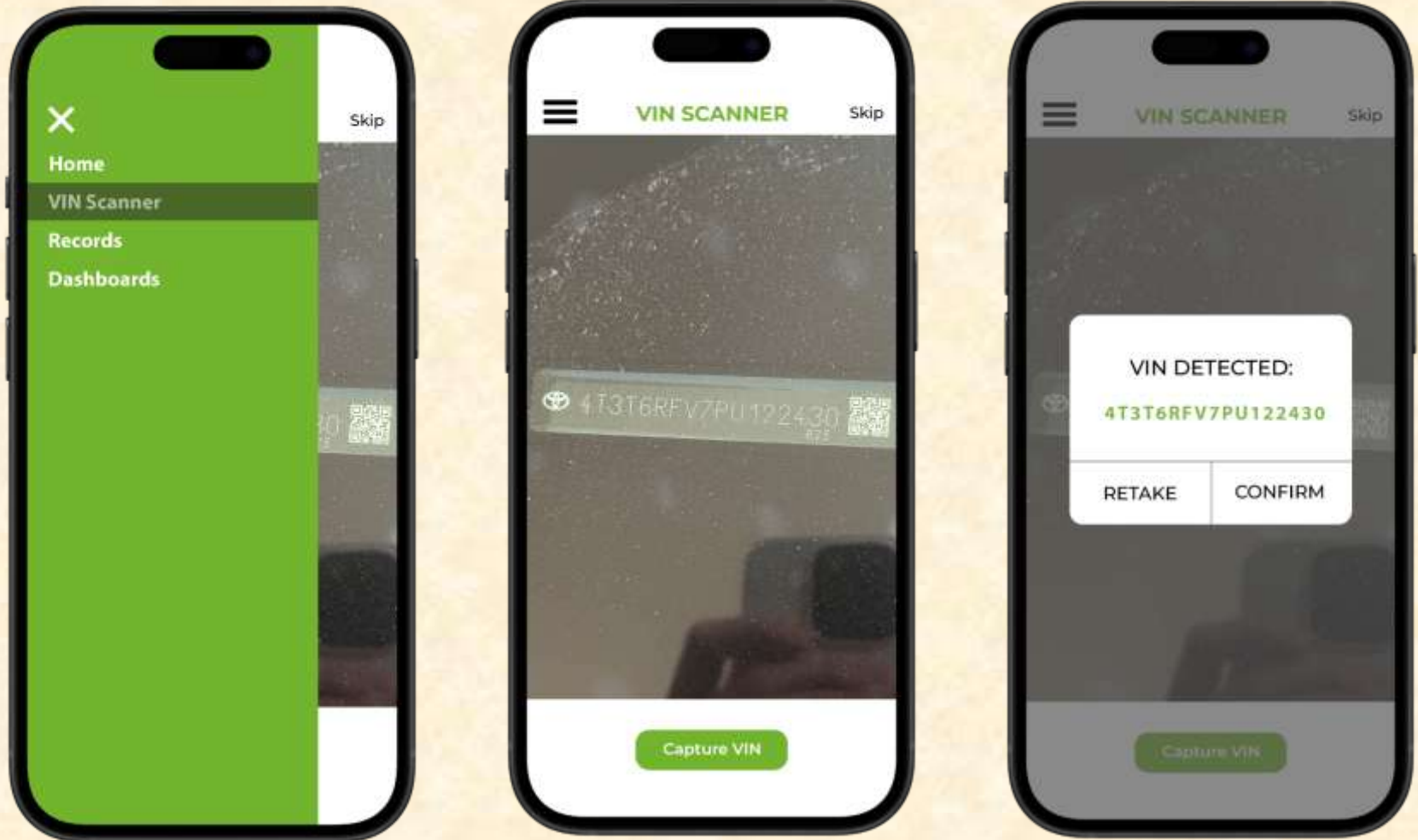
- Cross platform mobile application
- Photo capture of VIN and mileage
- Customer information and service history retrieval
- Create custom sales approach
- Video generation to inform customer
- Data visualizations of company statistics and performance metrics





# Screen Mockup: Homepage



# Screen Mockup: VIN Scanning



# Screen Mockup: Customer Information

 **Service Advisor Customer Information** 

*\* Please ensure all customer information is accurate and up to date before proceeding. Verify the customer's contact details, vehicle history, and past service records to provide the best possible recommendations.*

<b>VIN</b>	<b>Full Name</b>	
<input type="text" value="4T3T6RFV7PU122430"/>	<input type="text" value="John James Doe"/>	
<b>E-mail</b>	<b>Phone Number</b>	<b>Birth Date</b>
<input type="text" value="johnjdoe@msu.edu"/>	<input type="text" value="(517) 355 - 1855"/>	<input type="text" value="January 1st, 1998"/>
<b>Address</b>		
<b>Street Address</b>	<b>Street Address Line 2</b>	
<input type="text" value="428 S Shaw Ln"/>	<input type="text"/>	
<b>City</b>	<b>State / Province</b>	
<input type="text" value="East Lansing"/>	<input type="text" value="Michigan"/>	
<b>Postal / Zip Code</b>	<b>Country</b>	
<input type="text" value="48824"/>	<input type="text" value="USA"/>	



# Screen Mockup: Customer Profile

48824 USA

### Customer Profile

Occupation:  Personality:

Notes

- Huge Detroit Lions fan; played linebacker in college at Michigan State University
- Appreciates straightforward honesty regardless of positive or negative news
- Extremely personable and accepts friendly questions towards work and life

Approach

- Cater to their needs by providing comprehensive answers to their queries
- Create a more favourable and lasting impression by establishing yourself as a likeable and approachable business partner
- Ask relevant questions by demonstrating a genuine interest in their experiences with a particular product
- Introduce colleagues who can help with further assistance and support in their decision-making process to build a solid and mutual relationship

### Vehicle / Service History

MAKE: **Toyota** MODEL: **RAV4** YEAR: **2023** MILEAGE: **22,358**

ORDER ID	DATE	ODOMETER	SERVICE	LABOR	PART NO.	QUAN.	SALE AMOUNT
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# Screen Mockup: Vehicle Service History

Vehicle / Service History

MAKE: **Toyota** MODEL: **RAV4** YEAR: **2023** MILEAGE: **22,358**

ORDER ID	DATE	ODOMETER	SERVICE	LABOR	PART NO.	QUAN.	SALE AMOUNT
1328941	7/29/2024	3,021 mi	OIL CHANGE & FILTER	\$17.89	849	1	\$64.99
1328941	7/29/2024	3,021 mi	FOUR WHEEL ALIGNMENT	\$20.34	102	1	\$64.99
1328896	9/9/2024	5,534 mi	REPLACE ENGINE AIR FILTER	\$27.60	157	1	\$72.65
1328896	9/9/2024	5,534 mi	REPLACE CABIN AIR FILTER	\$6.39	156	1	\$72.65
1337820	10/19/2024	7,029 mi	TIRE REPLACEMENT	\$17.89	849	4	\$44.99
1248422	11/15/2024	10,894 mi	ROTATE INSPECT TIRES & INSPECT MEASURE BRAKES	\$24.32	001	1	\$60.99
134872	12/18/2024	13,223 mi	PADS & ROTORS REPLACEMENT	\$84.21	260	2	\$295.57
1328949	12/22/2024	19,526 mi	CVT DRAIN & FILL	\$58.62	987	1	\$101.12
1334961	1/4/2025	22,300 mi	DIAGNOSE ELECTRICAL PROBLEM	\$44.44	023	1	\$129.99

Recommended Services

MAKE: **Toyota** MODEL: **RAV4** YEAR: **2023** MILEAGE: **22,358**

ORDER ID	SERVICE	DESCRIPTION	SALE AMOUNT
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# Screen Mockup: Recommended Services

134872	12/18/2024	13,223 mi	PADS & ROTORS REPLACEMENT	\$84.21	260	2	\$295.57
1328949	12/22/2024	19,526 mi	CVT DRAIN & FILL	\$588.62	987	1	\$101.12
1334961	1/4/2025	22,300 mi	DIAGNOSE ELECTRICAL PROBLEM	\$44.44	023	1	\$129.99

**Recommended Services**

MAKE: **Toyota** MODEL: **RAV4** YEAR: **2023** MILEAGE: **22,358**

	ORDER ID	SERVICE	DESCRIPTION	SALE AMOUNT
<input checked="" type="checkbox"/>	1334961	OIL CHANGE & FILTER	• Ensure engine oil and filter are replaced	\$44.99
<input type="checkbox"/>	1325961	TIRE ROTATION	• Rotate tires to ensure even wear • Check tread depth, alignment, and any damage	\$38.99
<input type="checkbox"/>	1381917	ROUTINE INSPECTION	• Check and top off or replace essential fluids (engine oil, coolant, coolant) • Examine belts, hoses, battery, and filters for damage or leaks • Inspect tire pressure, tread depth, and basic brake system check	\$125.99
<input type="checkbox"/>	1364230	BRAKE SYSTEM INSPECT	• Inspect brake pads, rotors, and calipers for wear and tear • Replace brake pads if close or below the recommended thickness	\$68.99

**GENERATE MEDIA**



# Screen Mockup: Dashboard

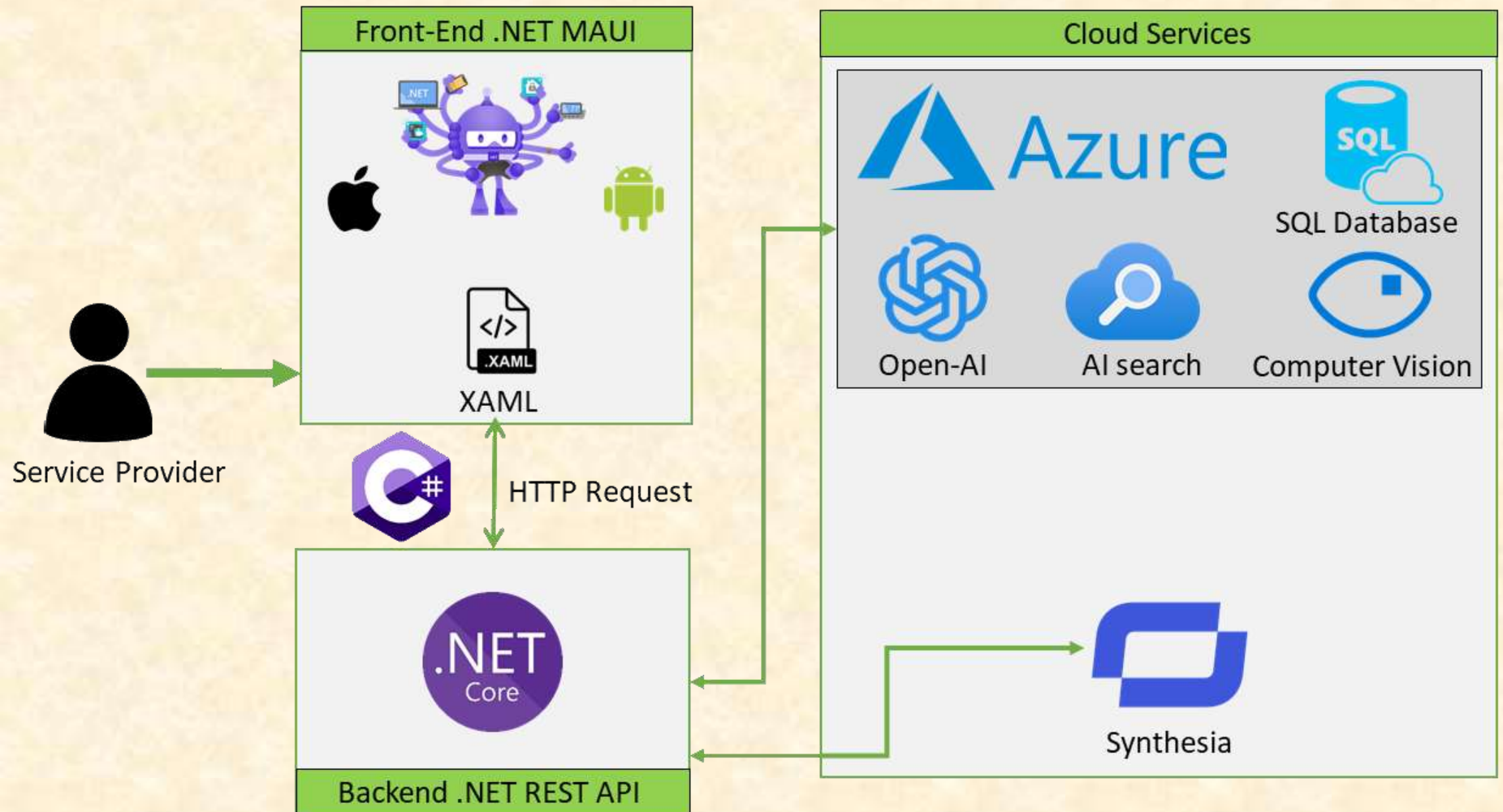


# Project Technical Specifications

- User Interface will be created using .NET MAUI with XAML
- Backend is created using .NET Web API using C#
- SQL Database being hosted on Azure
- Azure Cloud Services that are being used are: Open-AI, Computer Vision, Search.
- Synthesia is being used for generating personalized AI media



# Project System Architecture



# Project System Components

- Hardware Platforms
  - Mobile Devices
- Software Platforms / Technologies
  - .NET MAUI
  - .NET Core API
  - SQL Database
  - Azure Cloud Services
  - Synthesia



# Project Risks

- Risk 1
  - Description: Capturing customer demographic data
  - Mitigation: Categorizing customer into specific lifestyle type
- Risk 2
  - Description: Web API Hosting
  - Mitigation: Host our .NET backend on Azure App Services
- Risk 3
  - Description: Sending image of VIN to the backend and returning vehicle data in JSON
  - Mitigation: Explore appropriate C# JSON serializing libraries that enable decode and encoding between our backend and frontend systems
- Risk 4
  - Description: Scanning mileage on vehicles
  - Mitigation: Adding manual input for mileage, and create UI that can allow service advisors to select correct mileage digits



# Questions?

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