

**MICHIGAN STATE**  

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**UNIVERSITY**

# Project Plan Presentation

## Synthetic Media

### The Capstone Experience

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

# Project Sponsor Overview

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- Products & Services
  - Data analysis & consulting services for the automotive sales
  - Modern network planning to the automotive industry



# Project Functional Specifications

- Challenges

- Users had to manually analyze data and leave comments to the dashboard
- Making instructional videos using external resources (actors, other services, etc.) are costly, timely, complicated and inefficient.

- Solutions

- Real time data analysis and instruction to the user
- Brief written report and detailed video instructions



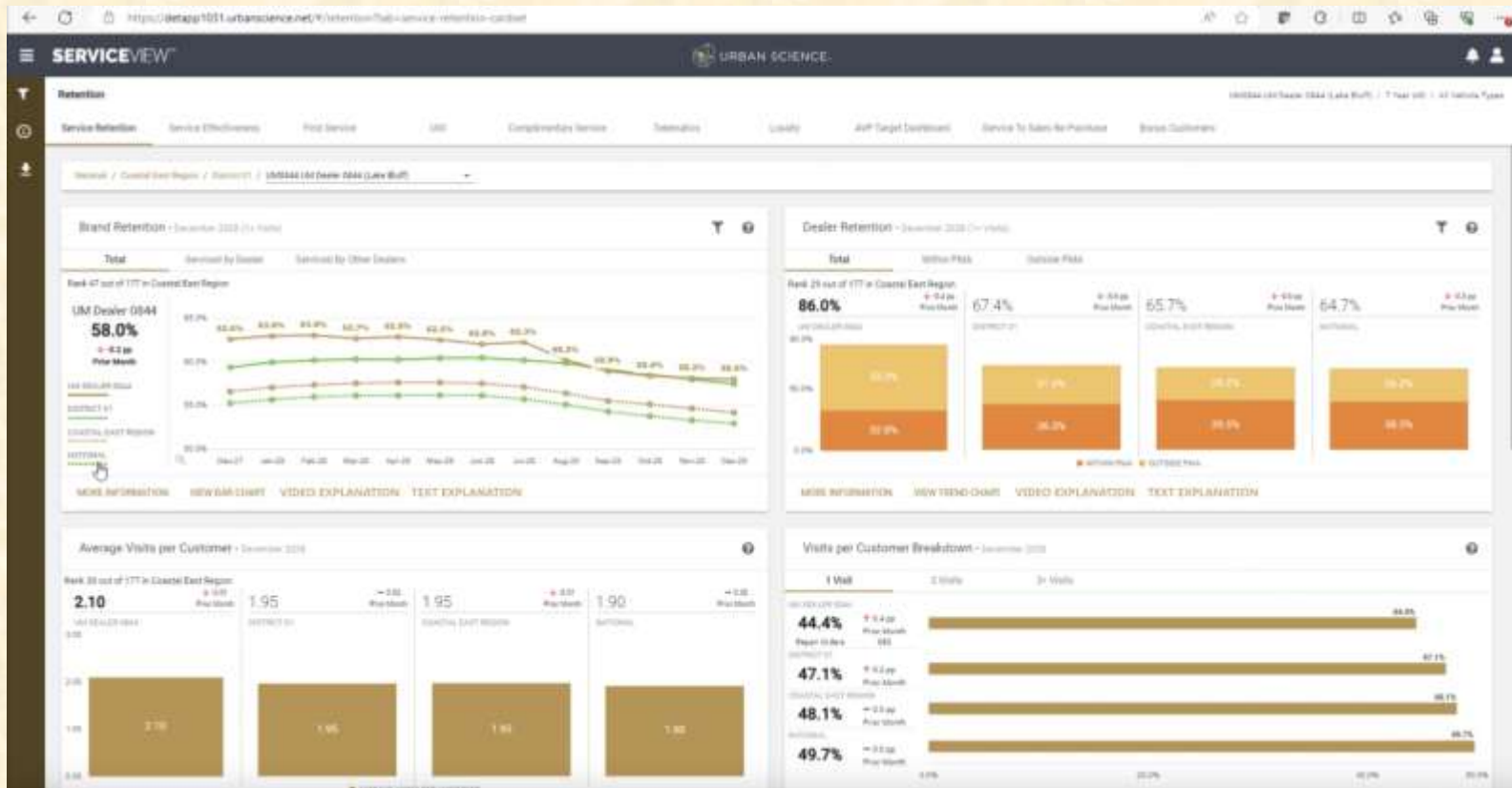
# Project Design Specifications

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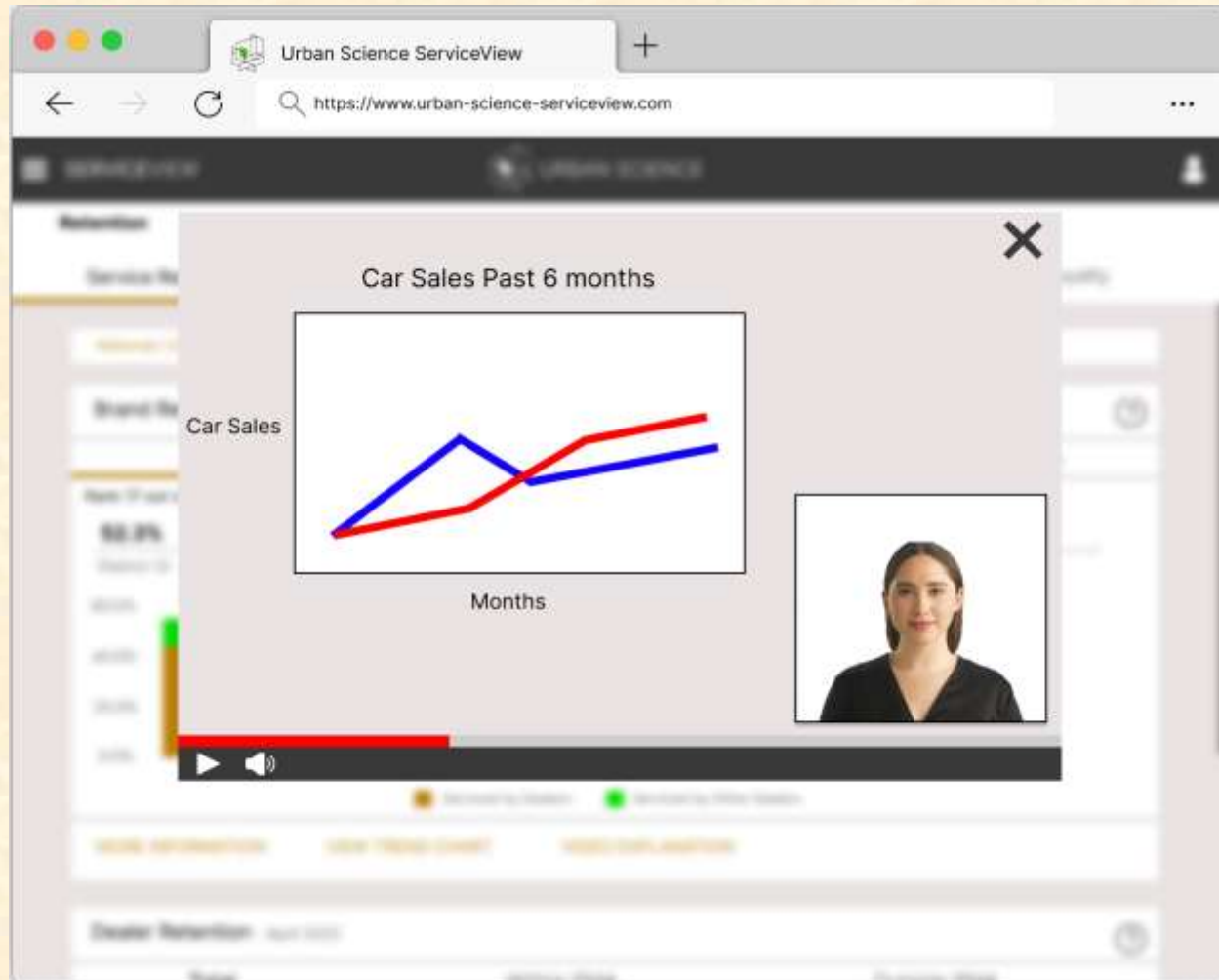
- One-click real time data analysis based on most up-to-date data
- Instructional video with virtual avatar explaining in detail
- Highlights on main points of improvements (e.g., decreasing trend in sales)



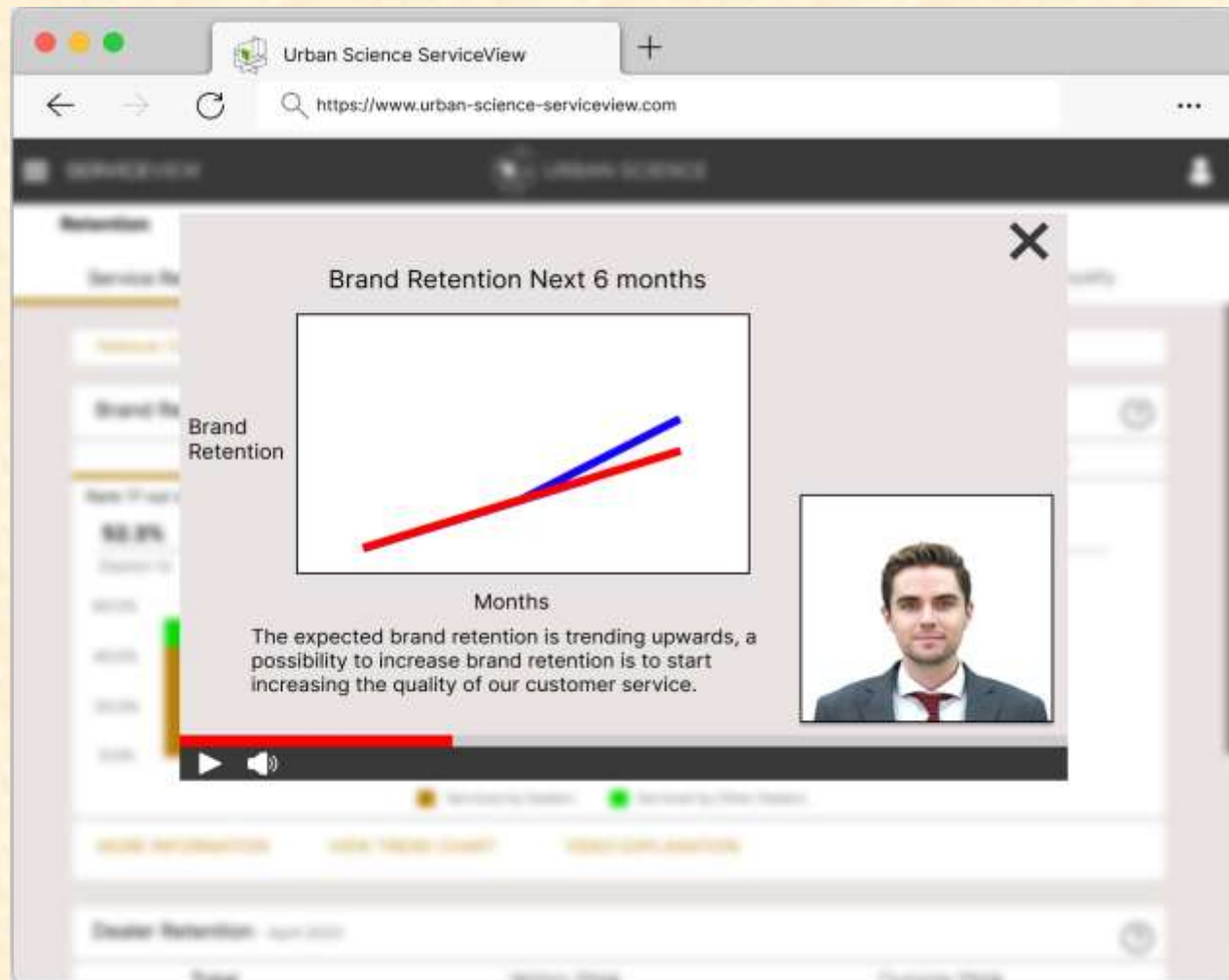
# Screen Mockup: Home Page



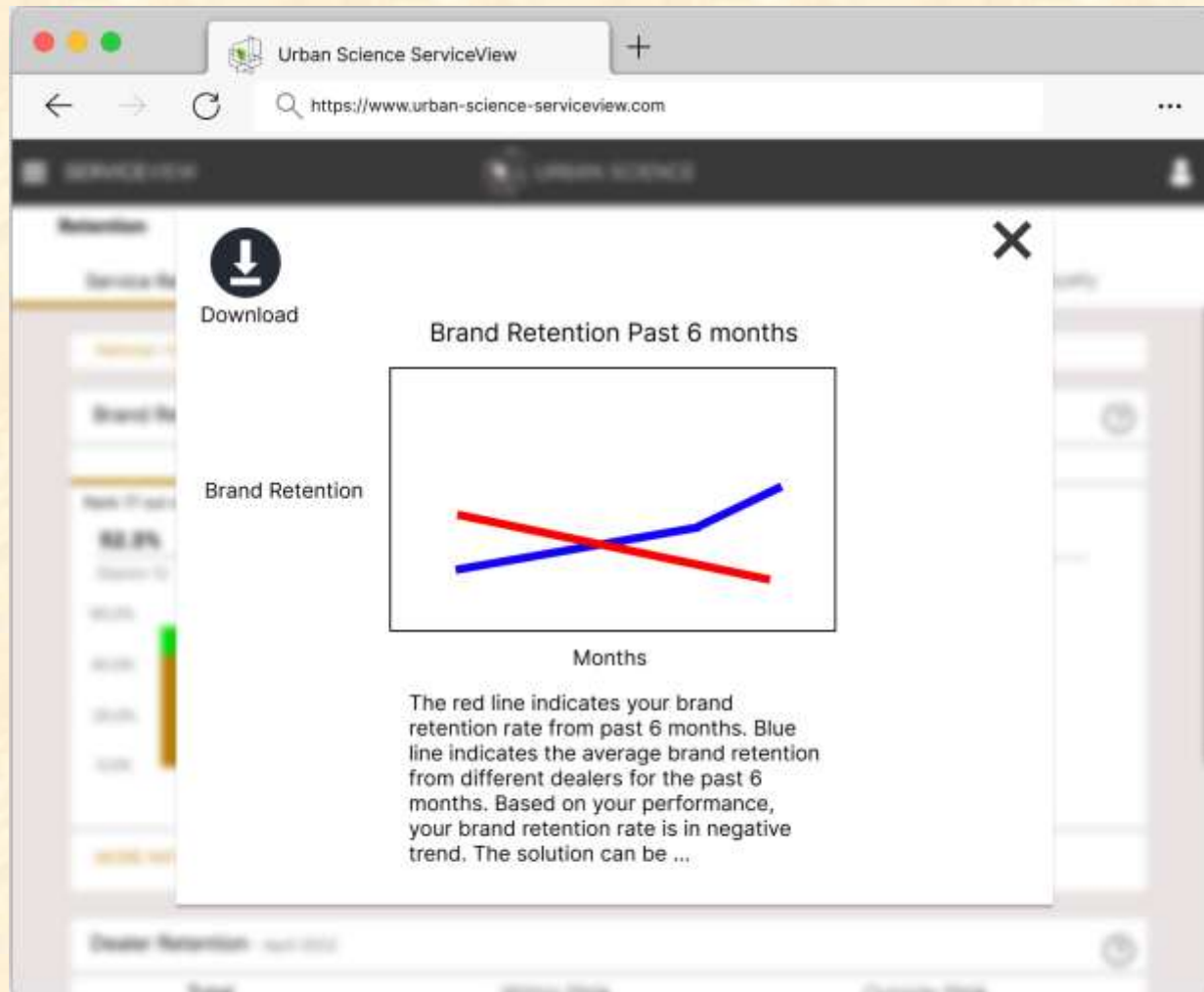
# Screen Mockup: Widget Popup



# Screen Mockup: Video



# Screen Mockup: Brief Text Report



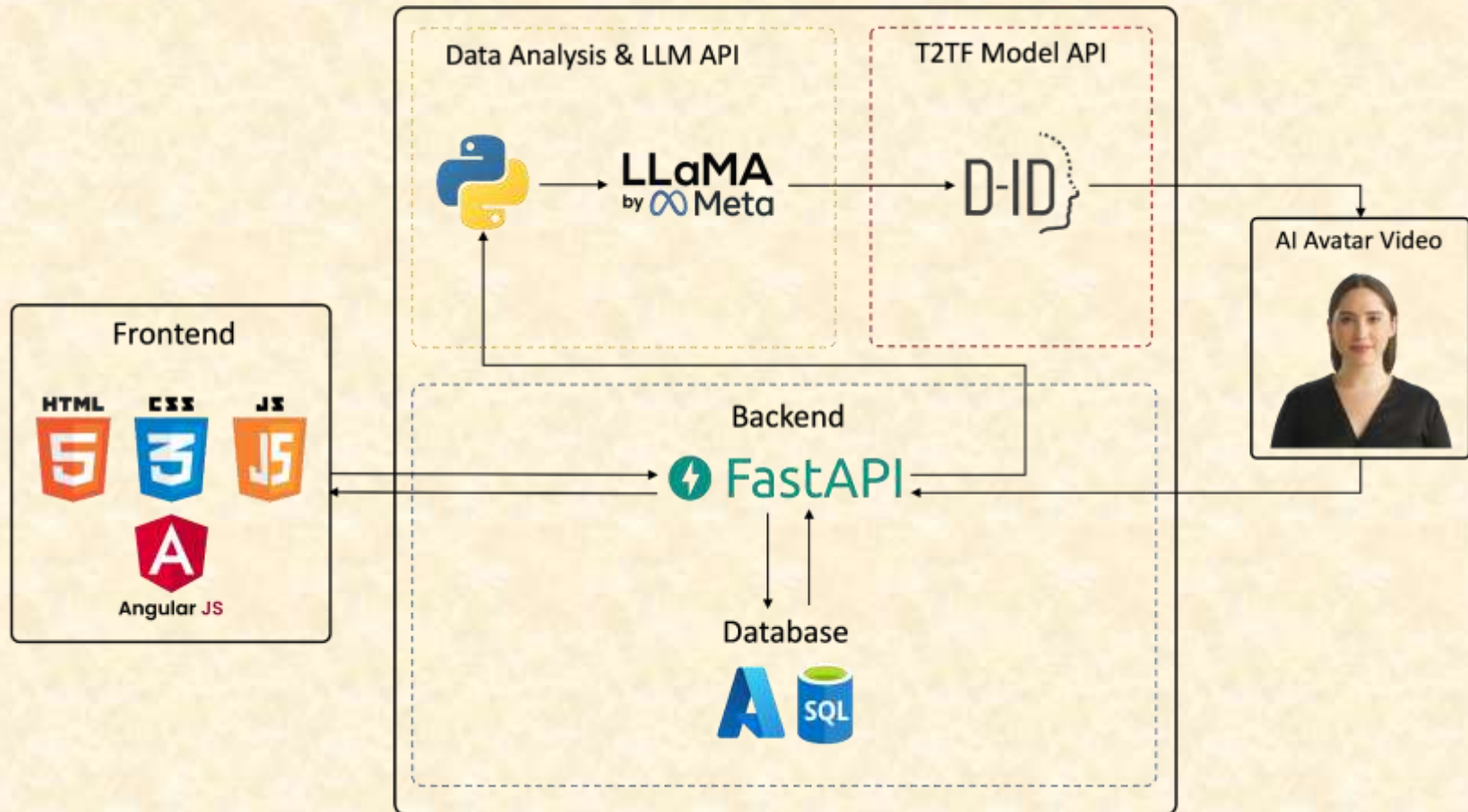


# Project Technical Specifications

- Frontend makes the API call to the backend. FastAPI deals with query and data retrieval from Azure SQL DB.
- Sends the retrieved data to the analysis modules, which will output keywords and concepts must be used for LLaMA-2 API.
- LLaMA-2 API generates text prompt for D-ID API.
- D-ID API generates video of avatar based on the prompt, then it's sent via FastAPI and shown on the frontend popup screen



# Project System Architecture



# Project System Components

- Frontend
  - HTML, CSS, AngularJS
- Backend
  - FastAPI, Azure SQL Database, Azure App Services
- Data Analysis
  - Python
- Text & Video Generation
  - Python: D-ID API, LLaMA-2 API



# Project Risks

- Quality limitations in Pretrained Talking Face Models
  - There are many pretrained talking face models, but the the videos are not guaranteed to be coherent and smooth.
  - Listed few APIs (e.g., D-ID) for alternative candidates. Awaiting client's decision.
- Absence of data
  - Requested and confirmed sharing mock-up data
  - Currently in progress for mock-up data migration
- Generic Feedback from LLaMA-2 API
  - Further research in progress. Finetuning in consideration.
  - Feedback dataset may be requested if finetune.



# Questions?

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