MICHIGAN STATE
U N I V E R S I T Y

Project Plan Presentation
AI-Based Chat Service

The Capstone Experience

Team RPM

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From Students…
  …to Professionals

Project Sponsor Overview

RPM

- International logistics and supply chain solutions company
- End-to-end transportation service provider
- Specializes in vehicle logistics across North America and freight transportation to and from Europe

93%	60k+	30	20+
9-Year CAGR	Vehicles Transported Per Month	Countries We Service	Languages We Speak

Project Functional Specifications

- Problem:
  - RPM has high call volumes, slow tracking responses, and requires 24/7 on-call representatives

- Solution:
  - AI Chatbot that mimics a customer service representative

- Value:
 - Enhance customer service, reduce RPM's cost, and provide instant answers to drivers and customers
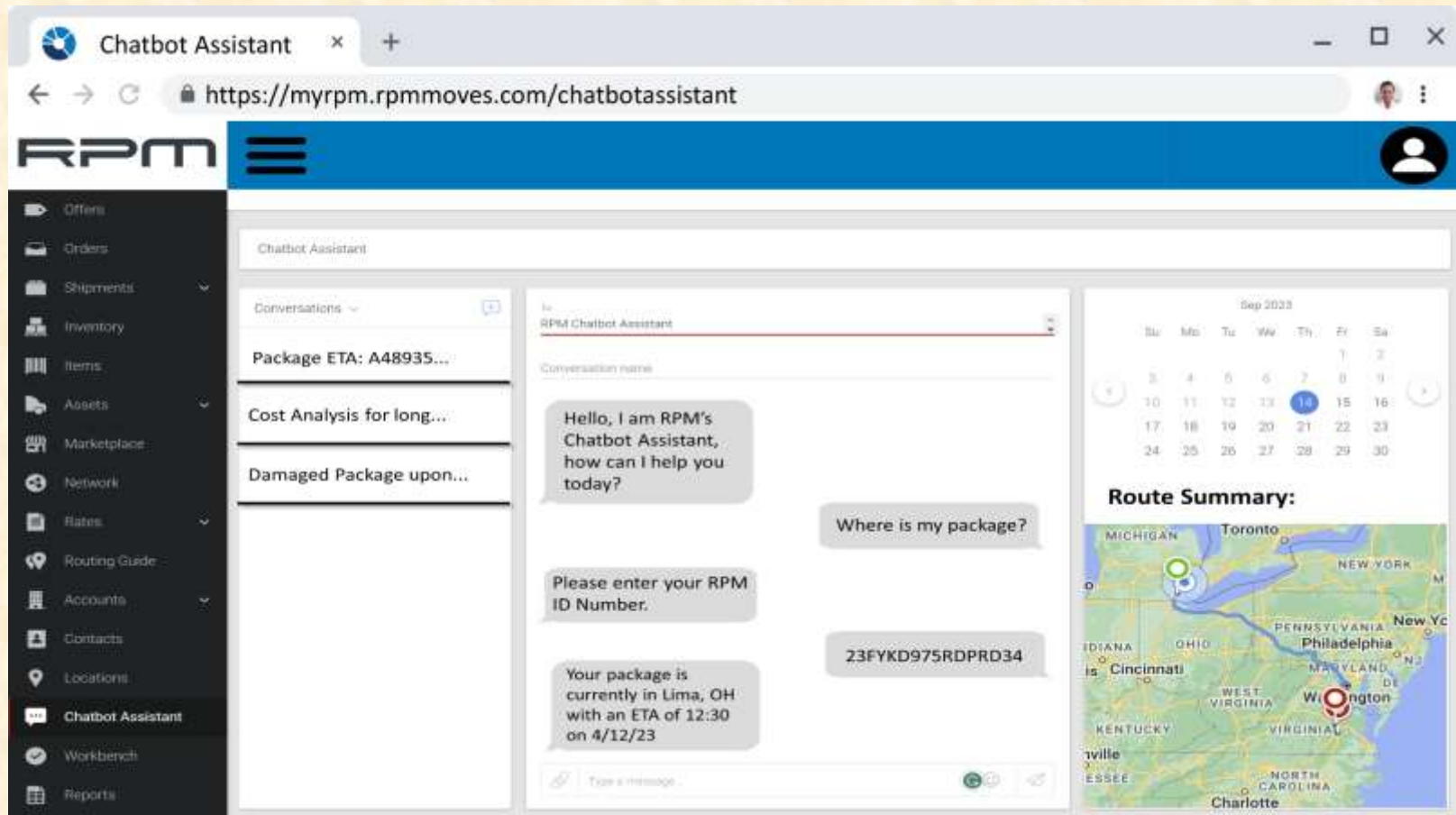
Project Design Specifications

- Universal Chatbot Back-End Service
  - A versatile service that can be integrated into any platform: web, mobile, messaging, etc

- Imitating Call Center Representatives
  - Simulate human-like text-based conversations using AI

- Seamless User-to-Representative Transition
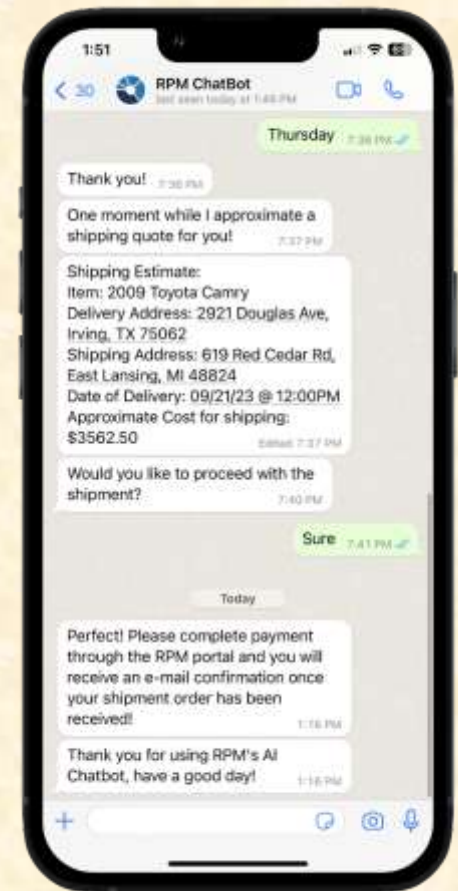 - Smoothly transfer users to a representative when needed
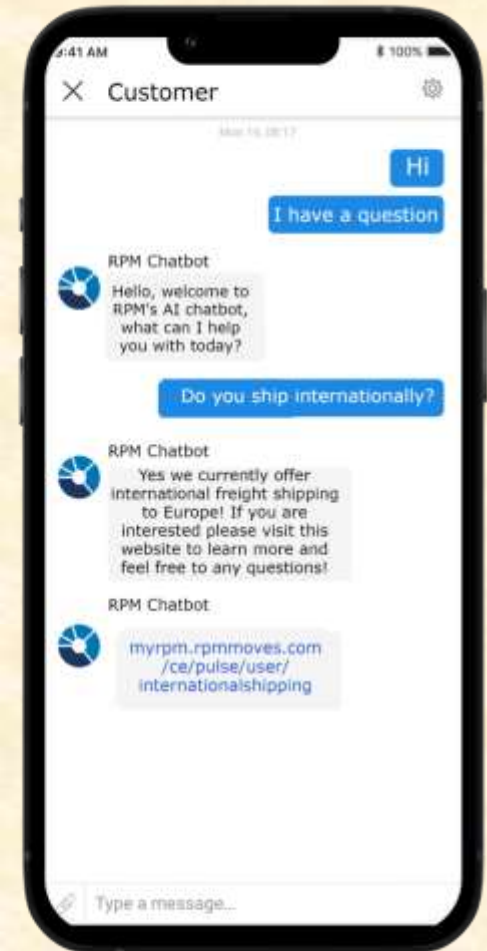
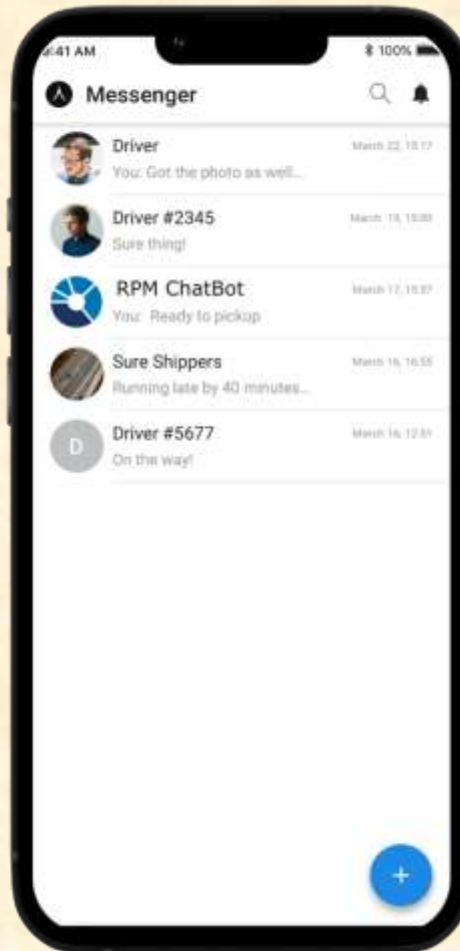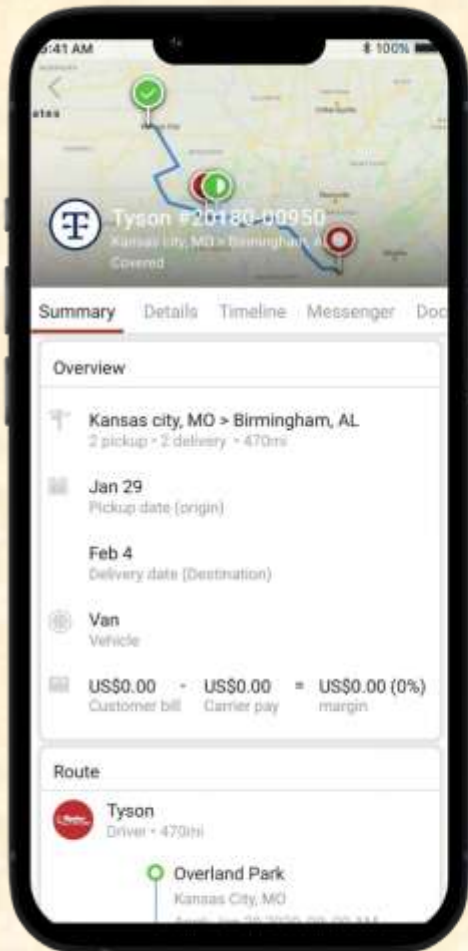# Screen Mockup: SMS Based Chat
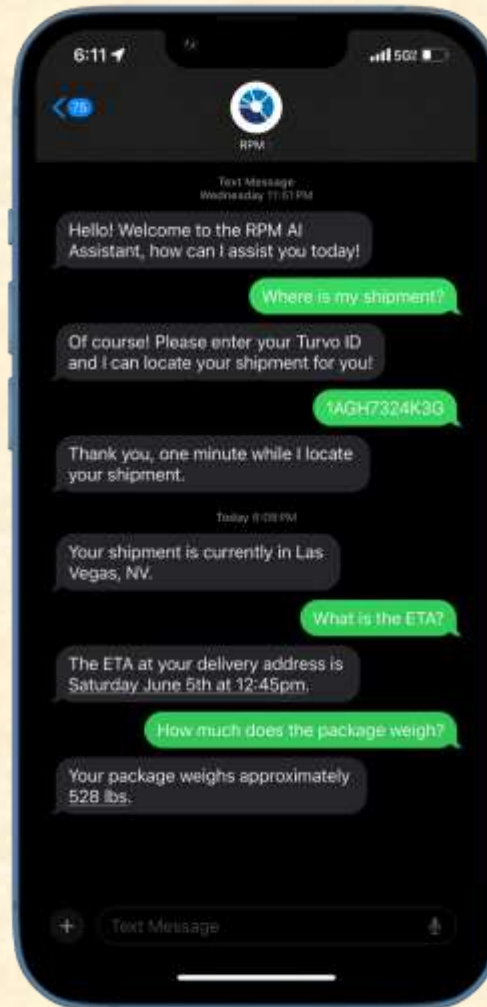
Screen Mockup: Web Based Chat

Screen Mockup: WhatsApp Based Chat

Screen Mockup: RPM App Based Chat

Project Technical Specifications

- Front-End Input:
  - User messages are received through a front-end interface (Web, SMS, App)
- Back-End:
  - Back-end service parses user messages, translates to queries, pulls from database, processes and responds to user inquiries
- Turvo API Integration:
  - Turvo API used to access real-time data from RPM's .NET database
- Natural Language Processing (NLP):
  - OpenAI-driven algorithm to process user messages, understanding intent and context for lifelike text conversations

Project System Architecture
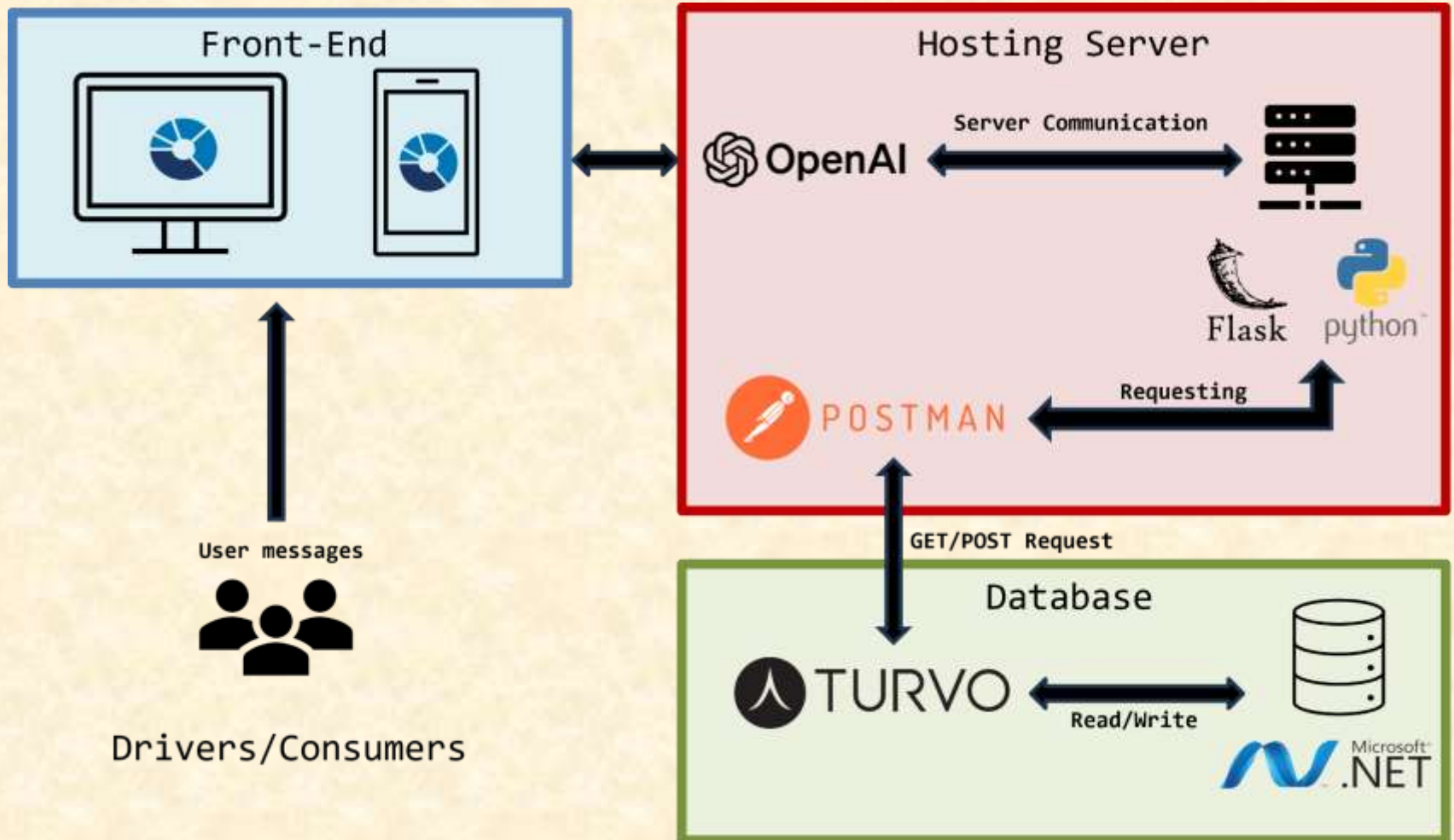
Project System Components

- Software Platforms / Technologies
  - Microsoft .NET / Azure
    - RPM's Back-End and Database
  - OpenAI API
    - AI model used for NLP and responses
  - Turvo API
    - RPM's database client, used to access data and query processing
  - Postman API
    - Used to make API calls to Turvo and receive data
  - Python
    - Flask server used to operate and host server

Project Risks

- Making the users command / OpenAI's API send a query that is compatible with Turvo's API
  - The query sent from OpenAI may not get the intended response from the TurvoAPI
  - See if the OpenAI API can send database query / make a database of common queries to send to the Turvo API
- Incorporating OpenAI API and keeping the chat focused
  - OpenAI API will be handling the incoming and outgoing user messages and should be able to answer the question while staying focused
  - Read OpenAI's fine-tuning documentation, example chatbots, AI training
- Translating English to database query
  - A plain English question will need a method of translation from English to a query for the TurvoAPI to process
  - Research open-source tools and Text-to-SQL methods
- Handling nuanced questions that query + logic might not be able to handle
  - There is a chance that certain complex questions may be asked such as "What is the price per mile?" or carriers looking to get paid but may need other requirements completed first
  - Interview call center representatives and study call transcripts to create a list of potential questions that may be asked

Questions?