

**MICHIGAN STATE**  

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**UNIVERSITY**

# Beta Presentation

## Everyday Agent

### The Capstone Experience

#### Team Launch

Will Bray-Cotton

Deirdre Eusebi

Swabhan Katkooi

Gregory Lis

Anthony Oo

Palina Skakun

Department of Computer Science and Engineering  
Michigan State University

Spring 2025



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

# Project Overview

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- Wearable device
- Track personal items through object detection
- AI assistant
- Demonstrates functionality on a compact device



# Team Member's Technical Tasks

## Technical Tasks Assigned

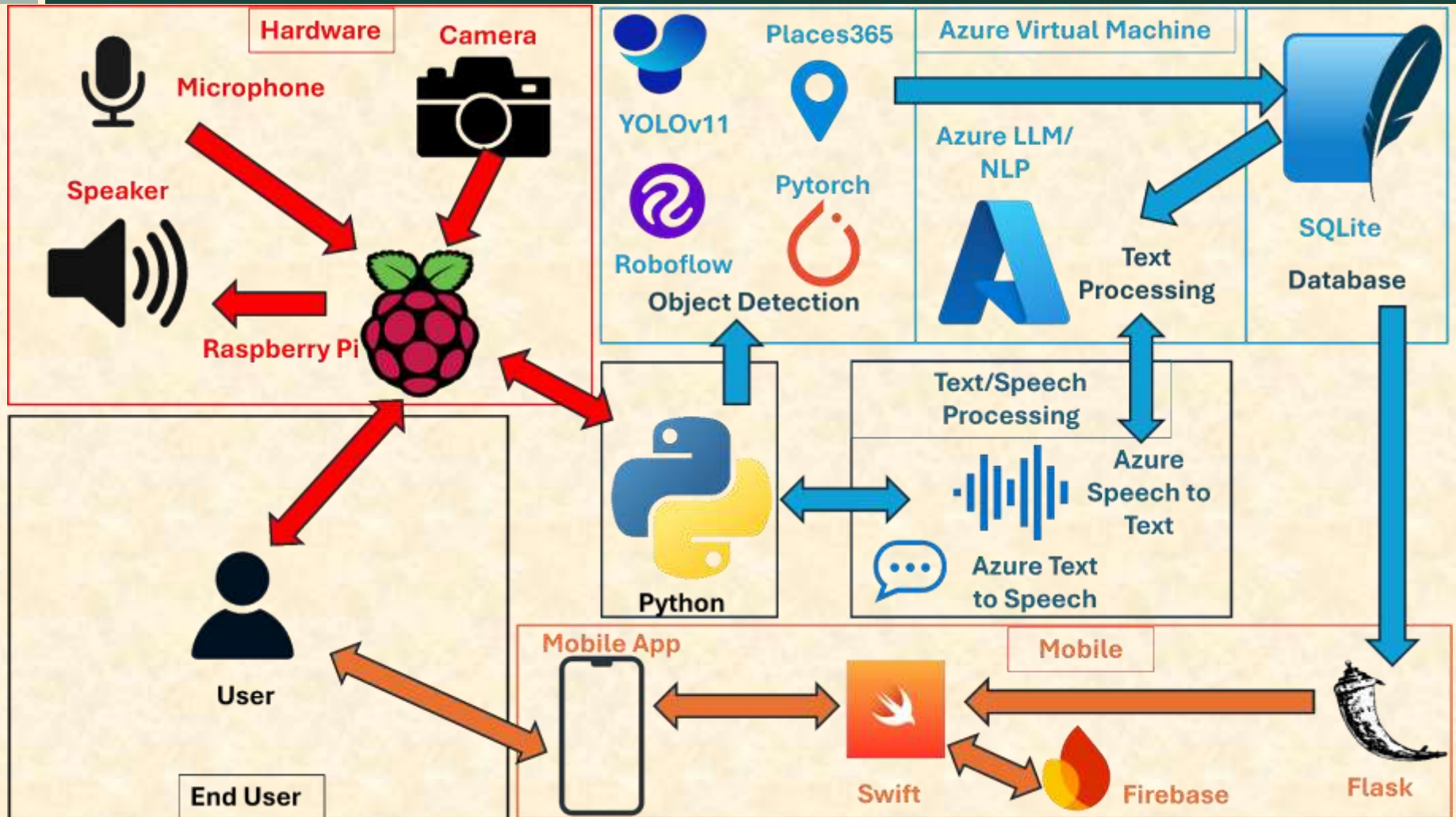
- Will Bray-Cotton
  - Implemented CNN environment prediction model
  - Server/ Raspberry Pi API & integration
  - Raspberry Pi hardware construction and error handling
- Deirdre Eusebi
  - Integrated Azure Speech API for the speech to text feature
  - Wake up word and listening functionality for follow up questions
  - Integrated Google Calendar API for the reminders feature
- Swabhan Katkooi
  - Object detection integration and implemented CV strategies
  - Developed activity classification and connected to project
  - Improved frame handling and resolved bottleneck issues
- Gregory Lis
  - Created a dynamic database protected inside an isolated thread
  - Object detection and Everyday Agent architecture/ integration
  - Raspberry Pi hardware and interfaces (GPS, LED controller, voice bonnet)
- Anthony Oo
  - Text to speech integration with predicted and address location
  - Spacy NLP to classify if personal item/ general query
  - Azure OpenAI integration w/ memory for queries and classifying
- Palina Skakun
  - App front end and back end (login, dashboard, chatbot)
  - Connect iOS (Swift) back end to project's back end and database
  - Text to speech script with keyword extraction and NLP

## Technical Tasks Completed

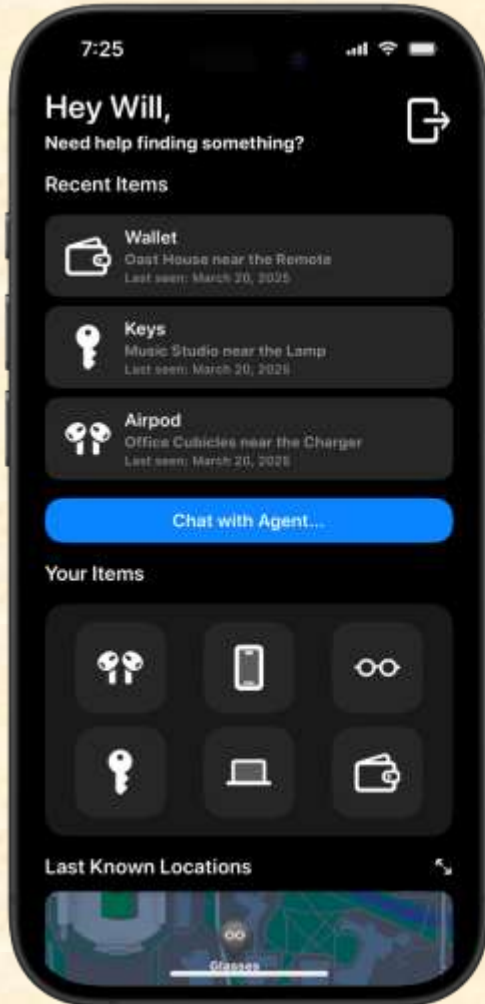
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- Palina Skakun
  - iOS app front end and back end (login, notifications, chatbot)
  - Connected the app to project with Flask REST API w/ complex SQL joins
  - Real-time speech recognition system with Azure keyword extraction



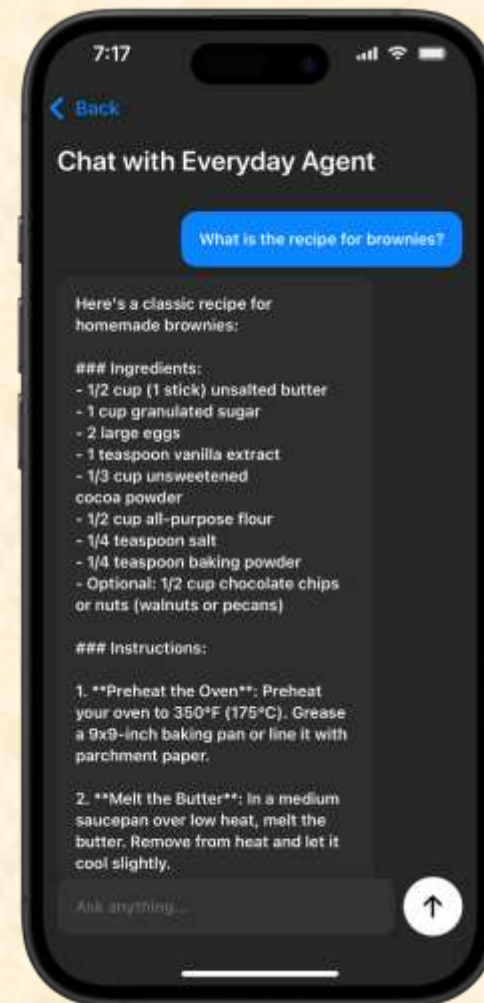
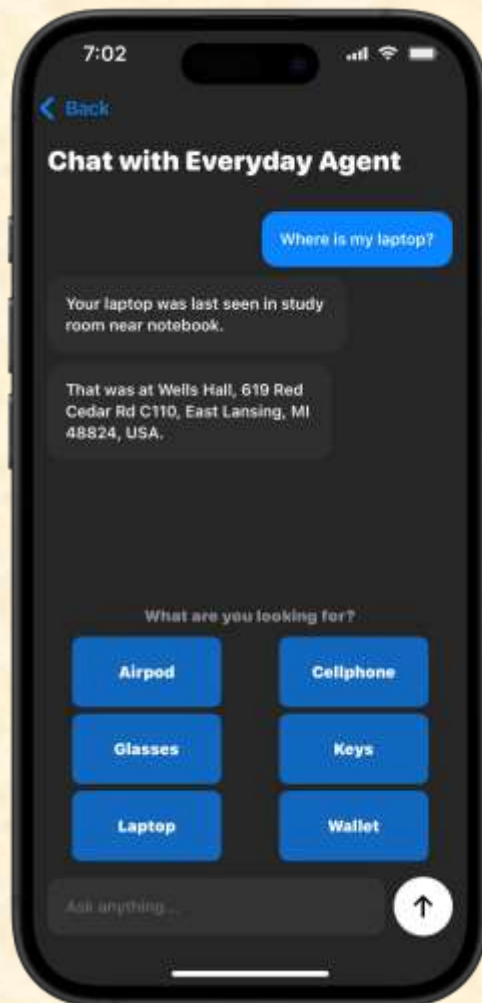
# System Architecture



# App Dashboard



# Chat with Everyday Agent



# Locating Personal Item

Hey Agent, where is my wallet?

Your wallet is in a classroom, near a chair and table, at 438 S Shawn Lane, East Lansing, MI 48824, USA!

Thanks!



# Predicted Location



Hi Agent, where are my keys?

Your keys are in a bedroom at 3700 Starlight Lane, Lansing, MI 48911, USA. Near it you will find a lamp and a table!

Hey Agent, they aren't there!

Based on past data, I predict that the keys might be in the kitchen with objects like a stove and plate nearby!





# What's left to do?

- Features
- Stretch Goals
  - OpenvSLAM to improve environment detection accuracy
  - Lighting adjustment for object detection
  - Hand tracking for object verification
  - Improve the Pi's case
- Other Tasks
  - Bug fixes for end user (connection, detection, long term reliability)
  - Review documentation
  - Ensure code follows a uniform standard



# Questions?

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