Talk For Me

THE UNIVERSITY of ADELAIDE

INTRODUCTION

Background & Motivation

Talk For Me is an **Augmentative and Alternative Communication (AAC)** iOS app that helps non-verbal individuals communicate by generating text suggestions from images. Many, including stroke survivors, face **challenges in expressing themselves**, and traditional tools like sign language are often insufficient.

The app was inspired by Dr. Matthew Berryman, who developed it after a stroke left him temporarily unable to speak. Currently in alpha, this project aims to enhance the app's functionality, providing **better support for neurodivergent users i**n real-world contexts.

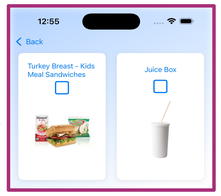
Objectives

1. **Improve the User Interface** (UI) for better accessibility and usability.
2. **Integrate Location-based systems** to provide personalized menu suggestions.
3. **Optimize Large Language Models** (LLMs) for accurate, timely responses.

Scope

The scope focuses on simplifying the UI with larger buttons and clearer layouts to **reduce cognitive load**. Location-based systems will provide **personalized menu** suggestions, and LLM optimization will ensure **accurate, timely responses** for smooth communication

DESIGN



Location-based menu items

- Inside the restaurants are its respective menu items.
- Menu items are acquired from an external database using RESTful API archetype.

Location-based restaurants

- Click "Categories" heading to toggle from category view to restaurant view.
- When near a restaurant, it will show up on the restaurant view dashboard.

Category dashboard

- Story-like UI interface for categories allowing for ease of usability for users.

UI spacing and alignment

- UI interface with improved spacing and white space, allowing for better visibility. Items with redesigned with white boarders for improved visibility and cognitive load.

Redesigned background

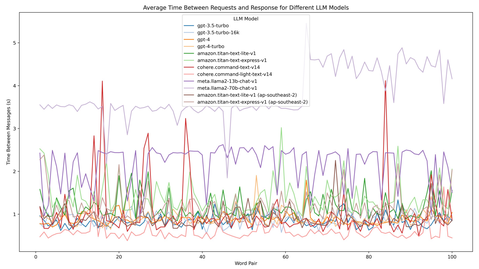
- Custom designed background with aesthetics similar to the brand logo. The contrast between the background and foreground elements increases visibility and reduces cognitive load.

Redesigned Toolbar and icons

- Toolbar relocated to the bottom for reduced cognitive load. Custom designed button with app logo centered in the middle.

Large Language Models

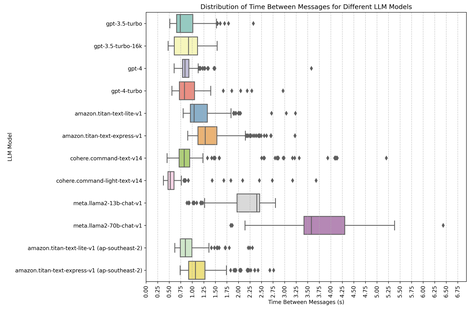
A selection of Models from several companies were taken and tested for performance in speed, and accuracy in fulfilling prompt requests. With testing done for varying prompts, keywords, regions, along with Prompt Engineering done to improve the performance of failing models



EVALUATION & FINDINGS

Testing

- **Functionality and Component:** Testing on the individual and combined functions that were implemented were done, with a focus on ensuring compatibility with one another.
- **Performance:** Testing was completed on 14 LLM solutions to determine the best performance, by speed of responses, along with the consistency of appropriate responses.



Outcomes

- **User Interface Enhancements:** A fresh look for the app, featuring better spacing, redesigned icons, improved colour contrast, and more accessible buttons. The reduction in cognitive and kinetic load, makes the app easier to navigate for neurodivergent users.
- **Location-based Systems:** Location-aware features now provide personalized menu suggestions when the user is near a restaurant, streamlining communication by minimizing manual input.
- **Large Language Models (LLMs):** The app now leverages optimized LLMs for faster, more accurate sentence generation, resulting in a smoother, more responsive experience during real-world use.

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ACROSS THE CLOUD