

# The Local Graph Voice Assistant

Dylan, Chase, Marcel, Ashton and Mel

03/25/2025

## Overview

This project provides a voice assistant for campus navigation that integrates:

- **Voice Interaction:** Uses LiveKit to handle audio commands.
- **Route Planning:** Implements Dijkstra's algorithm to compute optimal routes.
- **Interactive Map Display:** Uses Streamlit and Folium to visualize routes.
- **Graph Data Management:** Loads and exports graph data from an Excel file (`compendium.xlsx`) and GeoJSON (`qgis_1.geojson`).

The assistant helps users determine the shortest travel time (or distance) between two zones, and optionally display the route on an interactive map.

## Features

- **Voice Assistant:** Connects to a LiveKit room and listens for user commands.
- **Route Calculation:** Uses Dijkstra's algorithm for optimal pathfinding.
- **Map Visualization:** Displays routes with building markers on a campus map.
- **Graph Data Integration:** Loads nodes, edges, and location information from external files.

## Prerequisites

- Python 3.8 or higher.
- pip (Python package installer).

## Setup Instructions

### 1. Clone the Repository

Clone the repository and change into the project directory:

```
git clone <repository_url>
cd <repository_folder>
```

### 2. Using the Provided Virtual Environment

The repository already includes a pre-built virtual environment in a folder named `testenv`. To activate it:

**Windows:**

```
testenv\Scripts\activate
```

**macOS/Linux:**

```
source testenv/bin/activate
```

**Note:** Since the virtual environment is already included, you do not need to create one or install dependencies unless changes are made.

### 3. Environment Variables

Ensure you have a `.env` file in the project root with the following variables:

```
API_KEY=your_api_key_here
```

### 4. Update the GUI File Path

In `testing.py`, locate the function `generate_map()`. Update the command string with the correct file path to your `gui_experimental.py`. For example, change:

```
cmd = (
    'python -m streamlit run "C:\\\\Users\\death\\Downloads\\AI VOICE ASSISTANT\\AI VOICE ASSISTANT\\gui_experimental.py"'
)
```

To:

```
cmd = (
    'python -m streamlit run "path/to/your/gui_experimental.py"'
)
```

### 5. Access the Voice Assistant Online

To interact with the assistant, visit <https://agents-playground.livekit.io/>. **You must request access from Dylan** to use this feature.

## Running the Application

### Running the Assistant

The entry point for the application is in `testing.py`. Run it using the following command:

```
python testing.py start
```

This command starts the assistant, which will:

- Connect to a LiveKit room.
- Load the graph data from Excel and GeoJSON.
- Listen for user commands.
- Optionally launch the map interface via Streamlit.

### Map Application

To launch the Streamlit map interface directly, run:

```
streamlit run path/to/your/gui_experimental.py
```

### Ask the AI questions

Try asking about the best group in the universe, or maybe even if the AI is AI.

### Contact

For any questions or support, please contact Dylan at [www.openai.com](http://www.openai.com).