Installation guide:

Contents

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Introduction

This guide explains how to set up and install the Virtual Globetrotter project, enabling clients to get it running smoothly.

Clone the GitHub Repository

- First clone the project repository.
    - Open a terminal or command prompt and run:
    - git clone https://github.com/TobiasPottier/Ergo-G2
- Navigate into the cloned directory:
    - cd Ergo-G2

Hardware Setup

Room Preparation:

- Ensure you have a room that has four walls equipped with high-resolution projectors.

Laptop and Microphone Setup:

- **Laptops:**
    - Set up two laptops.
- **Input Laptop:**
    - Connect the microphone to the laptop.
- **Unity Laptop:**
    - Install Unity

Software Components

Unity Environment:

- Load the Unity project from the GitHub repository.

Python Scripts:

- Ensure Python is installed on the input laptop.

AI Models

Speech-to-Text (STT) Model & Text-to-Speech(TTS) Model:

- Whisper by OpenAI is installed automatically whilst on runtime.
- Google GTTS is installed automatically whilst on runtime

Language Model (LLM):

- Download Llama by Meta via LM studio.

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Network configuration

Windows (Unity Laptop):

o   Open Windows Defender Firewall.

o   Navigate to Inbound Rules and create a new Rule.

o   Select Port and enter 65432 (TCP).

o   Choose 'Allow the connection' and apply it to all networks.

Running the System

Start Unity Project:

o   Open the Unity project and start the MAINSCENE.

o   The project will automatically listen on port **65432** for any incoming information.

o   Unity receives the environment change and TTS audio from the Input Laptop, processes the environment change, and play the audio data.

o   Unity also sends information back through that port to the input device to inform of a change of location.

Start LM Studio:

o   Start LM Studio (Llama model) on the input laptop.

o   Run server.py on the input laptop to make an available connection to the LLM from other processes.

Start Client script:

o   Run client.py on the input laptop.

o   This script will handle STT, send the text to the LLM, parse the response, perform TTS.

o   After it performs TTS it sends to following to the unity laptop:

- The processed command for environment change
- The raw audio data from the generated speech file.

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Oversight of processes:
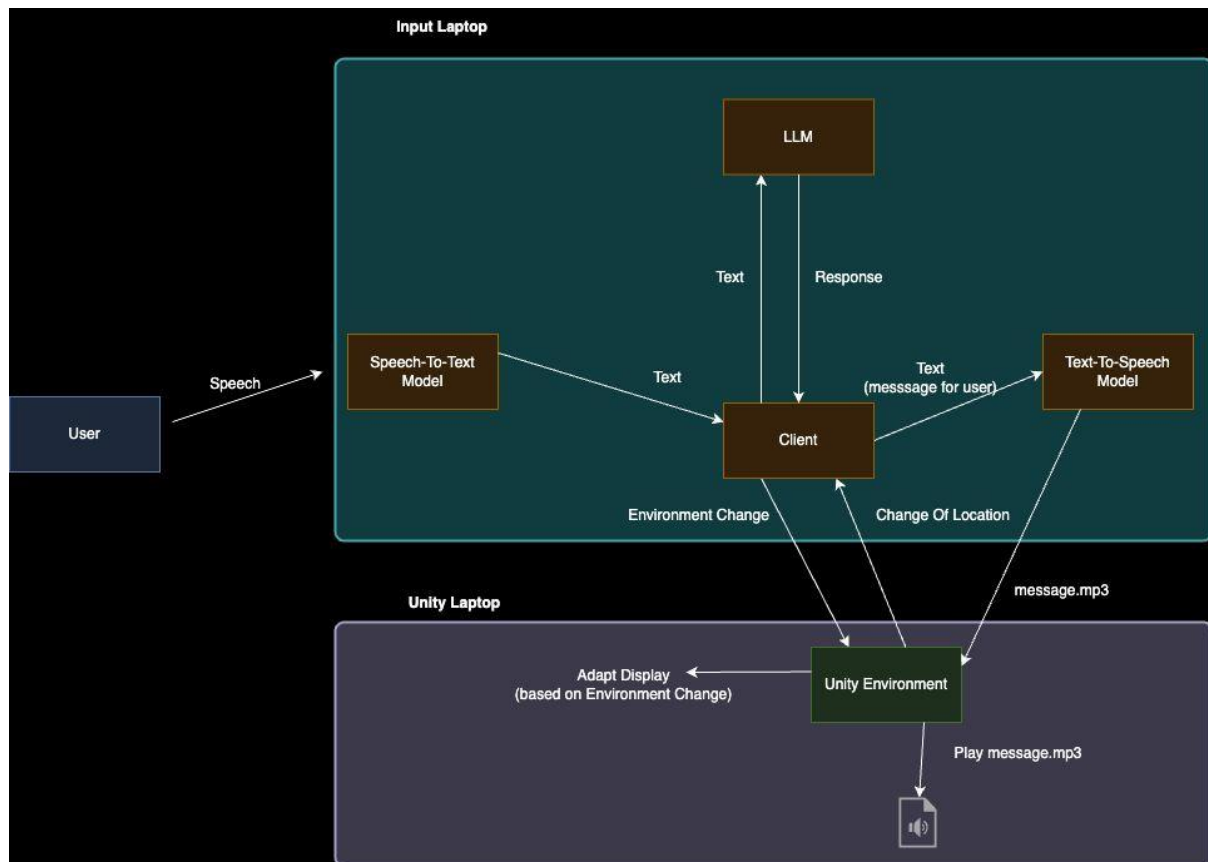
- o Below is the whole system architecture and interlinked processes for more clarification.

Figure 1:System Architecture Overview

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