

# Sign-Sync

## Technical Installation Manual (Demo 3)



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# Technical Installation Manual

## 1. Introduction:

The Sign-Sync system consists of a frontend service (React based web application) and 6 backend services (Python FastAPI microservices):

- alphabetTranslate-service
- speechToText-service
- textToASLGloss-service
- gestureRecognition-service
- signToText-service
- wordPrediction-service

The frontend is responsible for the user interface, while the backend services handle translation, speech recognition, gesture recognition and text processing. To run the system you need to install both [Node.js](#) dependencies (frontend) and python dependencies (backend).

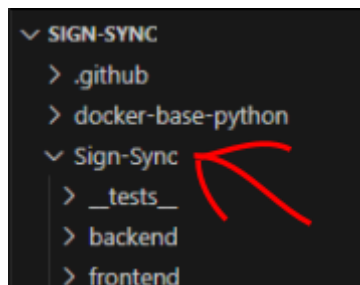
## 2. Prerequisites:

Before installation, please ensure that the following are installed:

- Python 3.10.x (This is required for the backend services)
  - Download: <https://www.python.org/downloads/release/python-3100/>
- [Node.js](#) 20.x (LTS) (This is required for the frontend React app)
  - Download: <https://nodejs.org/en/download>
- Git (to clone the repository)
  - Download: <https://git-scm.com/downloads>
- Internet connection (to download npm modules and pip packages)

## 3. Installation:

- 1.) Clone the repository from github with:
  - a.) "git clone https://github.com/COS301-SE-2025/Sign-Sync.git"
- 2.) Navigate into the project folder:
  - a.) cd Sign-Sync



- 3.) Install frontend dependencies:
  - a.) npm install
- 4.) Setup Python virtual environment (backend dependencies)
  - a.) python -m venv venv
  - b.) .\venv\Scripts\activate (windows)
  - c.) source venv/bin/activate (Mac/Linux)
- 5.) Install backend dependencies:
  - a.) pip install -r ../[requirements.txt](#)

## 4. Running the application:

Whenever you start a new terminal, remember to activate the venv first with:

- cd Sign-Sync
- venv\Scripts\activate

Then run the services individually:

---- alphabetTranslate-service ----

- cd backend/alphabetTranslate-service
- uvicorn translator\_api:app --port 8000 --reload

---- speechToText-service ----

- cd backend/speechToText-service
- uvicorn API:app --port 8001 --reload

---- textToAslGloss-service ----

- cd backend/textToAslGloss-service
- uvicorn textConversion\_api:app --port 8002 --reload

---- gestureRecognition-service ----

- cd backend/gestureRecognition-service
- uvicorn API:app --port 8003 --reload

---- signToText-service ----

- cd backend/signToText-service
- uvicorn signToText\_API:app --host 0.0.0.0 --port 8004 --reload"

---- wordPrediction-service ----

- cd backend/wordPrediction-service
- uvicorn API:app --port 8006 --reload"

---- frontend (You do not need to activate the venv)----

- cd Sign-Sync
- npm start

Once the frontend starts, open your browser and navigate to <http://localhost:3000> where you will be able to use the application.

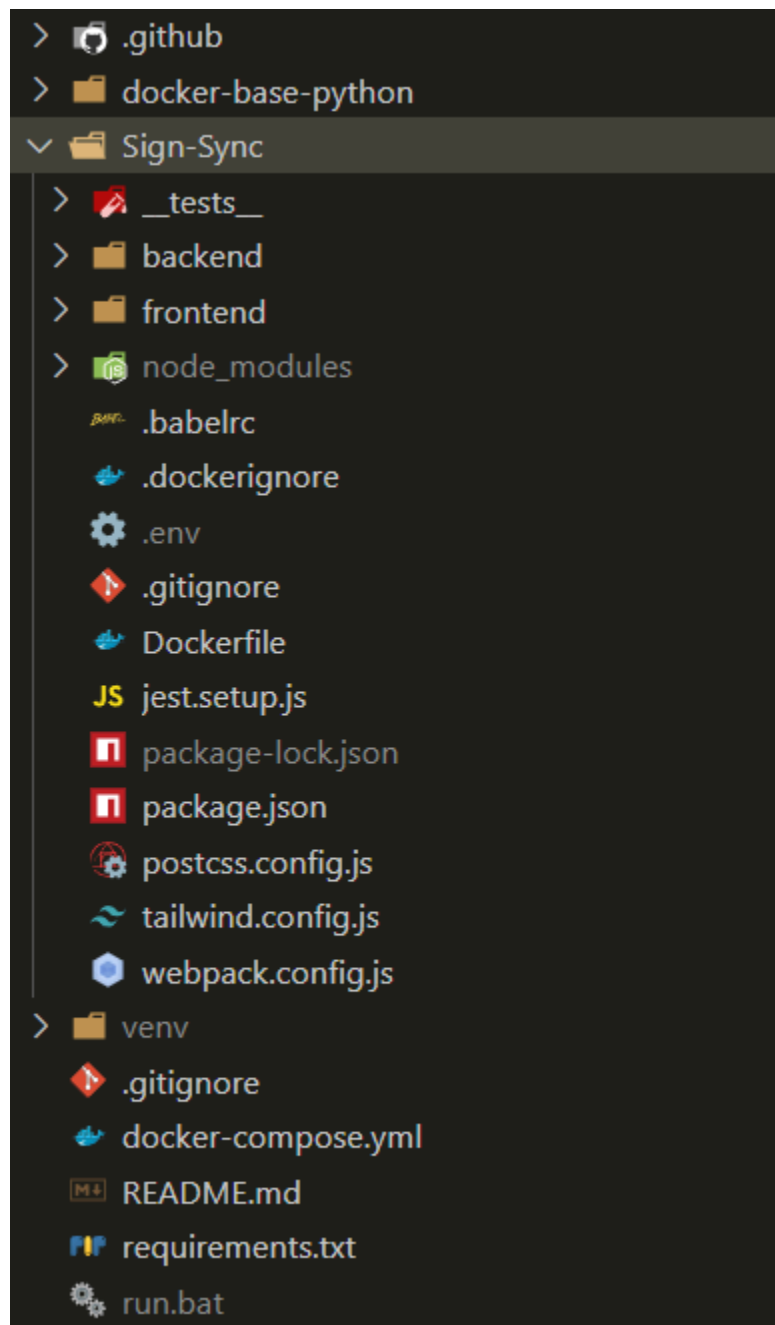
**Instead of running each of the commands, you can put them into a .bat file.**

**Please see our run.bat file below:**

```
1  @echo off
2  echo =====
3  echo      Welcome to Sign Sync
4  echo =====
5  echo.
6
7  REM Activate virtual environment
8  call venv\Scripts\activate.bat
9
10 REM Start backend services in parallel
11 start cmd /k "cd Sign-Sync\backend\alphabetTranslate-service && uvicorn translator_api:app --port 8000 --reload"
12 start cmd /k "cd Sign-Sync\backend\speechToText-service && uvicorn API:app --port 8001 --reload"
13 start cmd /k "cd Sign-Sync\backend\textToASLGloss-service && uvicorn textConversion_api:app --port 8002 --reload"
14 start cmd /k "cd Sign-Sync\backend\gestureRecognition-service && uvicorn API:app --port 8003 --reload"
15 start cmd /k "cd Sign-Sync\backend\signToText-service && uvicorn signToText_API:app --host 0.0.0.0 --port 8004 --reload"
16 start cmd /k "cd Sign-Sync\backend\wordPrediction-service && uvicorn API:app --port 8006 --reload"
17
18
19 REM Start frontend
20 cd Sign-Sync\frontend
21 call npm install
22 call npm start
23
24 echo =====
25 echo      Ready!
26 echo.
27 pause
```

**In order to use it:** Navigate to your run.bat file in file explorer and double click on this file

**This is what your directory should look like:**



## 5. User Manual:

For details on how to use the system after running it, please refer to the User Manual.