해양 SW 설계 실습

최종 과제

해사인공지능보안학부

20220516

구형진

OVER VIEW

Backend code structure
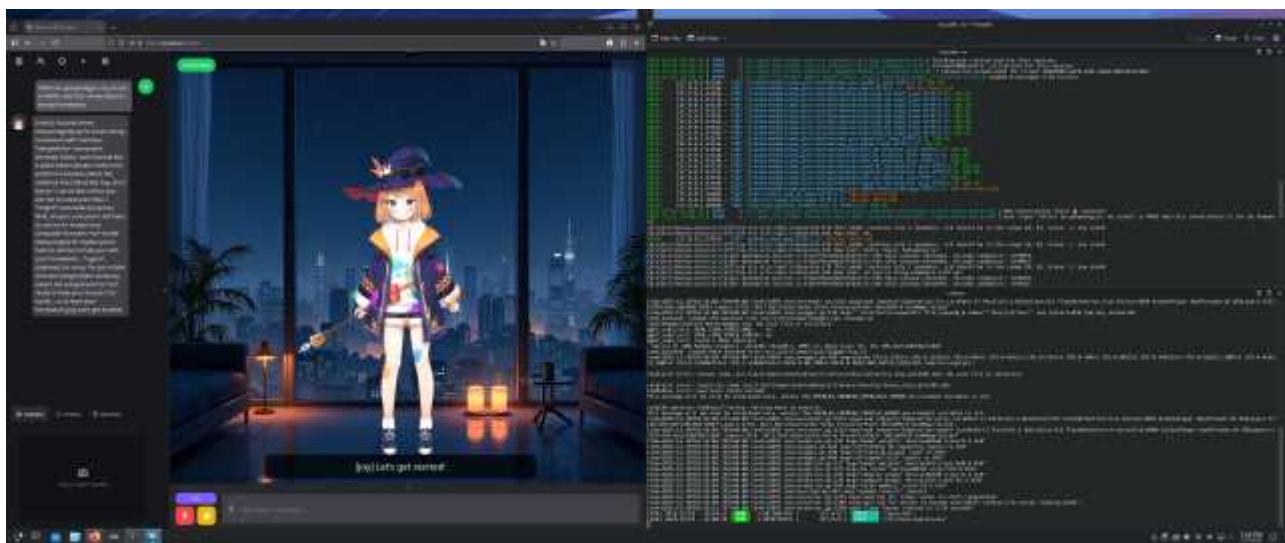
```
mywife/
├── background/              # Background image resource directory
├── characters/             # Character configuration file directory
├── frontend/               # Frontend page file directory
├── live2d-models/          # Live2D model resource directory
├── logs/                   # Log file directory
├── models/                 # AI model file directory
├── prompts/                # Prompt template directory
│   ├── presona/            # Character persona prompts
│   ├── utils/              # Utility prompts
│   └── prompt_loader.py    # Prompt loader
├── src/                    # Source code directory
│   └── open_llm_vtuber/    # Main code package
│       ├── agent/          # AI dialogue agent module
│       │   ├── agents/     # Different types of dialogue agent implementations
│       │   └── stateless_llm/  # Stateless LLM interface implementation
│       ├── asr/            # Speech recognition module
│       ├── tts/            # Text-to-speech module
│       ├── chat_history_manager.py  # Chat history manager
│       ├── conversation.py          # Conversation management
│       ├── live2d_model.py          # Live2D model manager
│       ├── routes.py                # FastAPI route definitions
│       ├── server.py                # WebSocket server
│       └── service_context.py       # Service context manager
├── conf.yaml               # Default configuration file
└── run_server.py           # Startup script
```
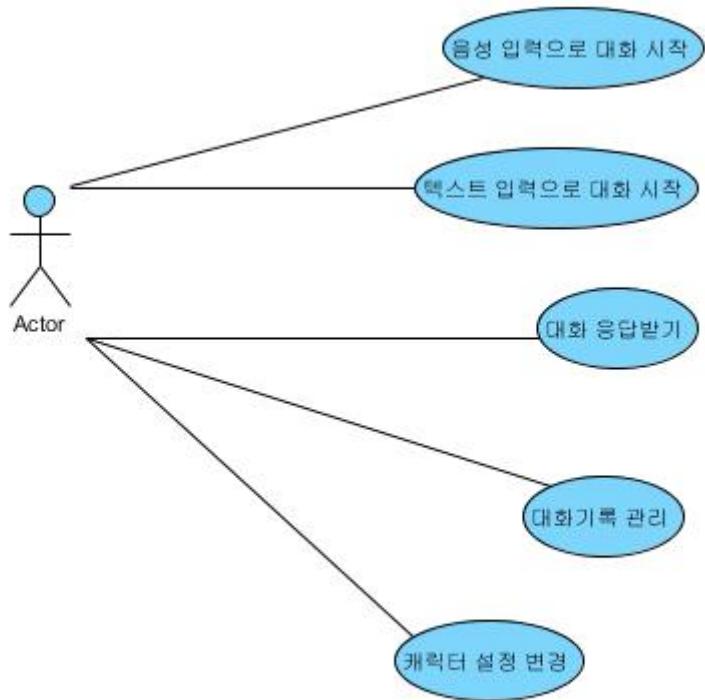
Hardware :
RX9070xt : ollama llm
rtx 3060 : fast whisper, sherpa-onnx
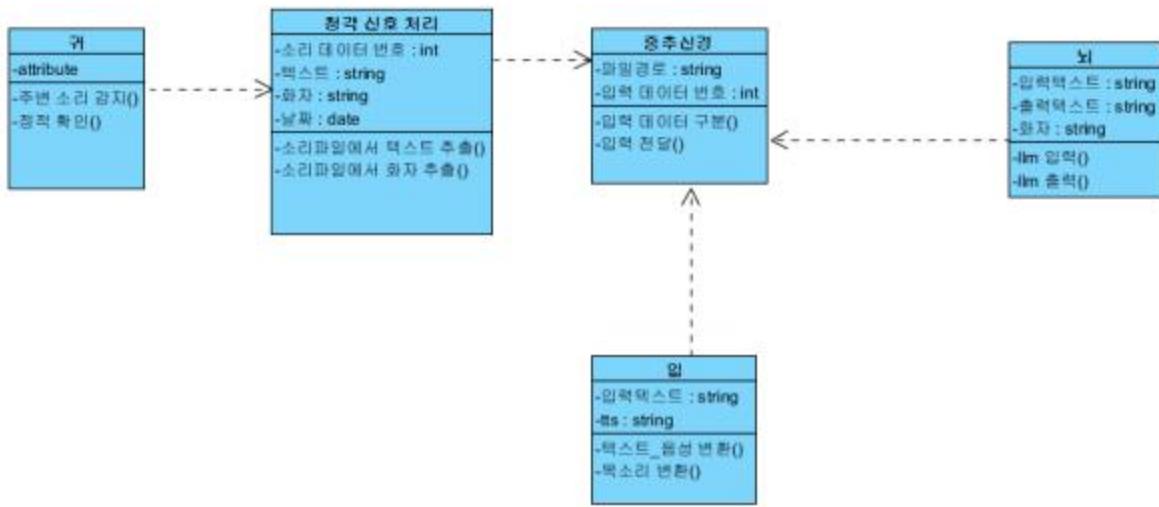
Model :
llm : qwen3-vl:8b
fastwhisper : large-v3-turbo
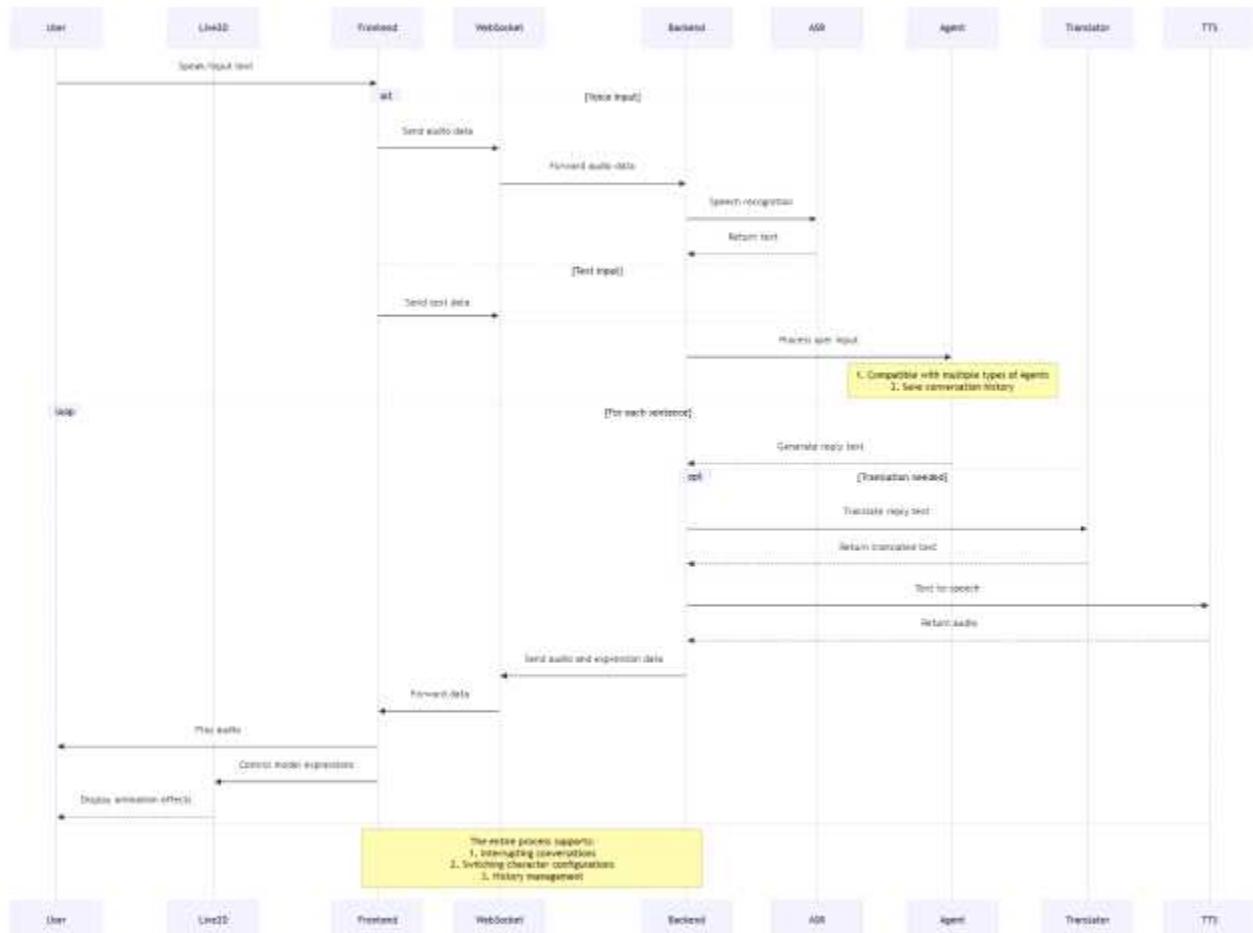
USECASE Diagram

CLASS Diagram

귀

-attribute

-주변 소리 감지()
-정적 확인()

청각 신호 처리

-소리 데이터 번호 : int
-텍스트 : string
-화자 : string
-날짜 : date

-소리파일에서 텍스트 추출()
-소리파일에서 화자 추출()

중추신경

-파일경로 : string
-입력 데이터 번호 : int

-입력 데이터 구분()
-입력 전달()

뇌

-입력텍스트 : string
-출력텍스트 : string
-화자 : string

-llm 입력()
-llm 출력()

입

-입력텍스트 : string
-톤 : string

-텍스트_음성 변환()
-목소리 변환()
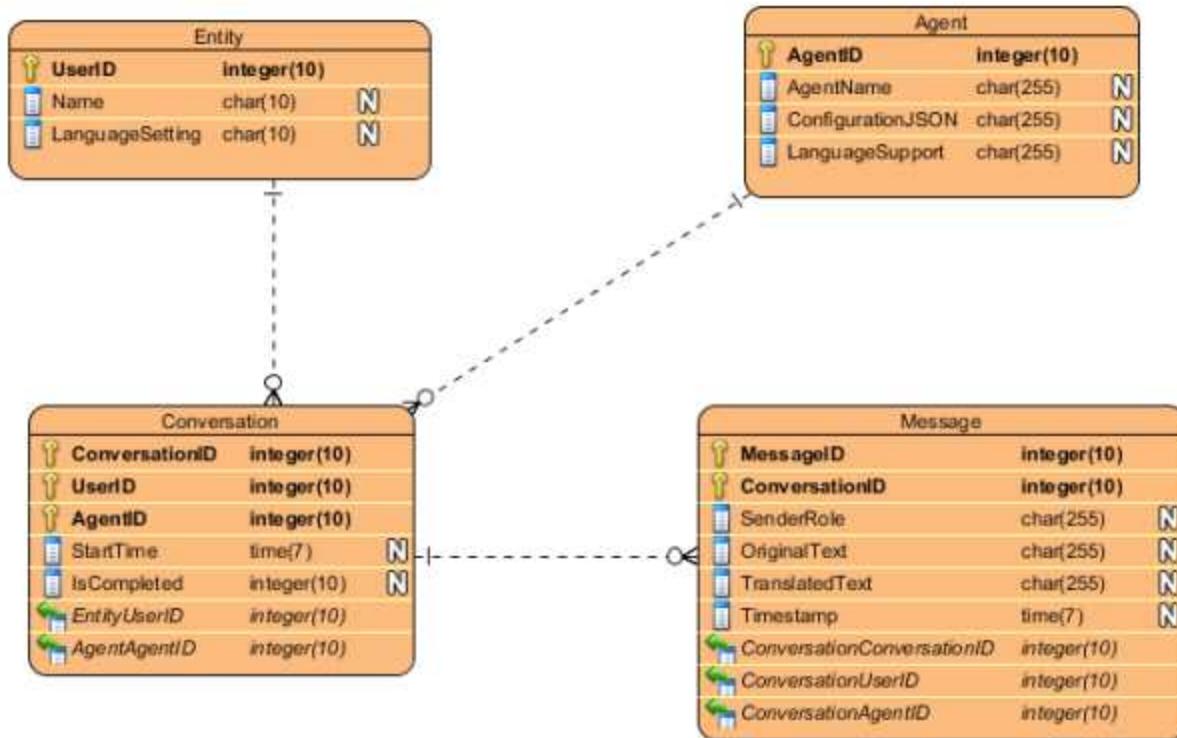
Sequence Diagram

ER Diagram

Entity

UserID	integer(10)	
Name	char(10)	N
LanguageSetting	char(10)	N

Agent

AgentID	integer(10)	
AgentName	char(255)	N
ConfigurationJSON	char(255)	N
LanguageSupport	char(255)	N

Conversation

ConversationID	integer(10)	
UserID	integer(10)	
AgentID	integer(10)	
StartTime	time(7)	N
IsCompleted	integer(10)	N
EntityUserID	integer(10)	
AgentAgentID	integer(10)	

Message

MessageID	integer(10)	
ConversationID	integer(10)	
SenderRole	char(255)	N
OriginalText	char(255)	N
TranslatedText	char(255)	N
Timestamp	time(7)	N
ConversationConversationID	integer(10)	
ConversationUserID	integer(10)	
ConversationAgentID	integer(10)	

UI