

Spring 2023 ECE 445 Team Contract

Project No. and Name	No. 33 AMADEUS - Augmented Modular AI Dialogue and Exchange User System
Member Name, netID	Wesley Pang, qpang2
Member Name, netID	Ryan Fu, ryfu2
Member Name, netID	Chengyuan Peng, cpeng14

Project Description:

We aim to develop an AI-based audio interactive interface, housed on a custom-designed PCB.

This system will capture audio from the user, transmit it via Wi-Fi to a cloud-based AI model for processing, and play the AI's response back to the user. The ESP32 microcontroller, equipped with Wi-Fi and audio input/output capabilities, will serve as the core of our system.

Project Goals:

There are three high-level requirements we have set for our project:

- **Response time:** The AI model should receive audio input from the user within **5 seconds**, process it, and send a response back to the PCB within **5 seconds** (response time may vary depending on the chosen AI model and internet speed).
- **Voice Clarity:** The AI-generated audio must be **clear and audible** to the user, with a Signal-to-Noise Ratio (SNR) larger than 20 dB.
- **Multi-language support:** The system will support voice input in **three different languages: Chinese, English, and Japanese**.

Expectations (ground rules) for each member:

1. Attend and actively participate in meetings

Each team member is expected to attend all team meetings on time and actively engage in discussions and decision-making. If unable to attend due to exceptional circumstances, the member must notify the team in advance and arrange a way to make up for their absence.

2. Complete assigned tasks on time

Each team member is responsible for completing their assigned tasks on time. If difficulties arise, the member should promptly inform the team so tasks can be reassigned or assistance provided to avoid project delays.

3. Provide timely feedback and communication

Team members should respond quickly to project updates, discussions, and feedback. If issues arise, they should be communicated immediately to avoid unnecessary delays.

4. Maintain professionalism and respect

Team members must maintain mutual respect, listen to each other's opinions, and avoid escalating conflicts. Discussions should remain constructive and professional, with decisions focused on achieving project goals.

5. Offer support and collaboration

If a team member encounters technical or other difficulties, others should provide assistance. Collaboration should be based on mutual support rather than focusing solely on individual tasks.

6. Adhere to ethical guidelines and project requirements

Each team member must follow the project's ethical guidelines, ensuring the legal use of software and resources while avoiding any academic misconduct. Members should actively uphold the integrity and compliance of the project.

Roles:

Ryan Fu:

Ryan did extensive research in hardware design, therefore, he will mostly responsible for figuring out the hardware requirement, developing hardware design, and PCB design.

Wesley Pang:

Wesley has plentiful experience in embedded system design from his robotic experience and PCB design from his research, therefore he will be in charge of embedded system coding while doing PCB design along with Ryan.

Chengyuan Peng:

Chengyuan has researched computer vision and machine learning models in multiple programs. His programming skills will contribute to the software side of this design. In particular, he will be in charge of the communication between the online model and the board.

Project Meeting Time(s):

We will meet every Tuesday and Saturday afternoon in the senior design lab working on our senior project, so we can meet twice a week while having enough time to prepare for the next team meeting.

Agenda:

- The agenda for each meeting will be collaboratively set by all team members **before the meeting**, allowing everyone to propose topics they would like to discuss or tasks to be worked on. This ensures that each member can conduct any necessary research ahead of time and come prepared for a productive discussion.
- The agenda will include:
 - **Project updates** from each member
 - **Challenges or blockers** to be resolved
 - **Next steps and action items**
 - Any **research findings** to be reviewed or integrated into the project
- Since our team consists of only three members, all decisions will be made by **consensus**. This means every team member must agree on the decision to ensure everyone is aligned and working towards the same goal.
- In case of disagreements, the team will discuss the issue openly and provide supporting arguments until a consensus is reached.
- To ensure the project stays on track, the team will establish **checkpoints** for each major development phase (e.g., design, prototype, testing).
- Each checkpoint will have a specific **deadline**, and progress will be reviewed during the regular team meetings. If deadlines are at risk, the team will reassess and adjust the workload as needed to stay on course.
- **Wesley Pang** will be responsible for maintaining detailed records of all team meetings
- These records will include:
 - Meeting agendas and action items
 - Decisions made and rationale
 - Progress updates on current tasks
 - Upcoming deadlines and responsibilities

Process and penalties for dealing with team issues:

If any team member encounters issues related to workload, deadlines, or communication, the first step is to communicate openly with the team. We encourage addressing problems as soon as they arise to prevent misunderstandings or conflicts from escalating. Team members should bring up concerns during meetings or through our designated communication channels: Wechat group.

If the issue cannot be resolved through discussion, the team will attempt to reach a consensus on how to move forward. If the issue is related to workload or missed deadlines, tasks may be reassigned or redistributed among team members to ensure project completion.

If a team member repeatedly breaks agreed-upon ground rules—such as missing deadlines, not attending meetings, or failing to complete assigned tasks. The team member's responsibilities may be reduced or redistributed, and their participation will be reflected negatively in the mid-term peer assessment.

End-of-term agreement on using final peer assessment for grade adjustment :

The team agrees that the final peer assessment will be used for grade adjustment purposes. If a member consistently fails to meet expectations in terms of participation, task completion, or communication, their individual grade may be adjusted accordingly. Criteria for evaluation will include task performance, meeting attendance, contribution to team discussions, and overall effort.

Signatures:

I affirm that I participated in generating this team charter and that I will abide by its contents to the best of my ability. Furthermore, I understand that failure to meet the expectations expressed here can lead to the stated consequences.

netID: _____ryfu2_____

(digital) Signature:



Date: 09.18.2024

netID: _____qpang2_____

(digital) Signature: __Qiran Pang__

Date: 09.20.2024

netID: _____cpeng14_____

(digital) Signature: __Chengyuan Peng__

Date: 09.20.2024