GitHub: <https://github.com/dthung99/Move_The_Circle_LLM_Game>

How the NLP integration worked:

* I utilized the OpenAI API to extract the instruction from user’s voice.
* Flow of logic:

1. The user speaks into the microphone.
2. The audio is sent to the OpenAI API for transcription into text.
3. The transcribed text is sent again to the OpenAI API to identify the action based on the context.
4. The system executes the corresponding action based on the LLM's output.

Challenges:

* I initially intended to train local model and run it locally. However, this approach would require significant time, especially since I lack experience in NLP. Therefore, so I opted for prompt engineering and use OpenAI API.

Potential improvements:

* The current response time is slow due to the use of two NLP models: one for converting speech to text and another for extracting actions from the text. However, with additional resources, we could develop a simpler local model trained on the outputs generated by the OpenAI LLM (model distillation).
* More complex prompts could be utilized to enable the LLM to generate multistep and intricate instructions.
* As I developed the project in a rush, many parts of the code are not optimized.
* Gameplay could be significantly enhanced by improving graphics and potentially adding projectiles for users to dodge.