

Project Proposal: ConversaAI – Interactive English Language Companion

Azmain Inquaid Haque (230218)

Md. Sabbir Khan (230204)

Summa Arifin (230226)

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Introduction

In today's global environment, effective English communication is a crucial skill. This project proposes **ConversaAI**, a Cross-Platform application designed to facilitate English language learning through real-time, natural, and interactive dialogues. By providing immediate feedback, contextual vocabulary suggestions, and rephrasing guidance, ConversaAI aims to create an immersive digital environment for language improvement.

Project Objectives

- To develop a Cross-Platform application for English language acquisition via conversational practice.
- To leverage modern AI and NLP technologies for grammar correction, vocabulary enrichment, and user guidance.
- To offer an extensible and maintainable codebase demonstrating best practices in API and library integration.

Target Audience

Learners of English as a Second Language (ESL) seeking an interactive, feedback-driven desktop application compatible with Linux systems.

Proposed Solution Overview

ConversaAI will simulate a conversational English partner. The system will:

- Engage users in context-aware dialogues
- Provide instant, actionable feedback on grammar and vocabulary
- Suggest improved phrasing to promote fluency

- Optionally, support speech recognition and text-to-speech for a more immersive experience

Use Case Diagram

The following diagram illustrates the key use cases of the ConversaAI system and how the user interacts with it:

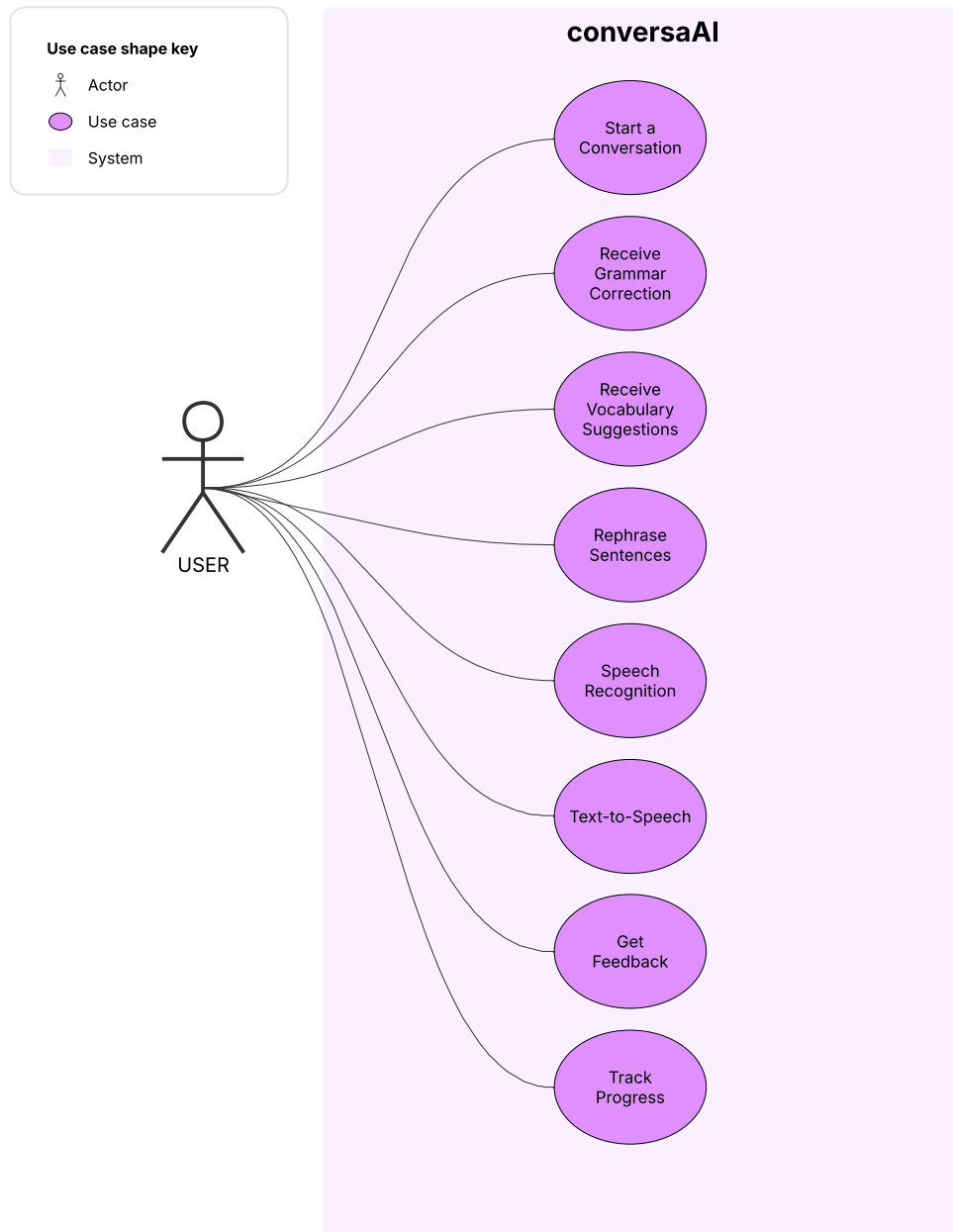


Figure 1: Use Case Diagram for ConversaAI

Technology Stack and Rationale

Component	Technology	Rationale / Usage
Programming Language	Python, Dart	Rapid development, extensive NLP/AI libraries, excellent Linux support
UI Framework	Flutter	Modern, Cross Platform UI, supports complex and responsive interfaces.
Conversational AI and NLP	OpenAI GPT API OR Hugging Face Transformers	For natural dialogue, grammar correction, vocabulary suggestion, contextual feedback via modern NLP models
Speech Recognition	Coqui STT/TTS OR Google Speech APIs	Adds spoken conversation capabilities; open-source options well supported on Linux
Async Processing	Python asyncio or Trio	Efficient real-time message exchange between UI and AI modules
Packaging & Distribution	PyInstaller or linuxdeployqt	Bundles application and dependencies for easy deployment on Linux systems

Device and System Requirements

Minimum:

- Linux OS (e.g., Ubuntu 20.04+)
- Dual-core 2GHz 64-bit CPU
- 4GB RAM
- 500MB free disk space
- Internet connection for API access

Recommended:

- Quad-core 2.5GHz 64-bit CPU or higher
- 8GB+ RAM

- 2GB+ disk space
- Full HD display
- Broadband internet (25Mbps+), microphone/speakers for voice features

Expected Outcomes

- Functional Cross-Platform application for English conversation practice with real-time, AI-driven feedback.
- Demonstration of API and library integrations – especially with state-of-the-art NLP tools.
- Extensible foundation for further feature development (e.g., additional languages, richer speech interaction).

Conclusion

This proposal details the development plan for ConversaAI, focusing on a robust, modern tech stack optimized for Linux. The application will present an effective solution for English language learners, utilizing current advances in natural language processing and desktop software design.