

# Project Proposal: ConversaAI – Interactive English Language Companion

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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

## 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<br>OR Hugging Face Transformers | For natural dialogue, grammar correction, vocabulary suggestion, contextual feedback via modern NLP models |
| Speech Recognition        | Coqui STT/TTS<br>OR Google Speech APIs         | Adds spoken conversation capabilities; open-source options well supported on Linux                         |
| Async Processing          | Python asyncio<br>or Trio                      | Efficient real-time message exchange between UI and AI modules   |
| Packaging & Distribution  | PyInstaller<br>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.