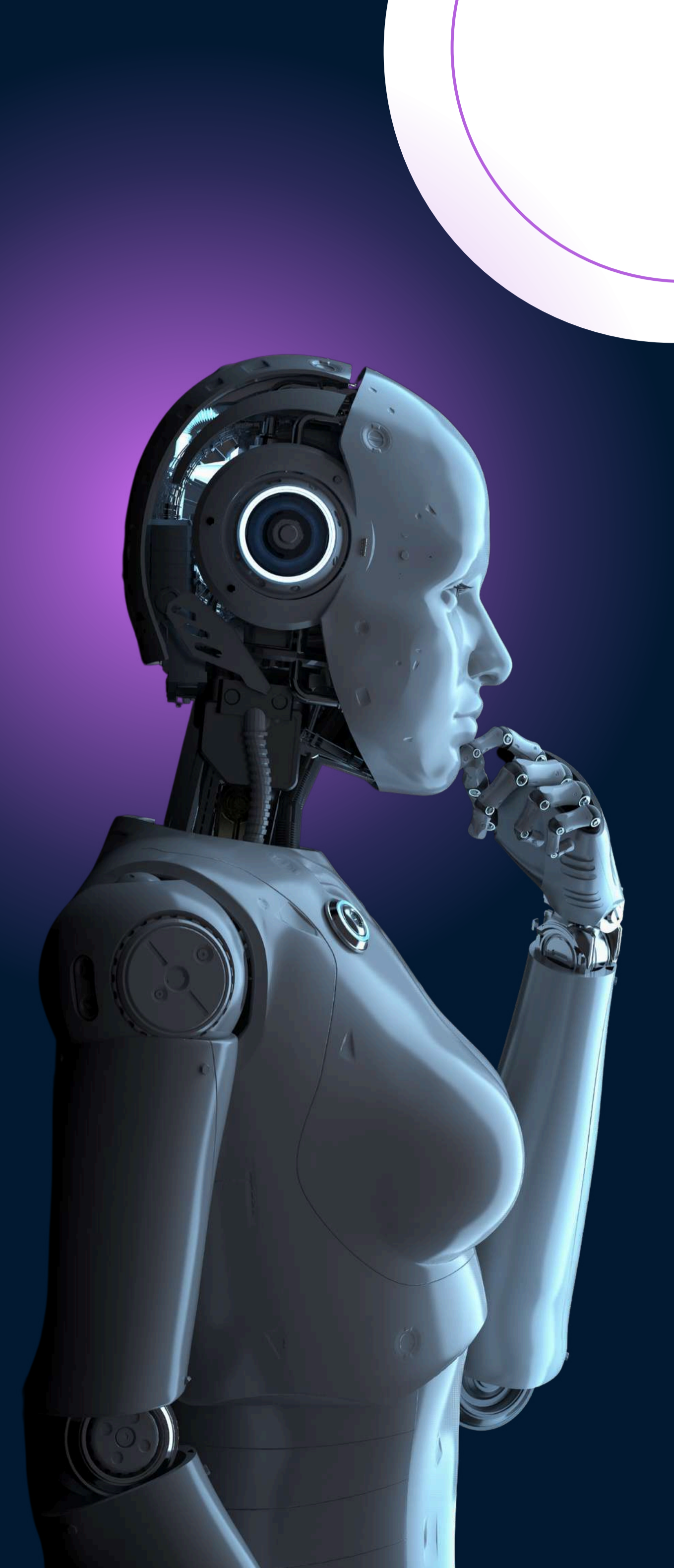


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Revolutionizing Customer Support With **AI-Powered Human-Like Calls**

Pragmatyc helped develop an AI-powered automated calling solution with a human-like response system for a client in the Telecom domain. This innovative system leverages Gen AI and the Open AI Stack to provide seamless conversations with end customers, simplifying and speeding up the overall support-over-call process.



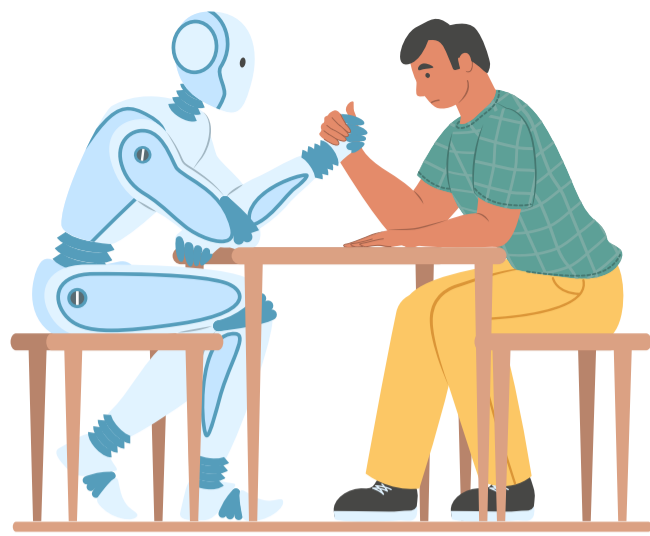
Overview

Pragmatyc helped develop an AI-powered automated calling solution with a human-like response system for a client in the Telecom domain. This innovative system leverages Gen AI and the Open AI Stack to provide seamless conversations with end customers, simplifying and speeding up the overall support-over-call process. According to research*, a customer's average time to abandon their call is 2 minutes and 36 seconds. Customer care or support center calls often face longer hold times, leading to a higher abandonment rate. They struggle to manage high call volumes and repetitive inquiries; the end result is frustrated customers and overworked agents.

Recognizing this challenge, our client sought a solution that could optimize the support process with AI and improve customer satisfaction. They approached Pragmatyc with a product idea.

Our team developed an AI-powered Voice Interaction system that addresses this pain point by efficiently handling repetitive queries, payment reminders, frequent updates, and other common tasks. Designed to mimic human-like interactions, the system ensures a satisfactory experience for end users, reducing wait times and enhancing efficiency.

*<https://www.sqmggroup.com/resources/library/blog/10-solutions-reduce-call-abandonment-rate>



Challenges

When the world is still surprised and working to adapt AI-powered text based chat abilities, implementing AI in voice support comes with its own set of challenges.

Voice-based interactions vastly differ from chat-based interactions. Mostly because voice calls need to maintain the to-and-fro nature of communication while dealing with untimed responses, interruptions, and system latency, all in a matter of seconds. This introduces a whole new level of complexity for the voice support system.

Here are the key challenges our team faced while building this innovative solution



Validating the concept

The first challenge for the project was to validate the idea of AI-powered voice interaction, while also doubling down on the defined use case.



Overcoming Latency

Overcoming the response time with AI-powered executives on calls is still a rooted problem for the industry; reducing it to the furthest end where the flow of conversation feels authentic was the task.



Integration

Ensuring smooth integration with the client's existing dialler platform (Asterisk Dialler) for a unified experience.



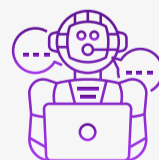
Backend Management

Building a robust backend system to manage call flow, data storage, and performance monitoring.



Background Noise Reduction

Minimizing background noise for clear communication during calls.



Interruption Handling

Identifying user interruptions and handling prompt responses during an ongoing call.



Industry Compatibility

Building a versatile solution compatible with the use cases of various industries our client serves.

Solutions

We carefully acknowledged the inherent differences between text and voice interactions. And crafted a solution targeting each one of these challenges to the core.



01

Voice Interaction Prototyping

For the testing stage, we developed a prototype that included Open AI's Assistant API with its supporting components like the speech-to-text (Whisper) and text-to-speech (TTS) models, allowing us to explore and validate system functionalities. This phase focused on defining the core functionalities of the AI assistant and how they would interact within the overall system.

02

Dialler Integration

Next, we focused on integrating our AI Assistant prototype with the client's existing dialler platform (Asterisk Dialler) with the help of an audio socket server. This server acts as a central hub for user data, processing incoming queries, generating responses through the AI engine, and transmitting them back to the dialler for seamless playback. After a few tweaks, our integration was validated, allowing us to move on to other challenges.

03

Optimizing Backend Management

Backend management was optimized for efficiency through a combination of approaches:

◆ Python Application Development

A custom Python application was developed to manage core functionalities, including data processing and system logic.

◆ Threaded Processing

Extensive use of threading within the Python application helped minimize latency by enabling parallel execution of tasks.

◆ Prompt Engineering

Carefully crafted prompts were utilized within the OpenAI Assistant API to guide the AI engine towards generating natural and informative responses.

04

Tackling Latency

The sourced Open AI's Stack comes with inherent system latency. So, one of the ways we overcame latency was by leveraging the streaming functionality provided by Open AI's Assistant API within our bot ecosystem.

05

Knowledge Base Integration

The bot can access the client's knowledge base to answer specific customer queries. This retrieval-augmented generation (RAG) capability is powered by OpenAI's Assistant APIs.

06

Noise Reduction

Open-source libraries offering AI-powered noise reduction models were integrated into the system. This significantly reduced background noise during calls, ensuring clear audio communication.

07

Interruption Handling

We implemented a custom Python-coded solution to manage user interruptions and prompt responses during ongoing calls. This enabled a natural back-and-forth conversational flow.

08

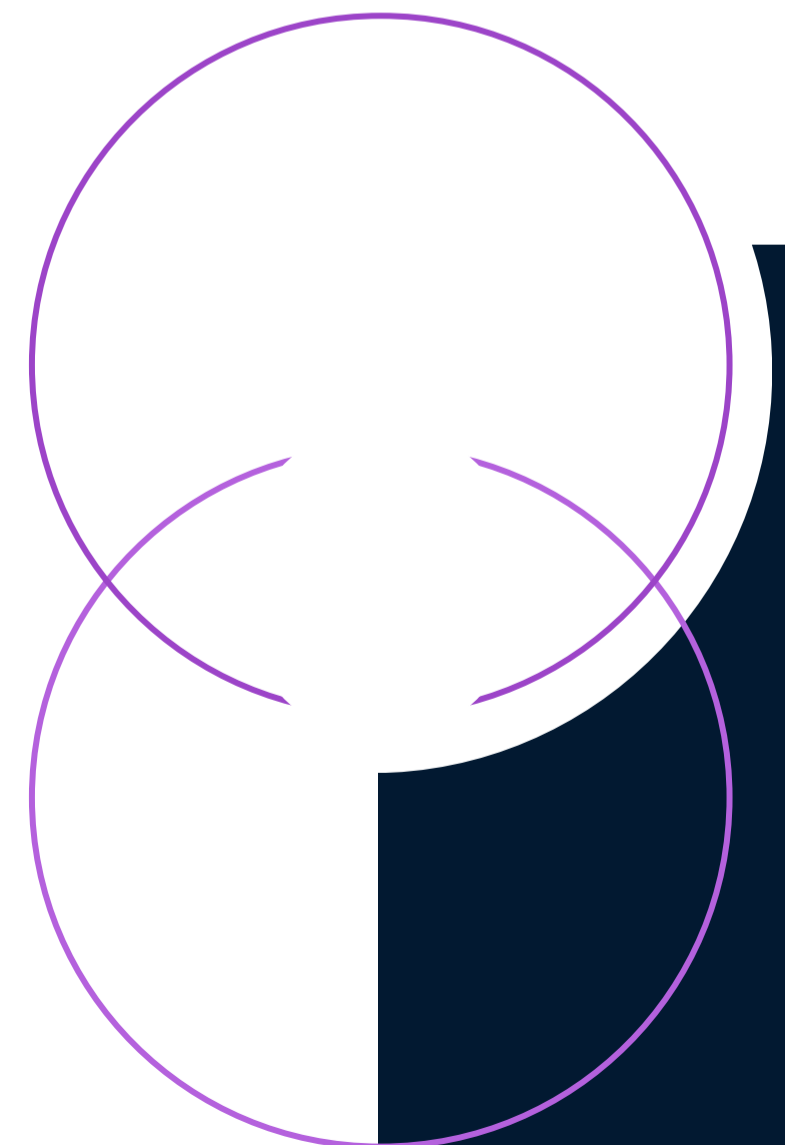
Human-like Voice Synthesis

OpenAI's suite of voice-related functionalities, including OpenAI Text-to-Speech (TTS), was leveraged to enable the AI-powered customer executive to deliver natural-sounding responses with appropriate pauses, mimicking human interaction.

09

Industry-Wide Compatibility

Instead of direct integration, a modular approach was adopted, creating a separate Audio Socket Server module that could connect with various backend systems. This makes it a customizable version, compatible with the use cases of various industries our client serves.



Benefits

The developed solution offers a range of benefits



3X Call Volume

Handles triple the inquiries of a human system.

42% Faster Responses

Optimized response times with reduced latency.

Hold Time < 1 Minute!

Minimizes frustration with near-instantaneous responses.

Automates Mundane Tasks

Improves efficiency by freeing agents for complex issues.

Conclusion

The solution offers businesses an automated calling system that efficiently handles routine interactions, freeing up human agents for complex issues.

Currently supporting US English, the system sets a new standard for customer support excellence, revolutionizing the way businesses engage with their customers. And for future scope, we plan to implement custom LLMs with the potential to support multiple languages and further reduce the problem of latency.



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