CallPilot

Agentic Voice AI for Autonomous Appointment Scheduling

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Project Summary

CallPilot is an autonomous end-to-end voice-AI agent designed to bridge the gap between digital messaging and analog phone-based services. The system offers a **seamless user journey** by allowing users to request appointments via a simple Telegram message. From there, the agentic core, orchestrated via **n8n** and powered by **Google Gemini**, takes over. It fetches existing calendar events to ensure zero scheduling conflicts, executes a natural, low-latency call using **ElevenLabs** to the service provider, and processes the outcome autonomously.

Central to our approach is the "**Success Manager**" agent, which performs real-time reasoning on call transcripts to decide whether to confirm a booking or notify the user of a failure. By automating this critical decision-making step, CallPilot transforms manual, time-consuming tasks into a fully automated, background-ready experience.

Meeting the Evaluation Criteria

- **User Experience (Seamless Journey):** CallPilot eliminates the barrier of new apps. Users remain in Telegram, where a single text triggers a complex chain of real-world actions ending in a booked appointment.

- **Use of Agentic Functions:** Our system utilizes an **AI Agent** to orchestrate decisions autonomously. The agent reasons over call outcomes to decide if it should call the *Google Calendar* and which message it should send back to the user via *Telegram* based on dynamic transcript analysis.

- **Conversational Quality:** Leveraging ElevenLabs in a seperate script outside of n8n, we achieve human-like interaction with **latency below 1 second**.

- **Parallelization & Scalability:** The event-driven architecture built on n8n webhooks allows the system to handle multiple booking requests and transcripts concurrently.

- **Optimal Match Quality:** The agent ensures "Calendar-Awareness" by fetching user availability via n8n before the call, ensuring every booking is conflict-free and the call remains low-latency.

How it works

- User sends an appointment request via Telegram.
- n8n interprets the message and extracts intent and preferences.
- Google Calendar is queried to retrieve existing events.
- Contextual data is sent to the FastAPI backend as JSON.
- The backend initiates a phone call via Twilio/ElevenLabs.
- ElevenLabs Conversational AI handles the live negotiation.
- The transcript is returned to the n8n "Success Manager" agent.
- n8n creates the calendar entry and confirms via Telegram.

Tech stack

- Telegram Bot API
- n8n (Workflow Orchestration)
- Google Gemin
- ElevenLabs Conversational AI SDK (Voice Latency)
- FastAPI Python (Backend Logic)
- Twilio (Telephony)
- Google Calendar API