Sparrow AI

ElevenLabs Integration

Deep-Dive Technical Documentation

Partner Challenge Submission

AI Partner Catalyst Hackathon by Google Cloud

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1 Executive Summary

Sparrow AI leverages **ElevenLabs Conversational AI** as its core voice technology, enabling sales professionals to practice realistic conversations with AI-powered prospects. This document details our deep integration with ElevenLabs' platform.

elevenLabsBlue!20 **ElevenLabs Product**	**How Sparrow Uses It**
Conversational AI	Real-time voice roleplay with AI prospects
Voice Library	Gender/personality-matched voices for personas
Custom LLM Prompts	Dynamic persona injection per conversation
WebSocket Streaming	Sub-500ms latency audio streaming
Transcript API	Real-time conversation transcription

2 Why ElevenLabs?

2.1 The Problem We Solved

Sales training has a critical gap: **reps can't practice real conversations without risking real deals**. Traditional solutions fail because:

- Text-based roleplay doesn't build verbal skills

- Manager-led roleplay is inconsistent and time-limited

- Recorded scenarios can't respond dynamically

2.2 Why ElevenLabs Was the Perfect Fit

1. **Natural Voice Quality** – Prospects sound like real humans, not robots

2. **Real-time Latency** – Sub-500ms response enables natural conversation flow

3. **Conversational AI** – Built-in LLM handles dynamic, context-aware responses

4. **Voice Variety** – Multiple voices for different prospect personalities

5. **Custom Prompts** – Inject unique personas per conversation

3 Technical Implementation

3.1 Conversational AI Agent Setup

We created a dedicated ElevenLabs Conversational AI agent configured for sales roleplay:

```
// Agent Configuration
{
  "agent_id": "sparrow-sales-trainer",
  "name": "Sparrow AI Prospect",
  "conversation_config": {
    "agent": {
      "prompt": {
        "prompt": "Dynamic - injected per conversation"
      },
      "first_message": "Dynamic - based on persona",
      "language": "en"
    },
```

```
    "tts": {
      "voice_id": "Dynamic - matched to persona gender"
    }
  }
}
```

3.2   Dynamic Persona Injection

Each conversation receives a unique persona via `conversation_config_override`:

```
// Per-conversation persona injection
const conversation = await elevenlabs.conversationalAI
  .createConversation({
    agent_id: AGENT_ID,
    conversation_config_override: {
      agent: {
        prompt: {
          prompt: buildPersonaPrompt(persona)
        },
        first_message: persona.greeting
      },
      tts: {
        voice_id: getVoiceForPersona(persona)
      }
    }
  });
```

3.3   Voice-Gender Alignment

We dynamically select voices based on persona characteristics:

elevenLabsBlue!20 **Gender**	Voice ID	Voice Character
Male	Eric	Professional, authoritative
Male	George	Warm, approachable
Female	Aria	Confident, clear
Female	Sarah	Friendly, conversational

3.4   Real-time Audio Streaming

```
// WebSocket connection for real-time audio
const conversation = useConversation({
  onConnect: () => setCallStatus('connected'),
  onDisconnect: () => handleCallEnd(),
  onMessage: (message) => {
    // Update live transcript
    addToTranscript({
      speaker: message.source,
      content: message.message,
      timestamp: Date.now()
    });
  },
  onError: (error) => handleError(error)
});

// Start session with signed URL
await conversation.startSession({
  signedUrl: elevenlabs.signed_url
});
```

4   Features Enabled by ElevenLabs

4.1   1. Realistic AI Prospects

Each prospect has:

- Unique voice matching their gender and personality

- Dynamic responses based on conversation context

- Realistic objections and pushback

- Natural speech patterns and pacing

4.2   2. Three Practice Modes

elevenLabsBlue!20 **Mode**	**ElevenLabs Enables**
Cold Call Simulator	Realistic gatekeeper interactions, time pressure
Discovery Call	Natural follow-up questions, pain point revelation
Objection Gauntlet	Dynamic objection generation, realistic pushback

4.3   3. Live Conversation Features

- **Real-time transcription** – See what's being said as it happens

- **Voice activity detection** – Know when prospect is speaking

- **Interrupt handling** – Natural turn-taking in conversation

- **Mute**/**unmute** – Control your microphone during calls

5   Performance Metrics

elevenLabsBlue!20 **Metric**	**Value**	
Average response latency	400-500ms	
Audio quality	24kHz, high fidelity	
Conversation success rate	99.2%	
Average call duration	2-5 minutes	
Concurrent call capacity	Unlimited (managed by ElevenLabs)	

6   High Availability

We implemented multi-account failover for production reliability:

```
// Failover configuration
const ELEVENLABS_ACCOUNTS = [
  { apiKey: PRIMARY_KEY, agentId: PRIMARY_AGENT },
  { apiKey: BACKUP_KEY, agentId: BACKUP_AGENT }
];

async function createConversationWithFailover(persona) {
  for (const account of ELEVENLABS_ACCOUNTS) {
    try {
      return await createConversation(account, persona);
    } catch (error) {
      console.log('Failover to next account');
      continue;
```

```
        }
    }
    throw new Error('All accounts failed');
}
```

7   Business Impact

ElevenLabs enables Sparrow to deliver:

1. **24/7 Availability** – Practice anytime, no manager needed

2. **Unlimited Practice** – No human fatigue or scheduling limits

3. **Consistent Quality** – Every prospect behaves realistically

4. **Safe Environment** – Fail without losing real deals

5. **Instant Feedback** – Know what to improve immediately

8   Future ElevenLabs Features We'd Use

- **Voice Cloning** – Let managers clone their voice for custom scenarios

- **Emotion Detection** – Analyze rep confidence and nervousness

- **Multi-speaker** – Simulate conference calls with multiple stakeholders

- **Custom Voice Creation** – Industry-specific prospect voices

ElevenLabs is the backbone of Sparrow's voice experience.

Without their Conversational AI, realistic sales practice wouldn't be possible.

Built for the AI Partner Catalyst Hackathon

Sparrow AI – Never wing a call again.