

# **Echo Agent — The AI Podcaster**

**Submitted by: Aswathi.H (MCA - A)**

## **1.Objective:**

I built this project to prove that a single person can produce a high-quality podcast without ever touching a microphone or doing hours of research. The goal was to create a "digital twin" that can think, write, and speak exactly like a human host.

## **2. Problem Statement:**

- **Creative Burnout:** It's hard to come up with new ideas every day.
- **Complexity:** Setting up a studio, recording, and editing takes a massive amount of time.
- **Consistency:** Most podcasters quit because they can't keep up with the schedule.

## **3. Solution:**

**EchoAgent** is an "Agentic" system. This means it doesn't just follow a list of commands. it acts like a team of employees. One agent finds the news, another writes the personality-filled script, and a third handles the voice recording using a clone of my own voice.

### **What it actually delivers:**

- **Instant Research:** No more manual Googling. The AI finds what's trending now.
- **Human-Like Scripts:** The AI learns human's slang. so, it doesn't sound like a textbook.
- **Voice Cloning:** High-fidelity audio that sounds exactly humans.

## **4. Design Patterns:**

**The Manager-Employee Pattern (Agentic AI)** Instead of one big "AI box," I used the **Agentic Orchestration** pattern. I created a "Crew" where each agent has a specific job:

- a. **The Researcher:** Finds the facts.
- b. **The Writer:** Finds the humor and the story.
- c. **The Audio Director:** Connects to the voice API to turn the words into sound.

## **5. The Tech Stack:**

- **The Manager (Orchestration): CrewAI** – This is the "glue" that lets agents talk to each other.
- **The Brain (LLM): OpenAI (GPT-4o)** – This provides the logic and the writing skills.

- **The Voice: ElevenLabs API** – This is the most advanced voice cloning tool in 2025.
- **The Browser: Serper.dev** – This gives the AI the ability to "see" the live internet.
- **The Language: Python** – The foundation of the entire project.

## 6. Database Schema:

To keep the AI organized, I designed a simple way to store information:

- **User/Voice Profiles:** Stores the unique "Voice ID" and the "Style Guide" (how human like to talk).
- **Podcast Archives:** Stores the research gathered and the scripts written for every episode.
- **Episode Analysis:** Stores the final audio links and feedback on how the agent performed.

## 7. The Pipeline (Step-by-Step Flow):

- a. **Topic Input:** I give the AI a simple idea (e.g., "The future of space travel").
- b. **Autonomous Research:** The Researcher agent finds 3-5 news articles from today.
- c. **Scriptwriting:** The Writer agent turns that research into a **funny, conversational script**.
- d. **Voice Cloning:** The script is sent to **ElevenLabs** to be spoken in my voice.
- e. **Final Output:** A professional .mp3 file is saved to my computer, ready to be uploaded.

## 8. Future Goals:

Adding "Guest Agents" for simulated interviews.

- Integration with social media for automatic posting.
- Real-time background music generation to match the script's mood.