

AI-Based HR Interview Analysis Tool using Streamlit and Gemini AI




Objective

To develop a user-friendly web application that allows users to record or upload interview videos, automatically transcribes them, evaluates the performance using Google Gemini AI based on HR metrics, and generates a professionally formatted PDF report with concise feedback.




Technologies Used

Component	Stack / Tool
Frontend UI	Streamlit
Video Capture	streamlit-webrtc, WebRTC
Transcription	SpeechRecognition with Google API
AI Evaluation	Gemini 2.0 Flash
PDF Generation	reportlab (Platypus module)
Packaging	python-dotenv, ffmpeg-python, requests




Features

-  **Video Input:**
 - Record via webcam (WebRTC)
 - Upload .mp4, .mov videos
-  **Speech-to-Text:**
 - Uses SpeechRecognition + ffmpeg to extract and transcribe audio
-  **AI Evaluation via Gemini:**
 - Prompts Gemini 2.0 Flash with interview transcript
 - Evaluates using 8 core HR metrics:
 - Communication Clarity
 - Confidence & Body Language
 - Technical Knowledge
 - Problem-Solving Ability
 - Professionalism & Attitude

- Teamwork & Collaboration
- Adaptability
- Cultural Fit

-  **Feedback Rules:**
 - Feedback for each metric is given separately
 - Final Summary provides detailed insight
-  **Report Output:**
 - PDF report generated with:
 - Table for all scores + concise feedback
 - Full summary section
-  **API Key Management:**
 - Securely handled with .env and dotenv package

✅ Implementation Highlights

-  Gemini prompt is carefully crafted to:
 - Request structured JSON
 - Summarize feedback without altering meaning
 - Separate detailed summary from short metric reviews
-  PDF generation uses:
 - Simple Document Template for easy understandability
 - Tabular presentation for rubric display
-  Evaluation results are cached using st.session_state to avoid repeated API calls on reruns

Directory Structure

hr_video_analysis/

├── app.py(main code file)






├── requirements.txt(libraries required)

├── .env(file to store API key)

├── README.md(Instructions)

└── interview_reports/ # (optional) stores exported reports

Results

-  Successfully tested across multiple candidate interview videos
-  Achieved high transcription accuracy using Google Speech Recognition
-  Generated insightful, rubric-aligned feedback through Gemini AI
-  Produced clean, well-formatted PDF reports with clear structure and wrapping
-  Created a seamless end-to-end experience from video to professional-grade evaluation output

Example output available as `initial_report.pdf`

How to Run

git clone

https://github.com/gcharan199/HR_video_analysis.git

Setup

```
python -m venv venv
```

```
venv\\Scripts\\activate
```

```
pip install -r requirements.txt
```




Add your Gemini API Key to the `.env` file

```
echo GEMINI_API_KEY=<Enter your API Key here > .env
```

Run the app

```
streamlit run app.py
```

Future Scope

-  Add sentiment/emotion analysis using pre-trained models
 -  Add physical gesture and body language analysis
 -  Multilingual support for non-English interviews
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Contributors

- Charan Goriparthi
- [GitHub Repo](#)