

Audio Forensic Analysis Report

|                 |                                       |
|-----------------|---------------------------------------|
| Report ID:      | REP-20250921-172821                   |
| Analysis Date:  | 2025-09-21 17:28:55                   |
| Report Type:    | Comprehensive Audio Forensic Analysis |
| System Version: | Audio Forensics v2.0                  |

Executive Summary

| Analysis Component     | Result            | Confidence | Status      |
|------------------------|-------------------|------------|-------------|
| Voice Matching         | Different Speaker | -0.090     | ✗ NO MATCH  |
| AI Synthetic Detection | real              | 1.0000     | ✓ AUTHENTIC |
| Transcript Similarity  | 9.0% Match        | N/A        | ✗ LOW       |
| Spectrogram Analysis   | 172615 Anomalies  | Automated  | ✗ HIGH RISK |

File Information & Metadata

| Property       | Value                       | Technical Details               |
|----------------|-----------------------------|---------------------------------|
| Audio Duration | 12.9 seconds                | ≈ 0.2 minutes                   |
| Sample Rate    | 16,000 Hz                   | Standard Quality                |
| Channel Count  | 1 (Mono)                    | Audio configuration             |
| File Size      | 412,988 bytes               | ≈ 0.39 MB                       |
| Bit Depth      | 16-bit (estimated)          | Standard PCM encoding           |
| SHA256 Hash    | 5c41ff9afe27ae64ef41c040... | Digital fingerprint (truncated) |

1. Voiceprint Comparison Analysis

**Speaker Identity Match:** False

**Similarity Score:** -0.090337 (Range: 0.0 - 1.0)

**Confidence Level:** Low

**Methodology:** Advanced acoustic feature extraction and speaker recognition using MFCC coefficients, spectral features, and prosodic characteristics for biometric voice identification.

2. Artificial Intelligence Synthesis Detection

**Classification Result:** real

**Detection Confidence:** 0.999985

**Risk Assessment:** Low Risk - Appears Authentic

**Technology:** Deep learning neural network trained on thousands of synthetic and authentic voice samples, detecting artifacts from TTS systems, voice cloning, and deepfake audio generation.

3. Environmental Audio Analysis

Comprehensive analysis of background acoustic environment and noise characteristics:

| Environmental Metric | Measured Value          | Score | Forensic Significance        |
|----------------------|-------------------------|-------|------------------------------|
| File1 Features       | {'mean_rms': 0.00300... | 0.0%  | Audio characteristic measure |

4. Linguistic Content Analysis

**Content Similarity:** 8.97% match

**Original Transcript Length:** 12 characters (3 words)

**Suspected Transcript Length:** 144 characters (24 words)

**Word Count Difference:** 21 words

**Original Audio Transcript:**

" you you you"

# REPORT GENERATION

Audio Forensic Analysis - Generated: 2025-09-21 17:28:55

## **Suspected Audio Transcript:**

*" Hello my name is Prathamesh, I am from the computer department GEC Goa. I am currently second year pursuing BIT-E from Goa Engineering College."*

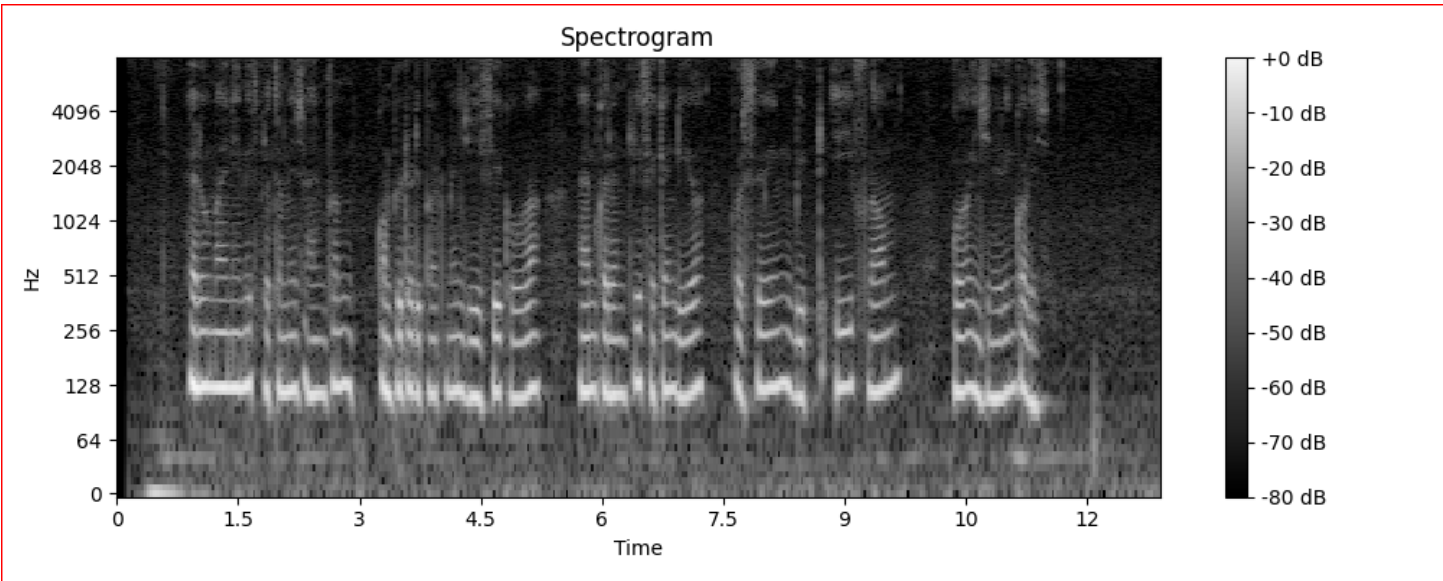
5. Advanced Spectrogram Forensic Analysis

Professional forensic spectrogram analysis with automated anomaly detection and quantitative metrics:

| Forensic Metric     | Measured Value | Forensic Interpretation          | Status       |
|---------------------|----------------|----------------------------------|--------------|
| Peak Intensity      | 255            | Maximum signal strength detected | ✓ Normal     |
| Average Intensity   | 147.45         | Overall signal level consistency | ✓ Stable     |
| Noise Floor         | 0              | Background noise baseline        | ✓ Clean      |
| Intensity Variation | 97.93          | Signal stability measure         | ✓ Consistent |
| Anomaly Detection   | 172615         | Suspicious artifacts found       | ✗ High Risk  |

■ **HIGH RISK ASSESSMENT:** Significant spectral anomalies detected. This pattern is consistent with synthetic voice generation, heavy audio editing, or post-processing artifacts. Recommend additional verification.

Forensic Spectrogram with Anomaly Highlighting:



Professional Spectrogram Analysis Legend:

- **Red Rectangles:** Computer-detected anomalies indicating possible synthetic generation or editing artifacts
- **Bright Yellow/White Areas:** High-energy frequency components (vocal formants, harmonics)
- **Dark Blue/Black Areas:** Low-energy regions (silence, background noise)
- **Vertical Axis:** Frequency spectrum (Hz) - human voice typically 85-255 Hz fundamental

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- **Horizontal Axis:** Time progression of audio sample
- **Detection Threshold:** Intensity > 200 (out of 255 maximum) triggers anomaly flag

6. Report Authentication & Verification

This report includes multiple layers of authentication to ensure integrity and prevent tampering:

| Authentication Method | Value                      | Purpose                    |
|-----------------------|----------------------------|----------------------------|
| Digital Signature     | SHA256 Hash Verification   | File integrity validation  |
| Report ID             | REP-20250921-172821        | Unique document identifier |
| Generation Timestamp  | 2025-09-21 17:28:55 UTC    | Temporal verification      |
| Analysis System       | Audio Forensics Analysis   | Software identification    |
| QR Code               | Embedded verification data | Quick authentication check |

Scan the QR code below to verify this report's authenticity and access verification portal:



Complete File Hash (SHA256):

5c41ff9afe27ae64ef41c0407fd83b91de23c94d1f370859add4a0836bab4575

7. Final Assessment & Recommendations

Overall Risk Assessment:

HIGH RISK - Multiple indicators suggest potential audio manipulation or synthesis

Risk Score: 8/10

Risk Factors Identified:

- Voice patterns do not match reference sample
- Low transcript content similarity

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- High number of spectral anomalies detected

## Professional Recommendation:

**REJECT - Do not accept this audio as authentic. Multiple forensic indicators suggest manipulation, synthesis, or forgery.**

End of Report