

PROPOSAL COVER LETTER - FORENSIC HACKATHON 2025

Date: 20/03/2025

To,
The Organising Chair,
Forensic Hackathon – 2025
National Forensic Sciences University

Sub: Submission of the proposal for consideration in Forensic Hackathon – 2025

Theme: Forensic Electronics.

Dear Sir/Madam,

I am Venkatesh R, a third-year undergraduate student at Bannari Amman Institute of Technology, Tamil Nadu. I have been actively involved in the field of forensics for the past three years and was honored to secure first place in the Forensic Hackathon 2023 at NFSU, Gujarat, under the Forensic Physical Sciences domain.

For Forensic Hackathon 2025, I am excited to present my project, "Nirnay – Fake News Detection in Live Broadcasts." This project focuses on the real-time identification of fake claims, verification of authentic sources, and the development of a machine learning model that generates claims from transcribed texts.

Kindly consider our proposal for Forensic Hackathon – 2025.

With best wishes,

Venkatesh R

Forensic Hackathon 2025 - Participant Proposal

1. Team Details

- **Team Name:** Nirnay
- **Team Members:** Venkatesh R - ML Developer
- **Institution/Organization:** Bannari Amman Institute of Technology
- **Contact Email :** 23f2004333@ds.study.iitm.ac.in
- **Phone Number:** +91 8668135371

2. Project Title : **Nirnay – Fake News Detection in Live Broadcasts**

3. Problem Statement

Misinformation and fake news dissemination through live media broadcasts pose significant threats to society, influencing public perception and decision-making. Traditional fact-checking mechanisms struggle to keep up with the real-time nature of live streams. This project aims to address this challenge by developing an automated system that detects and classifies fake news in live broadcasts. The system will provide real-time fact verification by analyzing live audio-visual content, transcribing speech, and using Natural Language Processing (NLP) to determine claim authenticity.

4. Proposed Solution

Our solution, **Nirnay**, is an AI-powered pipeline that processes live video feeds, transcribes speech into text with high accuracy, analyzes statements using an NLP model, and cross-references claims with fact-checking databases to verify authenticity.

Technology Stack:

- Live Video Processing: FFMPEG
- Speech-to-Text Conversion: Whisper Model, Punctuation Model
- Misinformation Classification: BERT Transformer (NLP-based classification model)
- Fact Checking: Google Fact Checker API, Flask Server
- User Dashboard: Streamlit, Plotly

- Summary Generation: GPT/T5 Model

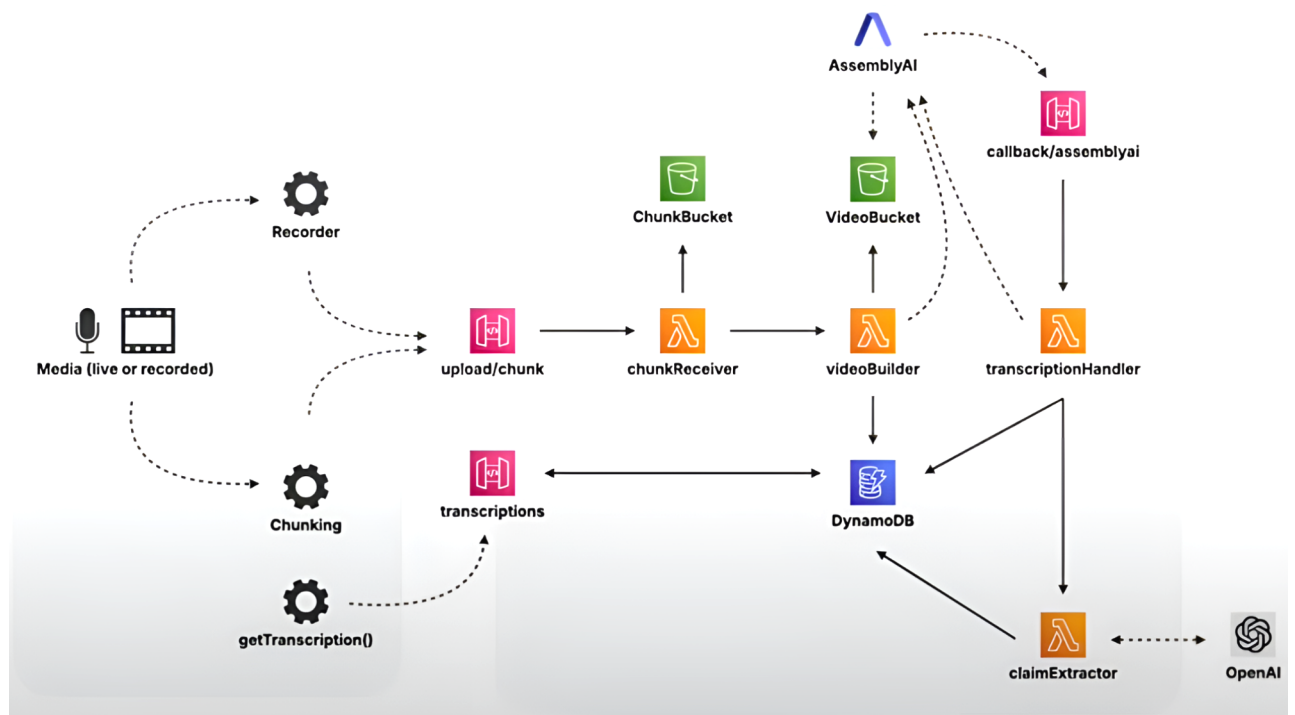
Key Features:

- Real-time speech transcription with minimal errors
- Automated misinformation detection using NLP models
- Fact-checking with multiple sources (Google Fact Checker API, verified databases)
- User-friendly dashboard for live updates and analytics
- Summarization of broadcasted content for quick reference

Innovation & Uniqueness:

Unlike existing misinformation detection tools that focus on post-publication analysis, Nirnay operates in real time, making it ideal for monitoring live broadcasts. It integrates state-of-the-art NLP and AI-driven models to provide an automated, scalable, and efficient fact-checking mechanism.

5. Methodology



6. Expected Outcomes

- A functional prototype capable of detecting and classifying misinformation in live broadcasts.
- A user-friendly dashboard providing real-time fact-checking insights.
- Increased accuracy in speech-to-text conversion for better claim analysis.

7. Challenges and Risks

Potential Challenges:

- Ensuring real-time processing speed without latency.
- Handling diverse accents and speech variations accurately.
- Maintaining high accuracy in misinformation classification.

Mitigation Strategies:

- Optimizing AI models for faster inference.
- Enhancing training datasets with diverse speech samples.

8. Team Expertise

I, Venkatesh R working in Forensics for the past 3 years, made tools for TN cyber crime wing and won Forensic Hackathon 2023, GST Analytics Hackathon 2024 and been an active student of ML. Founder of a startup - Bluink labs (DIPP143482) working in data security pipeline for clinical data.

9. Conclusion

Nirnay presents an innovative approach to combating misinformation in live broadcasts. By leveraging advanced AI models and real-time fact-checking mechanisms, our solution ensures audiences receive credible news in a timely manner. The proposed system is scalable, efficient, and applicable across various media platforms, making it a valuable tool for forensic and journalistic applications.