REVA UNIVERSITY
Bengaluru, India

SCHOOL OF COMPUTER SCIENCE AND APPLICATIONS

Minor Project Report

On

Temporal Interview Profiling System (TIPS)

A Project Report submitted in partial fulfilment of the requirements for the award of the Degree of Master of Computer Applications - MCA

Submitted by

AbrarAli S.
R24DE175

And

Yuvraj Mahilange
R24DE201

Under the guidance of

Dr. Lokesh C K
Professor & Director

Computer Science and Applications

Feb 2026

Rukmini Knowledge Park, Kattigenahalli, Yelahanka, Bengaluru-560064
www.reva.edu.in

CERTIFICATE

This is to certify that the Minor project work entitled "**Temporal Interview Profiling System (TIPS)**" submitted to the School of Computer Science and Applications, REVA University in partial fulfilment of the requirements for the award of the Degree of **Master of Computer Applications** in the academic year 2025-2026 is a record of the original work done by **AbrarAli S.** (**R24DE175) and Yuvraj Mahilange (R24DE201)** under my supervision and guidance. The project report has been approved as it satisfies the academic requirements in respect of Semester III Project work prescribed for the said Degree and this Minor project work has not formed the basis for the award of any Degree / Diploma / Associate ship / Fellowship or similar title to any candidate of any University.

Signature with date

Dr. Lokesh C K
Internal Guide

Signature with date

Dr. Ambili P S
Incharge Director

Name of the Examiner with affiliation — Signature with Date

1.

2.

DECLARATION

We, AbrarAli S. (R24DE175) and Yuvraj Mahilange (R24DE201) third semester students of Master of Computer Applications belonging to School of Computer Science and Applications, REVA University, declare that this Project work entitled **"Temporal Interview Profiling System (TIPS)"** is the result of the Project work done by us under the supervision of Dr. Lokesh C K Professor & Director of Computer Science and Applications.

We are submitting this Project work in partial fulfilment of the requirements for the award of the degree of Master of Computer Applications by REVA University, Bangalore during the academic year 2025-26.

We further declare that this Project report or any part of it has not been submitted for the award of any other Degree / Diploma of this University or any other University / Institution.

Signed on:

Certified that this project work submitted by AbrarAli S. and Yuvraj Mahilange has been carried out under my guidance and the declaration made by the candidates is true to the best of my knowledge.

Signature of the Guide
Date:

Signature of the Incharge Director,
Date:

ACKNOWLEDGEMENT

We hereby acknowledge all those, under whose support and encouragement, we have been able to complete these academic commitments successfully. In this regard, we take this opportunity to express our deep sense of gratitude and sincere thanks to School of Computer Science and Applications, which has always been a tremendous source of guidance.

We express our sincere gratitude to Dr. P. SHYAMA RAJU, Honorable Chancellor, REVA University, Bengaluru, for providing us the state-of-the-art facilities.

We are thankful to **Dr. SANJAY CHITNIS**, Vice Chancellor, REVA University, **Dr. M. DHANAMJAYA**, Registrar, REVA University, for their support and encouragement.

We take this opportunity to express our heartfelt sincere thanks to **Dr. LOKESH C K,** Director, School of CSA and **Dr. AMBILI P S**, in charge Director - PG, School of CSA, REVA University for the encouragement and best wishes provided impetus for the Project Work carried out.

We convey warm and sincere gratitude to our guide Dr. Lokesh C.K. for the valuable suggestion and constant encouragement towards the completion of this project.

Last, but not the least, we express our gratitude to everyone who provided support and encouragement during the course of the project.

AbrarAli S.

Yuvraj Mahilange

Abstract

The Temporal Interview Profiling System (TIPS) is an automated interview analysis system designed to process recorded video interviews and generate comprehensive behavioral and semantic assessments of candidates. The system processes pre-recorded interview files through a multi-stage backend pipeline that extracts audio and video signals, performs temporal segmentation, computes behavioral metrics, and utilizes Large Language Models (LLMs) for semantic relevance scoring against job descriptions.

The primary objective of TIPS is to provide an objective, data-driven assessment of interview candidates by analyzing their verbal responses, vocal characteristics, and visual behavior. Unlike real-time interview systems, TIPS operates as a batch processing system where interviews are first recorded and subsequently processed through six distinct stages to generate time-evolving candidate scores and final hiring recommendations.

The pipeline architecture consists of six sequential and parallel processing stages. Stage 0 establishes a canonical time base that synchronizes all subsequent processing. Stages 1A, 1B, and 1C execute in parallel to extract signals from candidate audio, interviewer audio, and candidate video respectively. Stage 2 performs temporal segmentation by pairing interviewer questions with candidate answers using voice activity detection and transcript analysis. Stage 3 computes behavioral metrics including audio features (pitch, energy, speech rate, pause density) and video features (face presence, head pose, gaze stability, expression changes). Stages 4 and 5 utilize the Qwen2.5-3B-Instruct LLM with 4-bit quantization to evaluate semantic relevance, extract matched keywords, assess five competency dimensions (technical depth, system design, production experience, communication clarity, problem solving), and generate incremental verdicts throughout the interview.

The system produces structured outputs including timeline data, behavioral metrics JSON files, relevance scores for each Q\&A pair, and a final hiring recommendation with confidence level. Output verdicts include four categories: STRONG_HIRE, HIRE, BORDERLINE, and NO_HIRE. This approach addresses key limitations of traditional interview evaluation including subjectivity, limited analysis depth, scalability issues, lack of standardization, and the absence of temporal performance insights.

TIPS also includes a fully implemented Interview Recording UI for capturing video interviews using WebRTC technology, and a comprehensive Dashboard for visualizing analysis results. This report documents the complete design and implementation of the TIPS system, including the backend pipeline, the Interview Recording UI, and the Dashboard visualization system.