ENHANCED REMOTE FACE
ANTI-SPOOFING

A Project Report

Submitted in the partial fulfillment of the requirements

For the award of the degree of

Master of Computer Applications

In

Department of Computer Science and Applications

By

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DEPARTMENT OF COMPUTER SCIENCE AND APPLICATIONS

<u>DECLARATION</u>

The Project Report entitled **"ENHANCED REMOTE FACE ANTI-SPOOFING"** is a record of Bonafide work of **NAIDU BHANU TEJA**, submitted in partial fulfillment for the award of **Master of Computer Applications In Computer Science and Applications** of the K L University. The results embodied in this report have not been copied from any other departments / Universities / Institute.

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CERTIFICATE

This is to certify that the Project Report entitled **"ENHANCED REMOTE FACE ANTI-SPOOFING"** is being submitted by **NAIDU BHANU TEJA,** in partial fulfillment of the requirements for the award of **Master of Computer Applications** in **Computer Science and Applications** to the K L Education Foundation is a record of Bonafide work carried out under our guidance and supervision.

The results embodied in this report have not been copied from any other departments / University / Institute.

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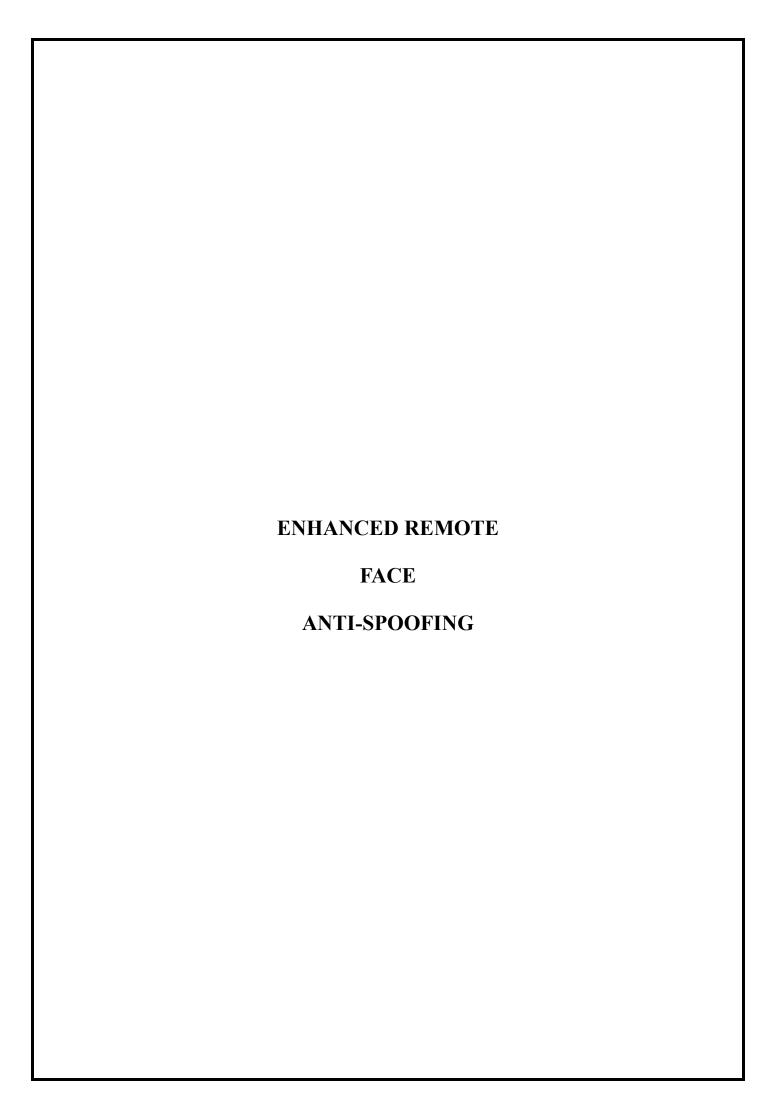
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ENHANCED REMOTE

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ABSTRACT

In the modern era of digital security, traditional password-based authentication systems are increasingly vulnerable to breaches and impersonation attacks. This project presents an advanced and secure biometric authentication system titled **"Enhanced Remote Face Anti-Spoofing",** which integrates robust liveness detection techniques with face recognition and 3D face modeling to ensure remote user verification is both accurate and resistant to spoofing attempts.

The system captures facial data via webcam during registration, extracts facial embeddings using the **face_recognition** library, and generates a 3D face model using **MediaPipe Face Mesh**. These are securely stored for future authentication. The login system supports two modes: **password with OTP and face recognition-based login,** providing users with flexibility and enhanced security. To counter spoofing threats such as printed photos or replayed videos, the system implements **spoof detection** through facial blurriness checks and Haar cascade-based face validation.

Built with Django, the application includes a user-friendly dashboard, password and face reset features, email-based OTP verification . This project delivers a multi-layered defense mechanism for face authentication, combining computer vision, deep learning, and 3D modeling techniques to enhance both security and user convenience in remote identity verification.

KEY WORDS :

Face Recognition, Face Anti-Spoofing, Liveness Detection, Biometric Security, MediaPipe Face Mesh, Deep Learning, Face Embeddings, Remote Identity Verification, OTP Authentication, Computer Vision, Face Spoof Detection, Blurriness Detection, Face Reset System.

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