**SAGE University, Indore**



# Institute of Computer Application

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# Synopsis on Major Project (BCA VI Semester)

# "Deep Facial Recognition App"

**Submitted by-**

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**Submitted to-**

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## Aim & Objective

Developing a high-accuracy deep learning-based facial recognition application for various things like securityAuthentication, identity verification, surveillance, ETC.

## Introduction

Our deep facial recognition app leverages advanced AI technology to accurately identify and verify individuals through facial features. With high precision and speed, it enhances security, improves user experiences, and streamlines access control. The app offers seamless integration across various platforms, ensuring reliability and scalability for personal, corporate, and security applications.

## Technical Details

- The app Utilizes frameworks like TensorFlow and Keras for model training and deployment.
- Using GPU acceleration for faster face recognition in live video feeds or images.
- Cosine similarity or Euclidean distance is calculated between input embeddings and stored embeddings to verify or identify individuals in L1 Distance Layer.
- Using Python framework Kivi to build app and integrating the model in it.

## Technology used

1. Python – as Core Programming Language
2. Tensorslow and Keras – for training the model
3. OpenCV – for Image processing
4. Numpy – for Efficient handling of image data
5. Kivi – for creating app

## Current status of development

The Project is in its initial development stage, all the required tools and dependencies and directories are imported. Now the next step is to collect data (Input images, Positive images and Negative images) for training the model and pre-processing the data for the deep learning and training.

## Advantages/ benefits

- Deep facial recognition leverages sophisticated AI models to identify individuals with high precision, reducing the chances of unauthorized access or fraud.
- Unlike traditional passwords or PIN codes, facial recognition is harder to replicate or forge, making it a more secure form of authentication.
- It enables real-time surveillance and monitoring in security systems, enhancing the safety of physical spaces.
- Face recognition is faster than many other forms of authentication, such as typing passwords or using fingerprint scanners.

## Limitations

- Facial recognition involves collecting sensitive biometric data, raising concerns about privacy violations, data misuse, or unauthorized access to personal information.
- Environmental factors such as poor lighting, low resolution, or occlusions (like wearing glasses or face masks) can negatively affect the accuracy and reliability of recognition.
- Despite advanced detection methods, there's still a risk of facial recognition systems being tricked by photos, videos, or deepfake technology that simulate a person's face.

**Signature:**

**Date:** 05-03-2025

**Place:**