
VIT®

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

# Title: Face Recognition using Rekognition

A project submitted to the partial fulfilment of the course

SWE4002: Cloud Computing

By:

Kumar Shivam (20MIS0116)

Sai Dixit Vila (20MIS0128)

Shashwat (20MIS0255)

To

Dr. Siva Rama Krishnan S

SCORE

Vellore Institute of Technology, Vellore

Tamil Nadu, India

August, 2023

## Abstract:

Face recognition technology has garnered significant attention in recent years due to its diverse applications in various domains such as security, surveillance, authentication, and human-computer interaction. Amazon Rekognition, a powerful cloud-based service provided by Amazon Web Services (AWS), offers state-of-the-art capabilities for implementing accurate and efficient face recognition systems. This project aims to explore the capabilities of Amazon Rekognition for face recognition and showcase its potential by developing a comprehensive system for face identification, verification, emotion analysis, and age-gender estimation.

In this project, we delve into the complexities of utilizing Amazon Rekognition's deep learning algorithms to train and deploy a robust face recognition model. The system's architecture leverages AWS's cloud infrastructure, ensuring scalability, reliability, and real-time processing capabilities. By harnessing the benefits of cloud computing, this project demonstrates the seamless integration of facial recognition technology into real-world scenarios.


## Introduction:

The advancement of cloud computing technology has revolutionized the way various applications and services are developed and deployed. One such transformative field is face recognition, which has witnessed immense progress due to the availability of cloud-based solutions. Face recognition, a subset of biometric identification, involves the automatic detection and identification of individuals based on their facial features. It has found applications in a wide range of domains, including security, surveillance, access control, user authentication, and personalized marketing.

Amazon Rekognition, a service offered by AWS, brings the power of deep learning and artificial intelligence to the realm of face recognition. Leveraging AWS's cloud infrastructure, Rekognition provides developers with a scalable and accurate platform to integrate face recognition capabilities into their applications without the need for significant computational resources. This project aims to delve into the intricacies of utilizing Amazon Rekognition for developing a robust face recognition system.

The project's primary objectives include:

**Face Detection:** The ability to locate and extract faces from images and videos.

**Face Identification:** Matching detected faces against a database of known faces to identify individuals.

**Face Verification:** Verifying whether a given face matches a specific individual's face.

The project will involve the following steps:

**Data Collection:** Gathering a diverse dataset of faces for training and testing the system.

**Model Training:** Utilizing Amazon Rekognition's deep learning algorithms to train a face recognition model.

**System Integration:** Developing a user-friendly interface to interact with the face recognition system.

**Performance Evaluation:** Assessing the accuracy, efficiency, and scalability of the system through rigorous testing.

By exploring the capabilities of Amazon Rekognition, this project not only showcases the potential of cloud-based face recognition but also emphasizes the importance of ethical considerations, data privacy, and security when implementing such systems.

## Flowchart: