

CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY
Gandipet- 500 075, Hyderabad
DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE
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TITLE: Forensic Facial Generation and Intelligent Recognition System

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ABSTRACT:

Facial recognition is a critical tool in forensic science for identifying suspects based on eyewitness descriptions. Traditionally, forensic artists create hand-drawn sketches that are then matched with photographs in criminal databases. However, this process is time-consuming, subjective, and often lacks precision, leading to inefficiencies in criminal investigations. Existing recognition systems struggle with non-frontal images and offer limited accuracy, particularly when sketches are cartoonish or when different facial features are combined from multiple sources.

To address these challenges, we propose an integrated platform that modernizes the forensic sketching process by incorporating advanced technologies. This platform will enable users to create composite facial sketches using a drag-and-drop interface or by uploading existing hand-drawn sketches. By leveraging deep learning models, such as Convolutional Neural Networks (CNNs) and Siamese Networks, the system will enhance the accuracy and speed of facial recognition. Additionally, machine learning algorithms will suggest relevant facial features during the sketch creation process, significantly improving efficiency and reducing the time required for sketch completion.

The platform will be built using modern web technologies, including HTML, CSS, and JavaScript for the frontend, and Python with Flask or Django for backend processing. Data will be stored in secure SQL or NoSQL databases, and the system will be deployed on cloud infrastructure such as AWS or Google Cloud, ensuring scalability and reliable performance. To protect sensitive data, the platform will implement robust security measures, including machine locking, two-step verification, and centralized server control.

This solution aims to revolutionize forensic facial recognition by making it faster, more accurate, and accessible to law enforcement agencies, ultimately enhancing the efficiency of criminal investigations and the identification of suspects.

Date of Submission:

**Name & Signature of
Project Coordinator**

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