

**JSS Mahavidyapeetha**

# **JSS Academy of Technical Education**

**Kengeri - Uttarahalli Main Road, Bangalore-560060**



## **DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

### **ASSIGNMENT PROJECT SYNOPSIS**

**COURSE NAME: PYTHON APPLICATION PROGRAMMING**

**COURSE CODE: 17CS664**

**TOPIC: SUSPENSION DETECTION AND REPORTING BOT**

**UNDER THE GUIDENCE OF:**

**Dr NAVEEN NC**

**Prepared by: -**

**HARSHITH R SHEKAR[1JS17CS039]**

**DHRUVA V [1JS18CS403]**

**BINDUSHREE R [1JS17CS025]**

**Semester / Branch: 6<sup>th</sup> 'A' sec**

**Marks Scored:**

**Signature of the Staff:**

## **ABSTRACT:**

A face recognition system is one of the biometric information processes, its applicability is easier and working range is larger than others, i.e., fingerprint, iris scanning, signature, etc. A face recognition system is designed, implemented and tested at Atilim University, Mechatronics Engineering Department. The system uses a combination of techniques in two topics: face detection and recognition. The face detection is performed on live acquired images without any application field in mind. Processes utilized in the system are white balance correction, skin like region segmentation, facial feature extraction and face image extraction on a face candidate. Then a face classification method that uses Feedforward Neural Network is integrated in the system. The system is tested with a database generated in the laboratory with 26 people. The tested system has acceptable performance to recognize faces within intended limits. System is also capable of detecting and recognizing multiple faces in live acquired images.

## **INTRODUCTION:**

Python is an interpreted, high-level, general-purpose programming language. Created by Guido van Rossum and first released in 1991, Python's design philosophy emphasizes code readability with its notable use of significant whitespace. Its language constructs and object-oriented approach aim to help programmers write clear, logical code for small and large-scale projects.

OpenCV (Open source computer vision) is a library of programming functions mainly aimed at real-time computer vision.[1] Originally developed by Intel, it was later supported by Willow Garage then Itseez (which was later acquired by Intel [2]). The library is cross-platform and free for use under the open-source BSD license.

Image processing is the cornerstone in which all of Computer Vision is built. Follow my image processing guides to learn the fundamentals of Computer Vision using the OpenCV library.

## **PROBLEM STATEMENTS:**

- Taking 10 images per second
- Stitching the images from 2 webcams
- Processing the image and finding suspicious users
- Storing the suspicious object details
- Displaying the user's details
- Implementation of a chat bot
- Identifying the suspicious users

## **OBJECTIVES:**

- Taking 10 images per second
- Stitching the images from 2 webcams
- Processing the image and finding suspicious users
- Storing the suspicious object details
- Displaying the user's details
- Implementation of a chat bot

## **SOFTWARE REQUIREMENTS:**

- MySQL = Version 8.0.17 build 14960816 CE (64-bits)
- Python: Version 3.7
- OpenCV library
- Tensor Flow
- Database
- Anaconda
- Pip

## **HARDWARE REQUIREMENTS:**

- Camera
- Monitor
- CPU
- Memory
- Laptop
- Wires

## **CONCLUSION:**

Face recognition systems are part of facial image processing applications and their significance as a research area are increasing recently. Implementations of system are crime prevention, video surveillance, person verification, and similar security activities. The face recognition system implementation will be part of humanoid robot project at Atilim University.

The goal is reached by face detection and recognition methods. Knowledge-Based face detection methods are used to find, locate and extract faces in acquired images. Implemented methods are skin color and facial features. Neural network is used for face recognition.

RGB color space is used to specify skin color values, and segmentation decreases searching time of face images. Facial components on face candidates are appeared with implementation of LoG filter. LoG filter shows good performance on extracting facial components under different illumination conditions.