**KARNATAK LAW SOCIETY’S**

**GOGTE INSTITUTE OF TECHNOLOGY**

**UDYAMBAG, BELAGAVI – 590008**

**(An Autonomous Institution under Visvesvaraya Technological University, Belagavi)**

**(Approved By AICTE, New Delhi)**

**DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING**

 

**COURSE PROJECT**

**PYTHON PROGRAMMING**

RACHANA KAMPLI 2GI18IS032

LAXMI NYAMAGOUD 2GI18IS020

HEMANTH I T 2GI18IS015

ROHAN KOKATANUR 2GI18IS066

Guided by:

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CERTIFICATE

This is to certify that Hemanth I T of 4th semester and bearing has satisfactorily completed the course activity in "Face Detection in a Image “. It can be considered as a Bonafede work carried out in partial fulfillment for the academic requirement of 4 th Semester B.E. (Information Science) prescribed by KLS Gogte Institute of Technology, Belagavi during the academic year 2019 - 2020. The report has been approved as it satisfies the academic requirements in respect of Assignment (Course activity) prescribed for the said Degree.

Signature of the Faculty Member Signature of HOD

Date:

Examiner 1: Examiner 2 :

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CERTIFICATE

This is to certify that Rachana Kampli of 4 th semester and bearing has satisfactorily completed the course activity in " Face Detection in a Image “. It can be considered as a Bonafede work carried out in partial fulfillment for the academic requirement of 4 th Semester B.E. (Information Science) prescribed by KLS Gogte Institute of Technology, Belagavi during the academic year 2019 - 2020. The report has been approved as it satisfies the academic requirements in respect of Assignment (Course activity) prescribed for the said Degree.

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CERTIFICATE

This is to certify that Rohan Kokatanur of 4 th semester and bearing has satisfactorily completed the course activity in " Face Detection in a Image “. It can be considered as a Bonafede work carried out in partial fulfillment for the academic requirement of 4 th Semester B.E. (Information Science) prescribed by KLS Gogte Institute of Technology, Belagavi during the academic year 2019 - 2020. The report has been approved as it satisfies the academic requirements in respect of Assignment (Course activity) prescribed for the said Degree.

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CERTIFICATE

This is to certify that Laxmi N of 4 th semester and bearing has satisfactorily completed the course activity in " Face Detection in a Image “. It can be considered as a Bonafede work carried out in partial fulfillment for the academic requirement of 4 th Semester B.E. (Information Science) prescribed by KLS Gogte Institute of Technology, Belagavi during the academic year 2019 - 2020. The report has been approved as it satisfies the academic requirements in respect of Assignment (Course activity) prescribed for the said Degree.

Signature of the Faculty Member Signature of HOD

Date:

Examiner 1: Examiner 2:

**1**.**Title**: Face Detection

**2.Problem Statement:**

Detecting Face in an Image

**3.Objectives:**

To Detect a face in a given image using Open Computer Vision in python

**OpenCV**

OpenCV was started at Intel in 1999 by **Gary Bradsky** and the first release came out in 2000. **Vadim Pisarevsky** joined Gary Bradsky to manage Intel’s Russian software OpenCV team. In 2005, OpenCV was used on Stanley, the vehicle who won 2005 DARPA Grand Challenge. Later its active development continued under the support of Willow Garage, with Gary Bradsky and Vadim Pisarevsky leading the project. Right now, OpenCV supports a lot of algorithms related to Computer Vision and Machine Learning and it is expanding day-by-day.

Currently OpenCV supports a wide variety of programming languages like C++, Python, Java etc and is available on different platforms including Windows, Linux, OS X, Android, iOS etc. Also, interfaces based on CUDA and OpenCL are also under active development for high-speed GPU operations.

OpenCV-Python is the Python API of OpenCV. It combines the best qualities of OpenCV C++ API and Python language.

**OpenCV-Python**

Python is a general purpose programming language started by **Guido van Rossum**, which became very popular in short time mainly because of its simplicity and code readability. It enables the programmer to express his ideas in fewer lines of code without reducing any readability.

Compared to other languages like C/C++, Python is slower. But another important feature of Python is that it can be easily extended with C/C++. This feature helps us to write computationally intensive codes in C/C++ and create a Python wrapper for it so that we can use these wrappers as Python modules. This gives us two advantages: first, our code is as fast as original C/C++ code (since it is the actual C++ code working in background) and second, it is very easy to code in Python. This is how OpenCV-Python works, it is a Python wrapper around original C++ implementation.

And the support of Numpy makes the task more easier. **Numpy** is a highly optimized library for numerical operations. It gives a MATLAB-style syntax. All the OpenCV array structures are converted to-and-from Numpy arrays. So whatever operations you can do in Numpy, you can combine it with OpenCV, which increases number of weapons in your arsenal. Besides that, several other libraries like SciPy, Matplotlib which supports Numpy can be used with this.

So OpenCV-Python is an appropriate tool for fast prototyping of computer vision problems.

**4.Implementation:**

import cv2

face\_cascade= cv2.CascadeClassifier('haarcascade\_frontalface\_default.xml')

img=cv2.imread('$')

gray=cv2.cvtColor(img,cv2.COLOR\_BGR2GRAY)

faces=face\_cascade.detectMultiScale(gray,1.1,4)

for x,y,w,h in faces:

cv2.rectangle(img, (x,y), (x+w,y+h),(255,0,0),3)

cv2.imshow('img',img)

cv2.waitKey(30000)

**5.Working Model Of Final Solution:**

