# emblem-college-blockanna-univ-new FACIAL EMOTION DETECTION

**MINI PROJECT REPORT**

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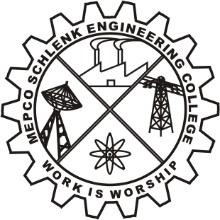
**DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE**

MEPCO SCHLENK ENGINEERING COLLEGE SIVAKASI

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**MEPCO SCHLENK ENGINEERING COLLEGE, SIVAKASI AUTONOMOUS**

# DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE



**BONAFIDE CERTIFICATE**

This is to certify that it is the bonafide work of M.RAGAVAN (202009034), J.VISHNU SANKAR (202009046), S.SIDDARTH (202009038) for the mini project titled **“FACIAL EMOTION DETECTION”** in 19AD452\_Artificial Intelligence Laboratory during the Fourth semester February 2022 – June 2022 under my supervision.

# SIGNATURE SIGNATURE

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**PROJECT DESCRIPTION:**

Our aim was to predict the emotion of the human by training the data and creating a model for that data .Then we are going to pass the data and predict the emotion. We are going to use python language for implementing this project.

**Modules:**

**Keras:**

Keras is an Open Source Neural Network library written in Python that runs on top of Theano or Tensorflow. It is designed to be modular, fast and easy to use. It was developed by François Chollet, a Google engineer. Keras doesn’t handle low-level computation. Instead, it uses another library to do it, called the “Backend. Keras is high-level API wrapper for the low-level API, capable of running on top of TensorFlow, CNTK, or Theano. Keras High-Level API handles the way we make models, defining layers, or set up multiple input-output models. In this level, Keras also compiles our model with loss and optimizer functions, training process with fit function. Keras in Python doesn’t handle Low-Level API such as making the computational graph, making tensors or other variables because it has been handled by the “backend” engine.

**MathPlot:**

Matplotlib is a low level graph plotting library in python that serves as a visualization utility. Matplotlib is open source and we can use it freely.Matplotlib is mostly written in python, a few segments are written in C, Objective-C and Javascript for Platform compatibility.

**Numpy:**

NumPy is a Python library used for working with arrays. It also has functions for working in domain of linear algebra, fourier transform, and matrices. It is an open source project and you can use it freely. NumPy stands for Numerical Python.

**Process Flow:**

**Image Input**

**Output as emoji**

**Emotion**

**Facial emotion**

**Face Detection**

**Image preprocessing**

Figure 1

**Code:**

from keras.preprocessing.image import ImageDataGenerator

from keras.models import Sequential

from keras.layers import Dense, Dropout,Flatten

from keras.layers import Conv2D

from matplotlib import pyplot as plt

IMG\_HEIGHT=1000

IMG\_WIDTH=1000

batch\_size=50

train\_data\_dir='C:/Users/vishn/OneDrive/Desktop/4th sem projects/AI/New folder/train'

validation\_data\_dir='C:/Users/vishn/OneDrive/Desktop/4th sem projects/AI/New folder/test'

train\_datagen=ImageDataGenerator(rescale=1./255,rotation\_range=30,shear\_range=0.3,zoom\_range=0.3,horizontal\_flip=True,fill\_mode='nearest')

validation\_datagen=ImageDataGenerator(rescale=1./255)

train\_generator=train\_datagen.flow\_from\_directory(train\_data\_dir,target\_size=(IMG\_HEIGHT,IMG\_WIDTH),batch\_size=batch\_size,class\_mode='categorical',shuffle=True)

validation\_generator=validation\_datagen.flow\_from\_directory(validation\_data\_dir,target\_size=(IMG\_HEIGHT,IMG\_WIDTH),batch\_size=batch\_size,shuffle=True)

class\_labels=['Angry','Disgust','Fear','Happy','Neutral','Sad','Surprise']

img,label=train\_generator.\_\_next\_\_()

import random

i=random.randint(0, (img.shape[0])-1)

image=img[i]

a=label[i].argmax()

lab1=class\_labels[a]

class\_emoji=["\U0001F92C","\U0001F922","\U0001F621","\U0001F604","\U0001F97A","\U001F6”]

lab2=class\_emoji[a]

plt.imshow(image[:,:,0],cmap='gray')

print(lab2)

plt.title(lab1)

plt.show()

model=Sequential()

**Result:**

# 

Figure 2

**Summary:**

Firstly we are creating the model by testing and training of the data .While training we are preprocessing the data to remove the error in the data. Then we are processing the input image to the model. Then the model will predict the emotion of the image. With this result we can identify that whether human is in which state of emotion and act according to the emotion.