MINI PROJECT :
ON

"*FACIAL EXPRESSION RECOGNITION USING DEEP CONVOLUTIONAL NEURAL NETWORKS*"

Gayatri Vidya Parishad College of Engineering (Autonomous)
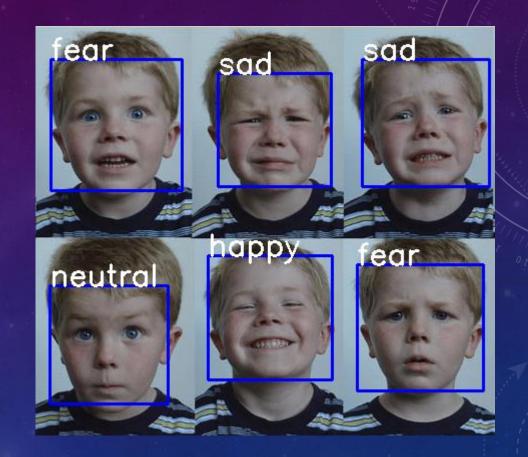**Madhurawada, Visakhapatnam - 530 048**

Under the esteemed guidance of
Mrs. G. Vani
Assistant Professor
Department of Computer Science Engineering.
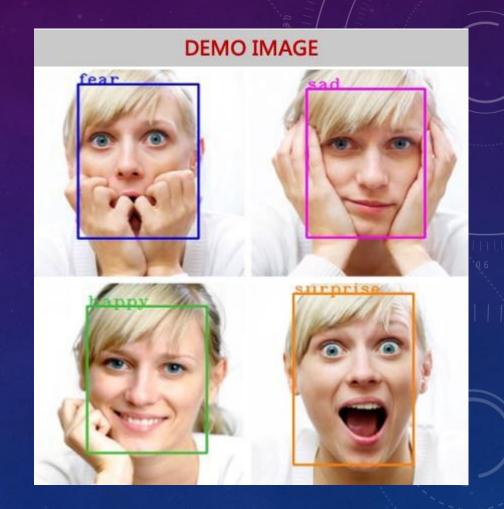
Project Team Members

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INTRODUCTION

- Expression of the face is one of the non-verbal communication method by which one understands the mood/mental state of a person .

- Automatic facial expression recognition (FER) has become an interesting and challenging area for the computer vision field and its application are huge number which includes mental state identification, security , music for mood.
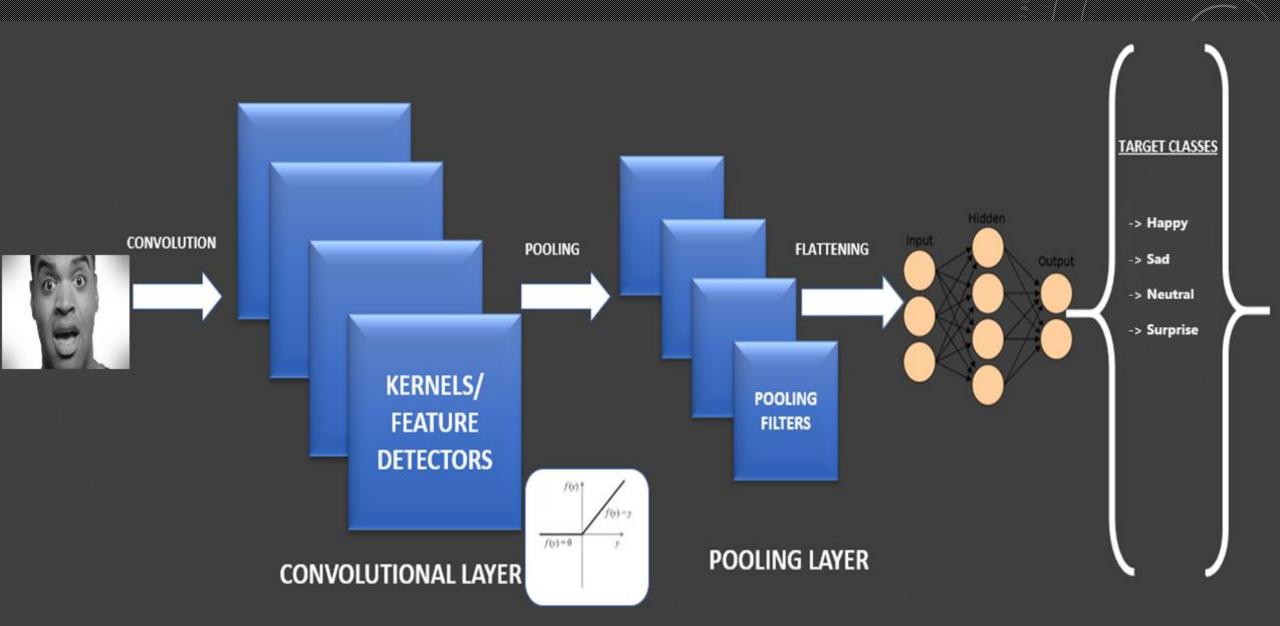
- The main objective of this project is to make self learning system that can itself understand and interpret the meaning of expression of Human Face.

- In this project, we will train a Deep convolutional Neural Network(CNN) to classify facial images of different expressions.

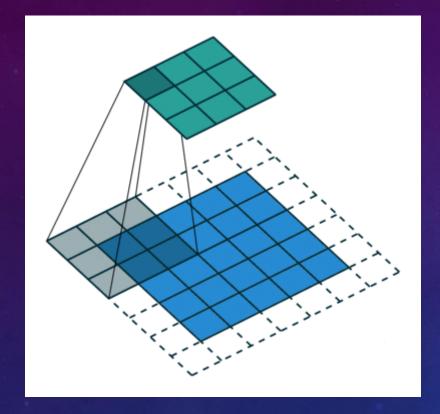- The dataset contains 4 different classes of images(Happy, Neutral, Sad, Surprise).

System Architecture/Flow Chart

Convolving an image

TRAINING ALGORITHM

- STEP1: Importing required libraries.

- STEP2: Loading images from datasets with the help of "flow_from_directory" method in "ImageDataGenerator" class.

- STEP3: Creating sequential model through which we can group a linear stack of layers with the help of Sequential class.

- STEP4: Adding convolutional Hidden Layers where each layer has activation function "RELU" and pooling type "MAXPOOLING".

- STEP5: Adding fully connected dense layers where last layer consists of "SOFTMAX" activation function which is used for multiclass classification or categorical problem.

- STEP6: Creating an object for Adam class which is an optimization algorithm to find weight and bias parameters for each layer.

- STEP7: We are going to compiler our model with loss function (Categorical cross-entropy).
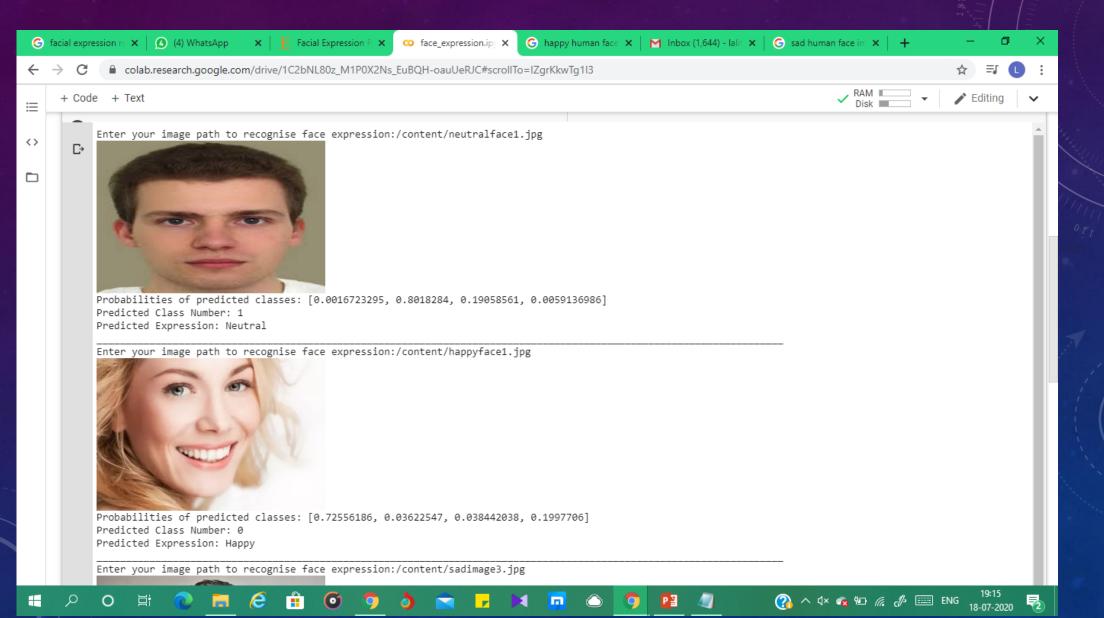
- STEP8: Training the model.

TESTING ALGORITHM

- STEP1: Importing required packages.

- STEP2: Taking human face image as input to check the expression.

- STEP3: Loading trained model.

- STEP4: Predicting the expression of face with the help of trained model.
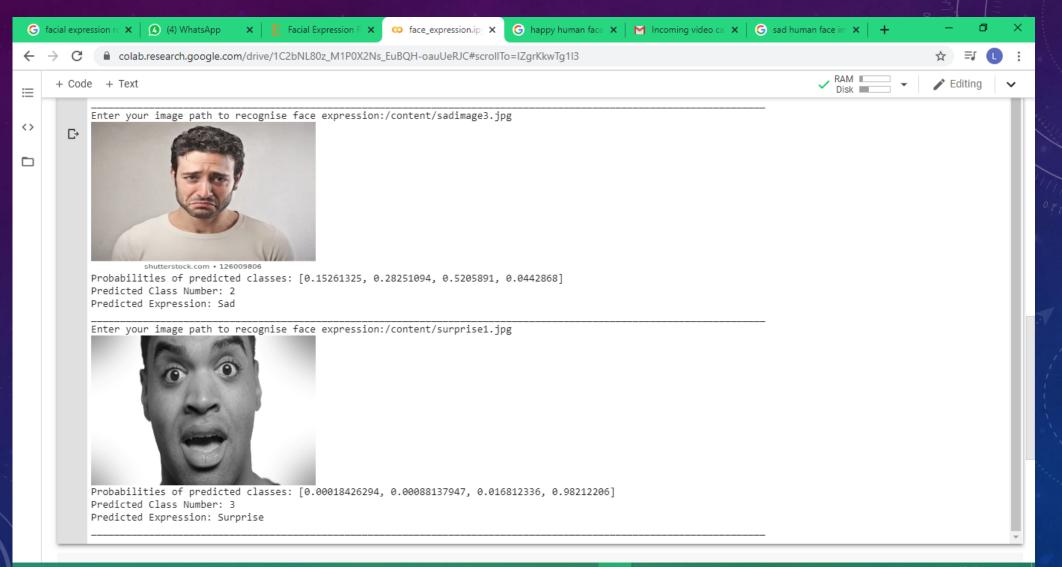
TECHNOLOGIES/PLATFORM USED

- Technologies Used :
    - Neural Networks
    - Keras
    - Tensor Flow
- Platform Used :
    - Anaconda3:
        - Anaconda is free and open source distribution of the Python and R programming languages for scientific computing (data science, machine learning applications, large-scale data processing, predictive analytics, etc.), that aims to simplify package management and deployment. .

OUTPUT (NEUTRAL , HAPPY)

OUTPUT(SAD, SURPRISE)

APPLICATIONS

- Human behaviour understanding.
- Music for mood.
- Monitoring Security.
- Treating patients in medical field.

ThankYou