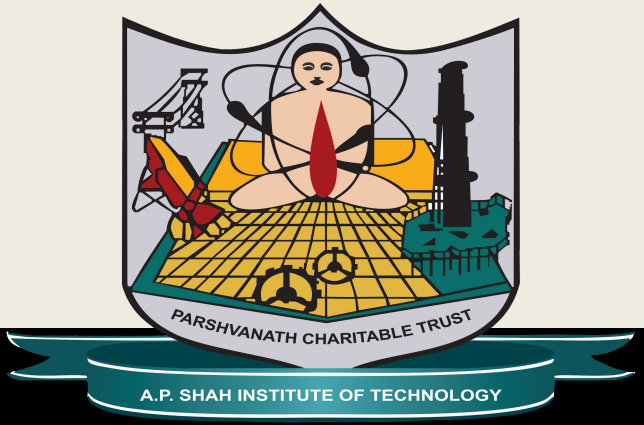



# Department of Information Technology
# NBA Accredited

A.P. Shah Institute of Technology

G.B.Road,Kasarvadavli, Thane(W), Mumbai-400615

UNIVERSITY OF MUMBAI

Academic Year 2021-2022

A Project Presentation on

# Facial Emotion Recognition

Submitted in partial fulfillment of the degree of
Bachelor of Engineering(Sem-6)

in
**INFORMATION TECHNOLOGY**

By
Akshay Bura(19104041)
Sourav Joshi(19104068)
Sakshi Deshpande(19104002)

Under the Guidance of
Mr. Vishal Badgujar

# 1.Project Conception and Initiation

# 1.1 Objectives :

- To find out the improvement opportunities for the existing facial expression recognition system.
- To achieve efficiency in Behavioural Testing.
- To build a tool which help in Marketing.
- To study emotions of person in different situation.
- To help psychologist, police.

# 1.2 Literature Review

| Sr No. | Author | Paper Title | Findings |
|---|---|---|---|
| 1. | Neha Jain, Shishir Kumar, Amit Kumar, Pourya Shamsolmoali, Masoumeh Zareapoor. | Hybrid Deep Neural networks for Face Emotion Recognition. | A novel Hybrid CNN-RNN model for Facial Emotion Recognition. |
| 2. | Ninad Mehendale | Facial emotion recognition using convolutional neural networks (FERC) | The FERC is based on two-part convolutional neural network (CNN). |
| 3. | Tawsin Uddin Ahmed, Sazzad Hossain, Mohammad Shahadat Hossain, Karl Andersson | Facial Expression Recognition using Convolutional Neural Network with Data Augmentation | The objective of this research is to develop a facial expression recognition system based on convolutional neural network with data augmentation |

# 1.3 Problem Definition :

- Facial emotion detection is an easy task for humans but not for computers.
- To achieve this we have used certain Machine Learning algorithms.
- We can use this as evidence to uncover whether an individual is speaking truth or not.

# 1.4 Scope :

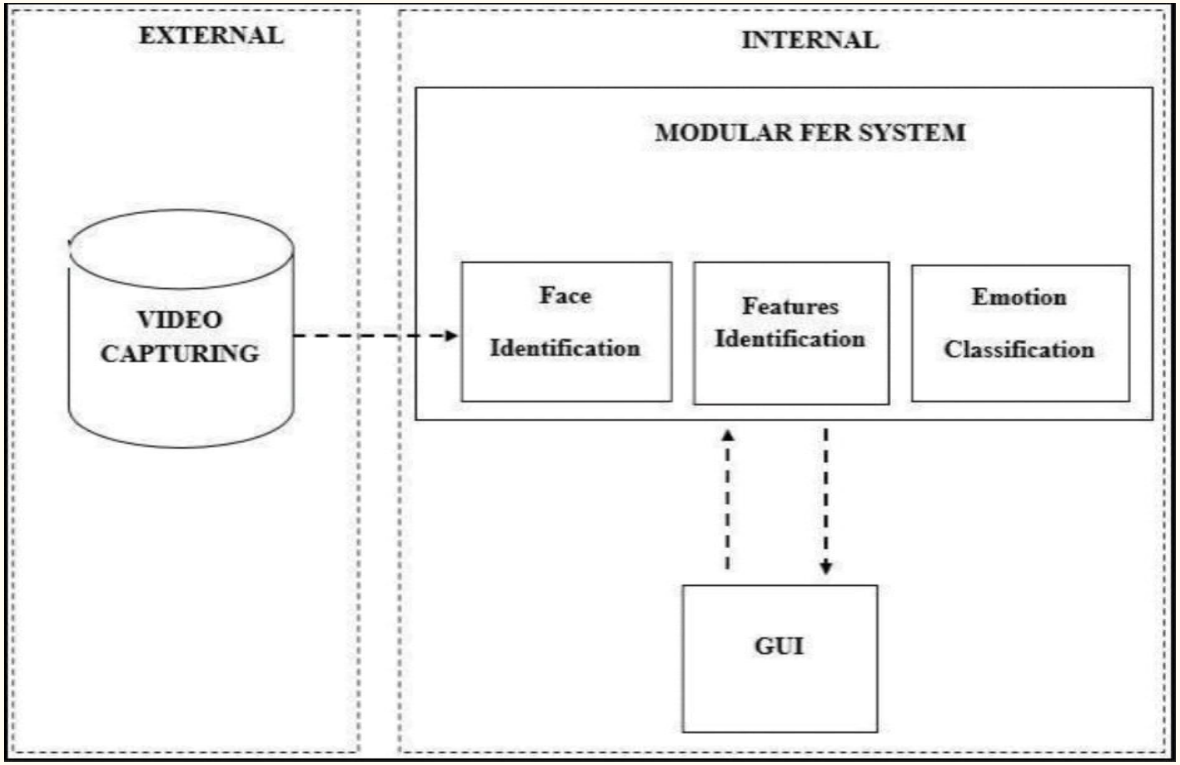
- People with mental disorder
- Behavioural Testing
- Gaming Industry

# 1.5 Technology stack :

- Python - High end programming language
- Tensorflow - Training of deep neural network
- OpenCV - Image Processing
- Jupyter / Colab Notebook - Data science tasks

# 2. Project Design

# 2.1 Proposed System :



# 2.2 Design(Flow Of Modules) :

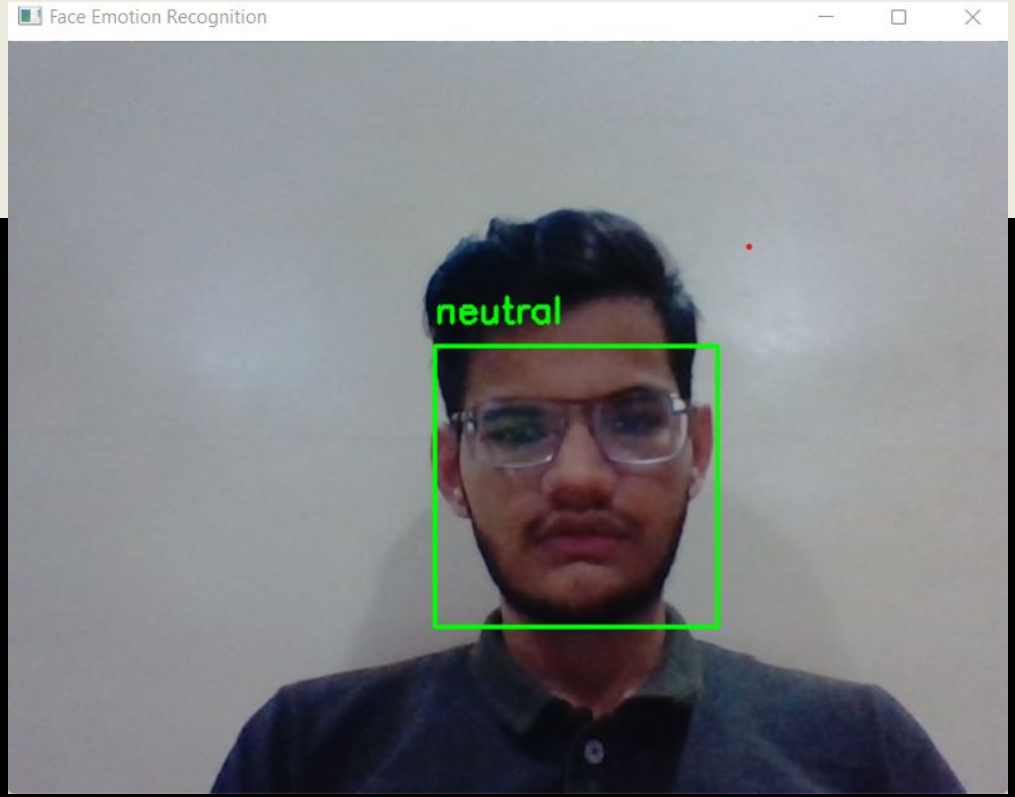
# 3. Implementation

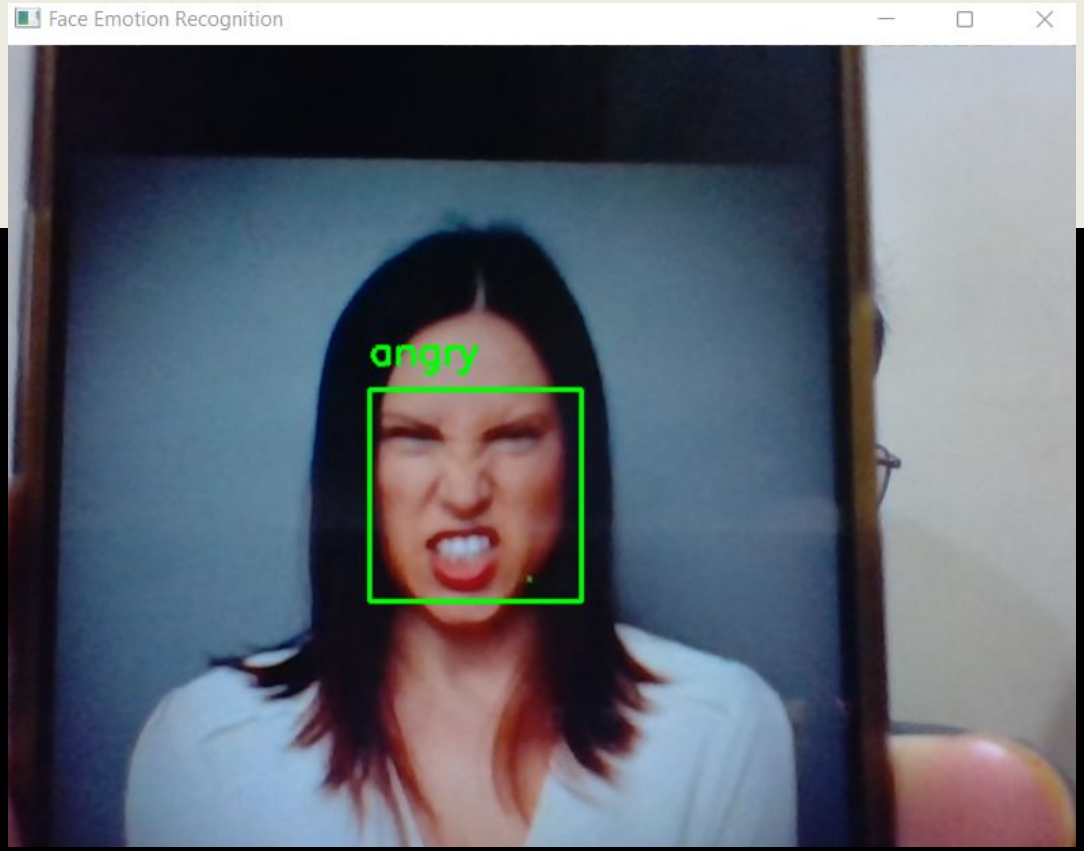
# It will train the model using dataset

Accuracy = 0.62

```
# Train the model
history = model.fit(
    train_dataset,
    steps_per_epoch=len(Train_paths)//BATCH_SIZE,
    epochs=12,
    validation_data=val_dataset,
    validation_steps = len(Val_paths)//BATCH_SIZE,
    class_weight=class_weight
)
```

# 4. Result


Face Emotion Recognition
neutral


Face Emotion Recognition
angry

# 5. Conclusion and Future Scope

# Conclusion :

- We have created an ML-Based model which can guess the emotions(such as Happy, Sad, Angry, etc) of the user.
- Our model uses the advantages of  Neural Networks.
- This could be the starting step, for many of the emotion-based applications such as lie detector and also mood-based learning for students, etc.
- The proposed model has achieved a commendable result.

# Future Scope :

- Adding more data in each class in order to get more accurate results.
- Saving data with name of person.

In the future, we can try to develop the model more efficiently so that a more standard facial expression recognition system can be delivered.

# References :


- https://www.researchgate.net/figure/Sequence-diagram-of-face-recognition-system_fig4_321166919
- https://towardsdatascience.com/emotion-detection-a-machine-learning-project-f7431f652b1f
- https://paperswithcode.com/task/facial-expression-recognition

# Thank You