Great Place To Work. Certified MAR 2021–FEB 2022 INDIA

UPES
UNIVERSITY OF THE FUTURE

UPES
UNIVERSITY OF TOMORROW

nirf RANKING 2021
Ranked amongst **top 100** universities in **India**

NAAC A ACCREDITED WITH GRADE
Accredited **Grade** 'A' by NAAC

QS STARS RATING SYSTEM 2020
QS 5 Star Rating for Academic Development, Employability, Facilities and Program Strength

E-LEAD
Perfect score of **150/150** as a testament to exceptional E-Learning methods

University of the Year (North India) awarded by ASSOCHAM

SAFE GUARD
Certified for **safety and hygiene** by Bureau Veritas

End-Sem Project Presentation

Instant feedback system using Face recognition

Presented By:

Deepesh Singh , SAPID : 500106971

Abhishek Kumar, SAPID : 500106851

Omji Shukla, SAPID : 500100963

Mentor :

Miss Saroj Shivagunde

School of Computer Science | UPES

Table of content

- Introduction
- Objectives
- Literature
- System Design
- Result and Outputs
- Future Enhancement
- References

Introduction

- Face detection and emotion analysis have revolutionized diverse sectors, from security and healthcare to entertainment and customer experience
- These technologies offer a window into the incredible possibilities of artificial intelligence and machine learning
- The purpose of this project is to help various restaurants, malls and other shops to get a real time review of their services from their customers by reading their Face expression

Objective

- Implement advanced computer vision techniques, including Face detection, recognition, and emotion analysis, to enable real-time tracking of customer sentiments
- Provide businesses in various industries, including restaurants, malls, art galleries, and transportation services, with a comprehensive solution to enhance customer experiences

Literature

Foundational Paper:

- A Convolutional Neural Network Cascade for Face Detection

Deep learning using Face recognition:

- Face Expression Recognition

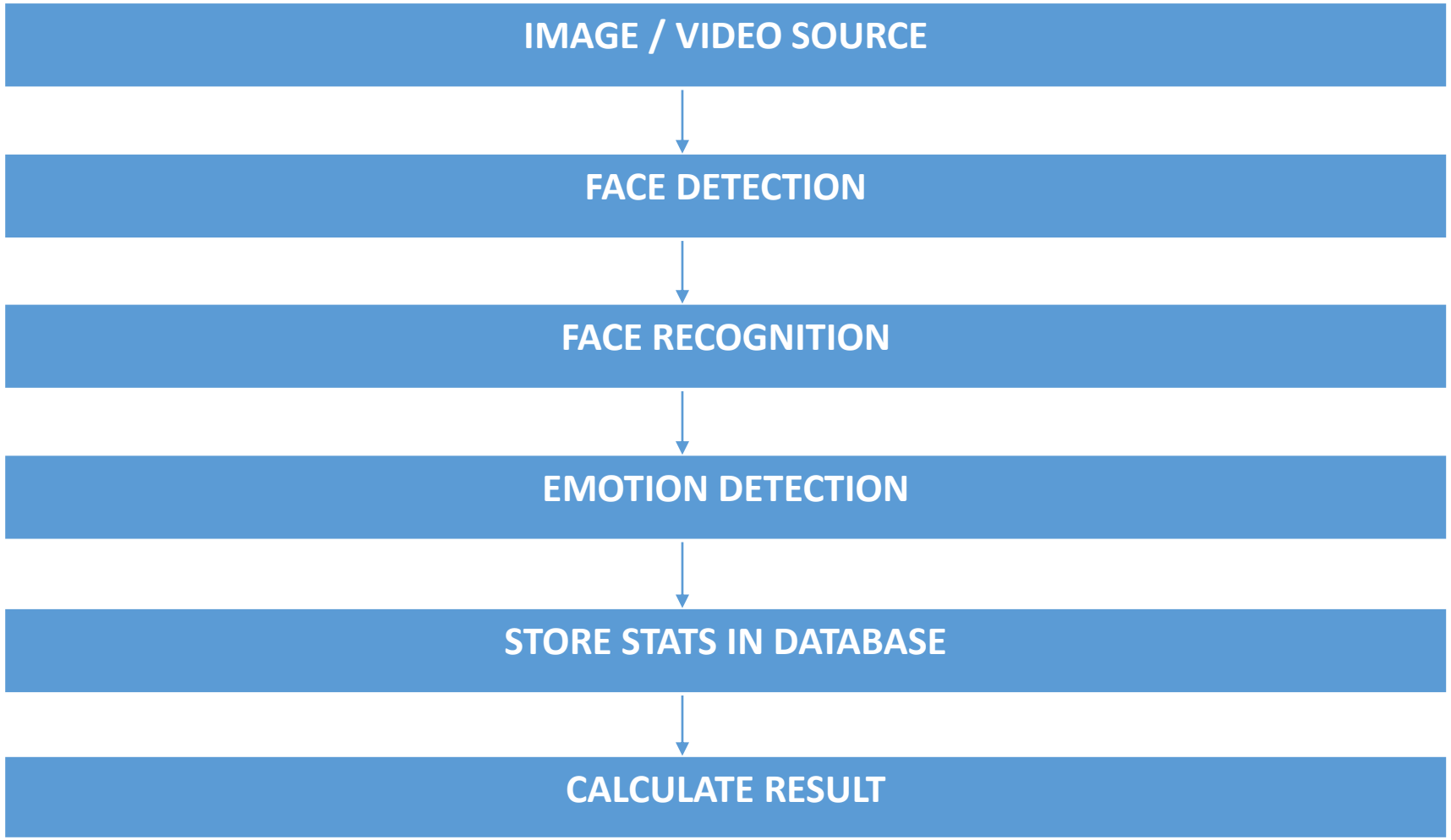
Real-Time Emotion Detection:

- Real-time Convolutional Neural Networks for Emotion and Gender Classification
- A Multi-Task Neural Approach for Emotion Attribution, Classification, and Summarization

System Design

- Video Input
- Facial Detection
- Facial Recognition
- Facial Expression Analysis

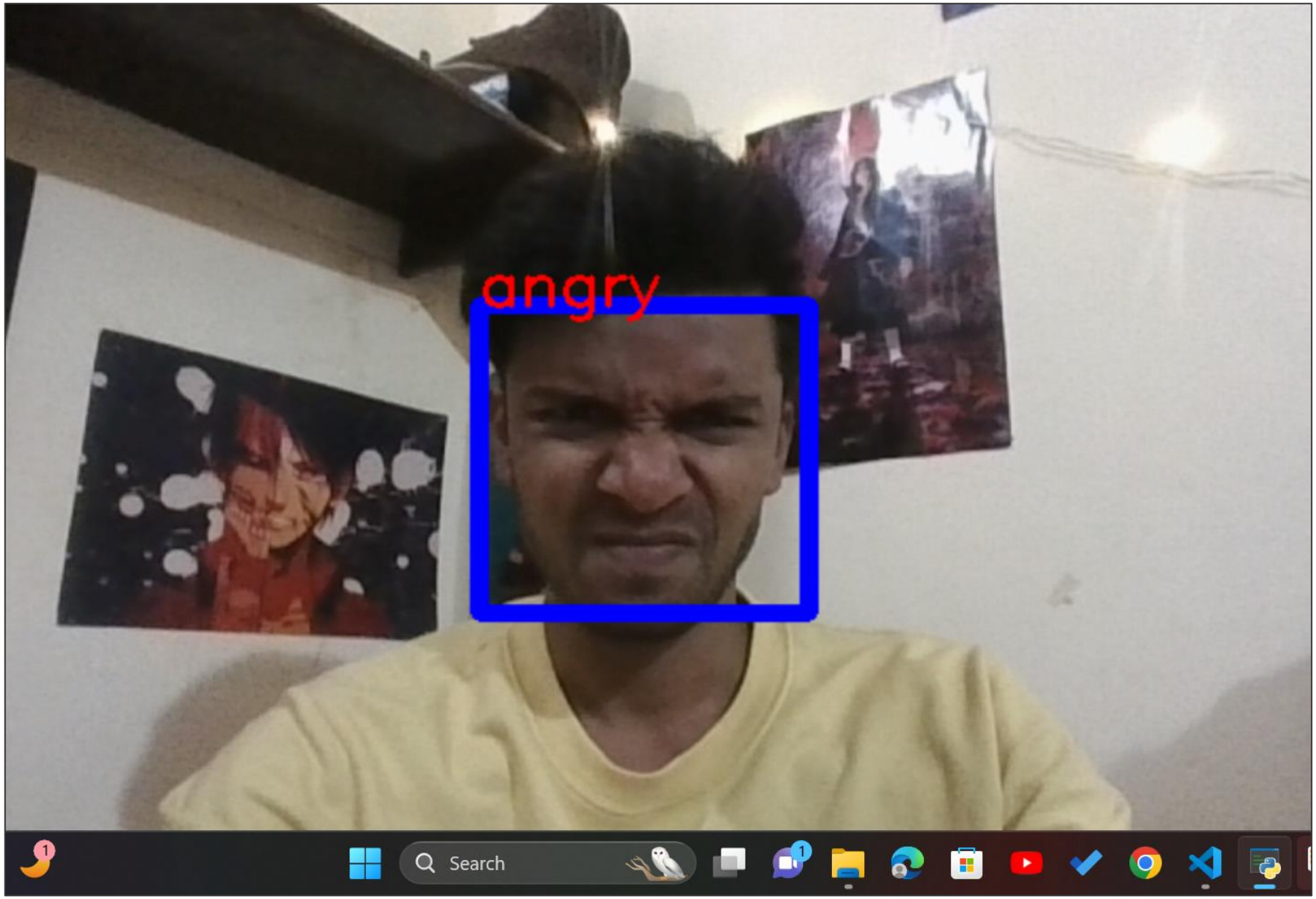
Flow of the project

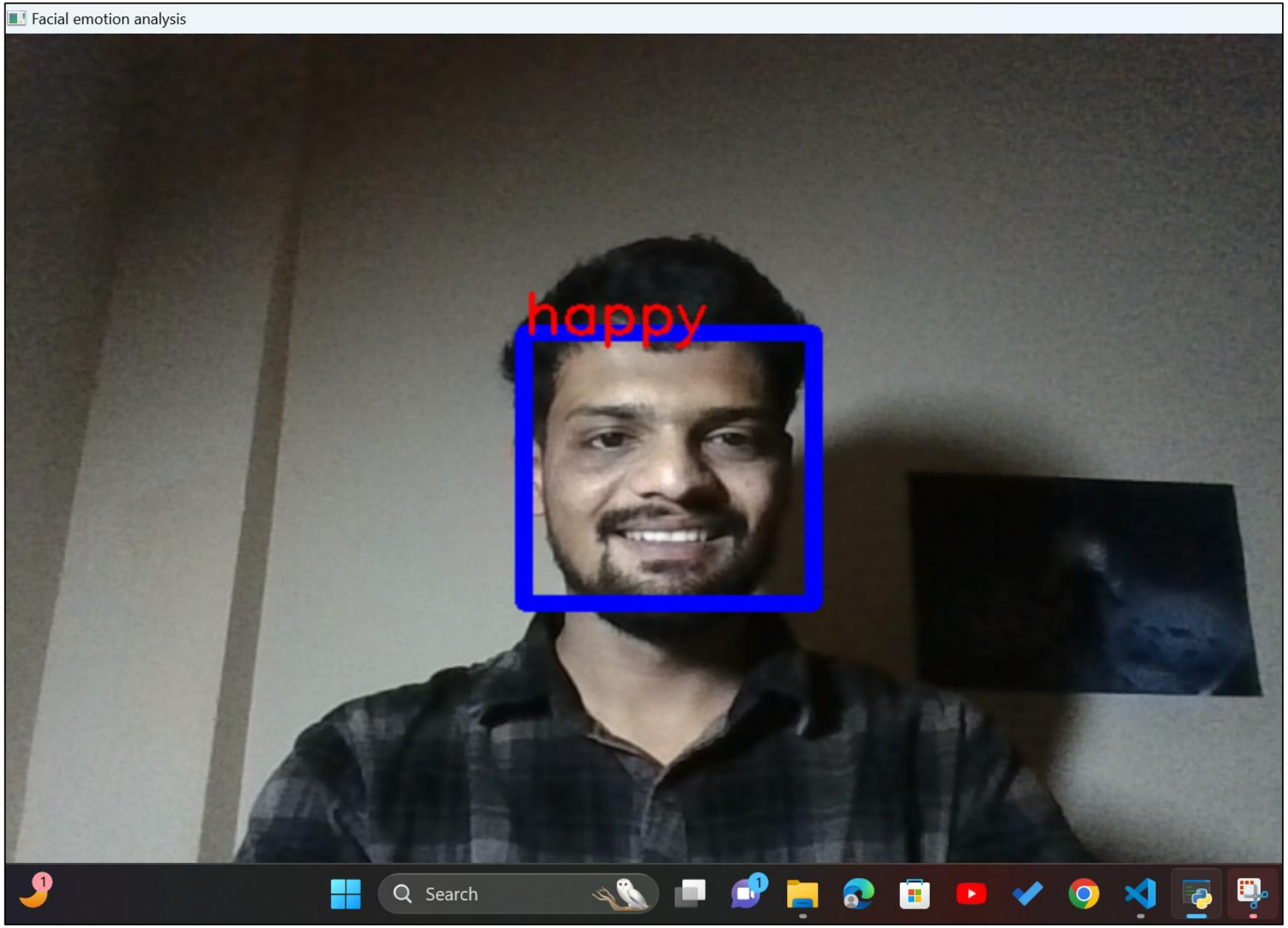


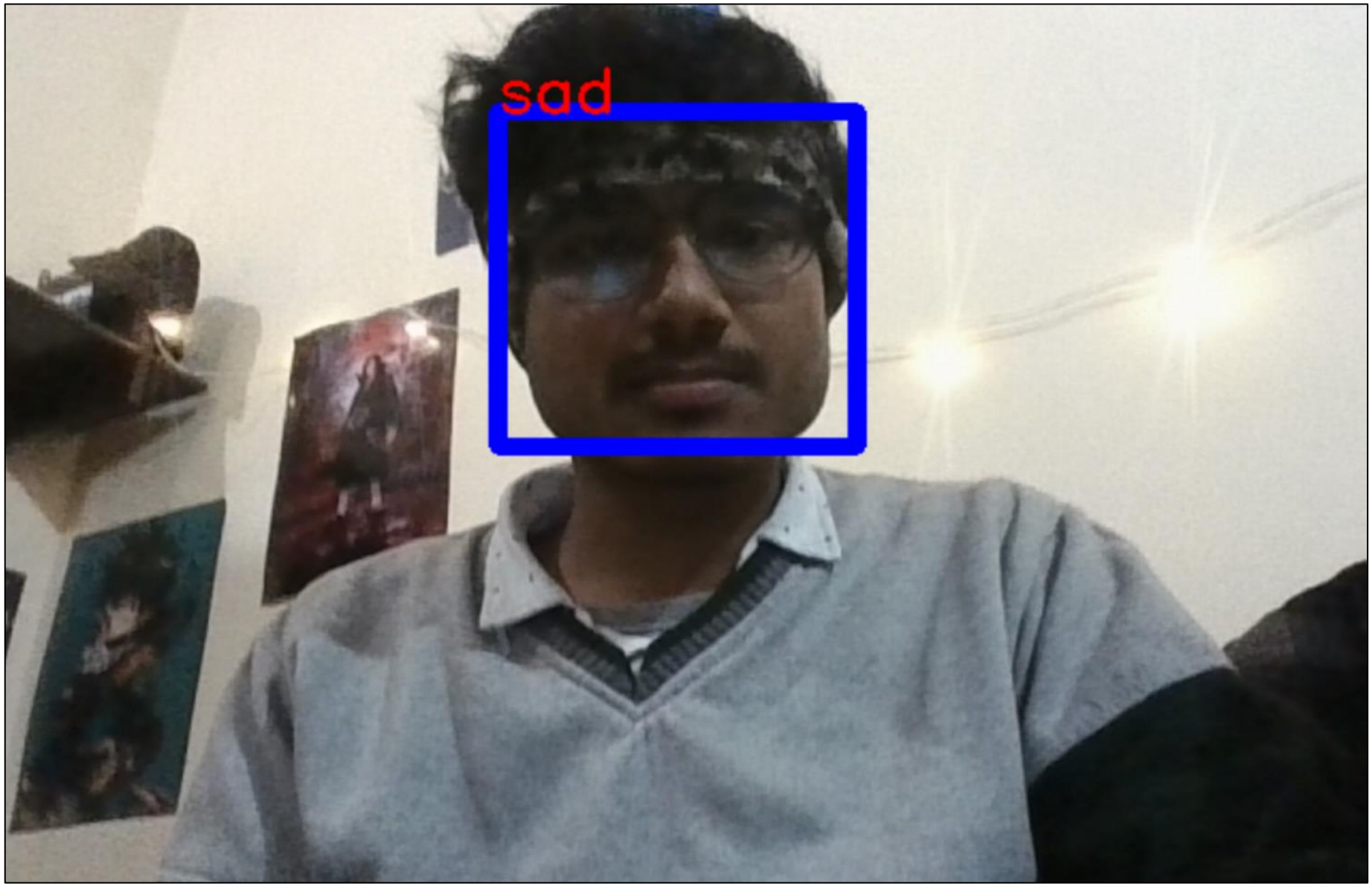
Result and Outputs

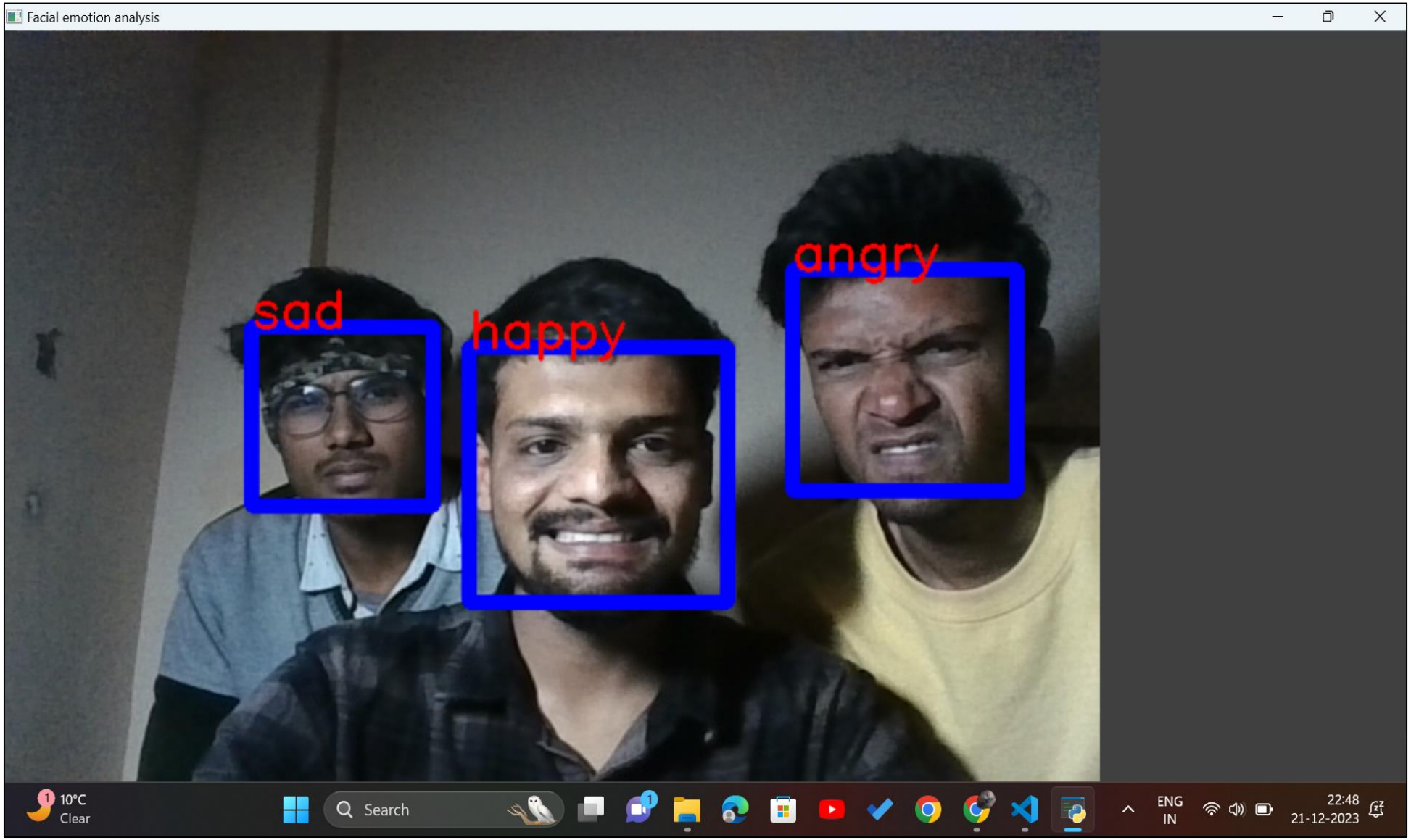
- The integration of facial recognition and emotion analysis will significantly improve user experiences across diverse sectors, retail, and customer service

- The project will encompass real-time emotion detection **(HAPPY, SAD, NEUTRAL, ANGRY, SURPRISED)** while contributing to sectors such as restaurants, art galleries, and certain exhibitions where timely and accurate responses are crucial


angry
Search


Facial emotion analysis
happy
Search


sad


Facial emotion analysis
sad
happy
angry
10°C
Clear
Search
ENG
IN
22:48
21-12-2023

Future Enhancement

- **Multi-Modal Emotion Recognition:** Voice analysis or gesture recognition
- Applying the system to enhance emotional interactions between humans and robots

Reference

Research Papers :

- **A Convolutional Neural Network Cascade for Face Detection :** Haoxiang Li, Zhe Lin, Xiaohui Shen, Jonathan Brandt, Gang Hua; Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2015, pp. 5325-5334
- **Face Expression Recognition :** Face Expression Recognition: A Brief Tutorial Overview Claude C. Chibelushi, Fabrice Bourel Chibelushi, C.C. and Bourel, F., 2003. Face expression recognition: A brief tutorial overview. CVonline: On-Line Compendium of Computer Vision, 9
- **Real-time Convolutional Neural Networks for Emotion and Gender Classification :** Arriaga, Octavio, Matias Valdenegro-Toro, and Paul Plöger. "Real-time convolutional neural networks for emotion and gender classification." arXiv preprint arXiv:1710.07557 (2017)
- **A Multi-Task Neural Approach for Emotion Attribution, Classification, and Summarization :** G. Tu, Y. Fu, B. Li, J. Gao, Y. -G. Jiang and X. Xue, "A Multi-Task Neural Approach for Emotion Attribution, Classification, and Summarization," in IEEE Transactions on Multimedia, vol. 22, no. 1, pp. 148-159, Jan. 2020, doi: 10.1109/TMM.2019.2922129

Books:

- "Practical Python Projects" by Lee Vaughan (Chapter on Computer Vision)
- "Computer Vision: Algorithms and Applications" by Richard Szeliski

THANK YOU