Image Recognition with IBM Cloud Visual Recognition

PHASE-1

Problem Definition:

The "Real-time Emotion Detection for Online Learning Platforms" project aims to develop a system for online educators want to understand students' emotional responses during virtual classes. Develop a real-time emotion detection system that can analyze students' facial expressions via webcam feeds. This system will help teachers gauge student engagement, identify difficulties, and adapt their teaching methods accordingly.

Design Thinking:

- Data Collection: Gather a diverse dataset of students' facial expressions displaying various emotions (happy, sad, engaged, bored) during online classes. Ensure each image or video frame is labeled with the corresponding emotion.
- Model Training: Train a machine learning model (e.g., CNN) to recognize these emotions based on the labeled dataset. Utilize transfer learning for faster and more accurate training.
- Real-time Integration: Implement real-time facial expression analysis using a webcam feed or camera input during online classes. Capture and process video frames in real-time.
- Emotion Feedback: Display the detected emotions in the online learning platform interface, such as a small emoticon or text feedback for teachers. Allow teachers to view aggregated emotion data for the entire class.
- User Privacy: Address privacy concerns by ensuring data is encrypted, and consent is obtained from students or participants for using their facial data.
- Testing and Improvement: Continuously evaluate the model's accuracy and adjust it as needed to improve emotion recognition performance.