Facial Expression Recognition System - Assignment

Introduction

Group Members:

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Step 1: Project Title
Facial Expression Recognition System

Step 2: Requirements

A. Problem Statement
Manual identification of human emotions from facial expressions is slow and inaccurate.
The Facial Expression Recognition System automates emotion detection using AI to
improve accuracy and efficiency.

B. Project Scope

In Scope:
- Capture or upload facial images.
- Detect faces in an image.
- Extract facial feature points.
- Classify facial expressions.
- Display detected expression.
- Allow admin to manage datasets.
- Allow retraining the model.

Out of Scope:
- Identify user identity.
- Store personal data.
- Analyze voice/body posture.
- Provide psychological diagnosis.

C. Stakeholders

- User
- Admin
- Developer
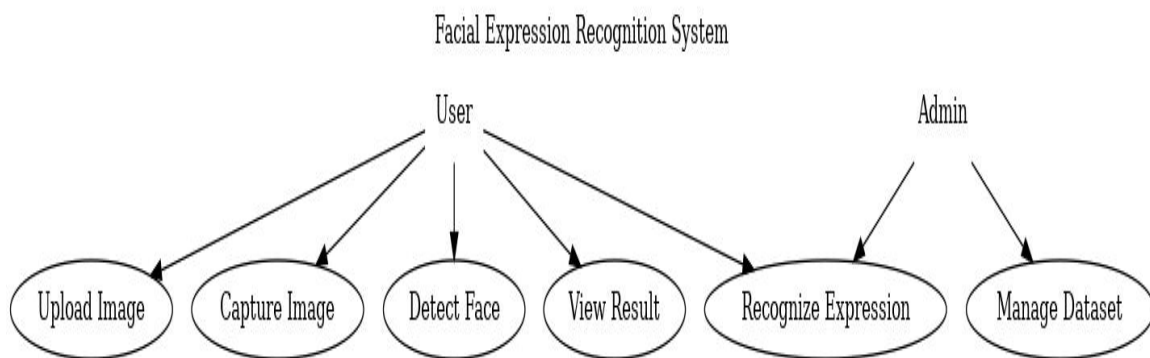- AI/ML Model (system component)

D. Functional Requirements
1. Upload facial image.
2. Capture webcam image.
3. Detect face.
4. Extract features.
5. Classify expressions.
6. Display results.
7. Show error when no face detected.
8. Admin dataset management.
9. Admin model retraining.
10. Log system statistics.

E. Non-Functional Requirements
1. Response within 2 seconds.
2. Maintain 90% accuracy.
3. User-friendly interface.
4. Efficient performance.
5. Ensure data privacy.

Step 3: UML Diagrams

A. Use Case Diagram

Facial Expression Recognition System

Activity Diagram - Recognize Expression