Facial Emotion Recognition Application

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Description:
This application uses a deep learning model to perform real-time facial emotion recognition through a webcam interface. It classifies emotions into categories like angry, disgust, fear, happy, neutral, sad, and surprise. Users can also retrain the model with new data collected during its usage.

Steps to Set Up and Run the Application:

1. **Clone the Repository:**
   Clone this repository to your local machine using the following command:
   git clone <repository_url>
2. **Install Required Libraries:**
   Navigate to the project directory and install all the required libraries:
   pip install -r requirements.txt
3. **Download Pre-trained Model:**
   Ensure that the pre-trained model (yuvrajkg_model.keras) is placed in the correct directory. Example path:
   C:\path\to\your\project\yuvrajkg_model.keras
4. **Set Up Haar Cascade File:**
   Ensure the haarface.xml file for face detection is available in the project directory. Example path:
   C:\path\to\your\project\haarface.xml
5. **Prepare Data Directory:**
   Create a directory for storing collected face data if it doesn't already exist. Example path:
   C:\path\to\your\project\collected_data
6. **Run the Application:**
   Execute the Streamlit application by running the following command:
   streamlit run app.py

7. **Use the Application:**
   The application interface will open in your default web browser.
   Click on the "Start Camera" button to activate the webcam and start emotion detection.
   Click on the "Stop Camera" button to deactivate the webcam.
8. **Retrain the Model:**
   The application automatically saves detected face data for retraining.
   Use the retrain functionality within the code to update the model with new data.

Notes:

- Ensure that your webcam is functional and accessible to the application.
- Modify paths in the code as needed to match your directory structure.
- For best results, use a well-lit environment during emotion detection.

License:
This project is open-source and available under the MIT License.