Auto-face tracing camera
Project code: SL3 – 12

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PROJECT OVERVIEW

Introduction
In recent years, considerable progress has been made in the area of face detection and recognition. This project develops auto-face tracing camera which can trace a person’s movement automatically using face detection and recognition algorithms and communication techniques. In addition, face selection has been implemented on an Android phone, which is a popular operation system.

Aims and objective
The project allows a smart phone user, a computer and an auto-moving holder to communicate with each other in order to achieve face recognition. The aims of the project are:

- to design and implement an algorithm to detect human face;
- to build an auto-moving-camera holder controlled by a signal received from a smart phone; and
- to achieve communication between a smart phone and a computer.

The project can be applied in:
- video conferences
- include automatic video capturing in lecture
- self-access image and video capturing using smart phone

METHODOLOGY

The main procedures consist of the following:

1. The computer connects to the Smartphone by TCP method.
2. The camera captures an image and sends it to Matlab module.
3. Matlab module calculates face locations by face detection algorithm and sends faces information back to Java module.
4. The computer draws rectangles to every face in the image and sends it back to the smartphone.
5. If a user wants to trace a specific person
6. On the Android phone, the user taps a person’s face on the touch screen.
7. The computer camera will move following the movement of the face of the tapped person.

Conclusion
In this project, we have created an auto face tracing camera successfully. Implementation and development have been in face detection, face recognition, and communication and data transmission in between the computer, the smart phone and the motors. Applications include video conference, self-access image capturing, and recoding drama/film and video capturing during lecture.

Results