Phone Recognition Communication

Version 1.1

2019/07/16

System Architecture

- Cient-Server Architecture (TCP)
- Server: Phone Recognition System (PRS)
- Client: EVAOI

TCP Server

Server(Phone Recognition System)：
Server must listen the specified IP/Port to establish the TCP connection.

IP: The IP address of the PC where the server is located . If the Server and Client are on the same PC, the IP address could be 127.0.0.1.

Port: 6280

Control Flow (1)

1. Phone is placed on the stage.
2. EVAOI sends the QueryISP command to PRS.
3. PRS responses the name of ISP to EVAOI.
4. EVAOI loads the ISP file and then scans the phone.
5. EVAOI Creates the shared memory of images, and then send the MMI command to notify PRS.
6. PRS opens the shared memory and try to recognize the phone model. After the phone model is recognized, PRS closes the shared memory.

Control flow (2)

7. EVAOI sends the QueryPMP command to PRS.
8. PRS sends the phone model name to EVAOI.
9. EVAOI closes the shared memory.
10. EVAOI loads the phone model and initiates the detection process.
11. After the detection process is completed, Grading process is initiated.
12. Restart the process.

Shared memory

- Only the image of BACK station will be used to recognize the phone model.
- The shared memory is implement by memory map file. The name of memory map file is ‘BACK’.
- The structure of shared memory is:
  - Image Width: DWORD (four byes)
  - Image Height: DWORD (four bytes)
  - Every scan line is DWORD alignment, for example, if widt = 63, then bytes of a scanline should be 64.
  - Image Data: The total bytes of image data is (Bytes of a scan line) x (Image Height)

Command format

- Format: Command + [arguments] + LF
- Command and Arguments are separated by space.
- Command is terminated by LF (line feed)
- Space: 0x20 (ascii code)
- LF: 0x0A (ascii code)

Response Format

- Format: Response + ID + [arguments] + LF
- Response and Arguments are separated by space.
- Response could be ACK or ERR.
- ID is used to identify the command.
- Response is terminated by LF (line feed)

Image Sampling Parameters(ISP)

- Client send command to server.
  - Command: QueryISP
- Server send the ISP to Client
  - Success: ACK ISP {isp name}, for example: “ACK ISP iphone6s”
  - Fail: ERR ISP {reason}, for example: “ERR ISP Recognize timeout”.
- After EVAOI receive the PMP name, there is no need to send acknowledge message, since TCP is a reliable protocol.

Memory map image (MMI)

- After the BACK station scan the image of phone, it will create a shared memory which stores the BCK image.
- MMI command will be send to PRS.
- Client sends MMI to Server
  - Command: MMI {station name}, for example, “MMI BACK”
- Server send the MMI to Client
  - Success: ACK MMI {station name}, for example, “ACK MMI BACK”
  - Fail: ERR MMI {station name} {reason}, for example: “ERR MMI BACK open fail”.

Phone Model Parameter (PMP)

- Client send command to server.
  - Command: QueryPMP
- Server send the PMP to Client
  - Success: ACK PMP {pmp name}, for example: “ACK PMP iphone6s RoseGold”
  - Fail: ERR PMP {reason}, for example: “ERR PMP Recognize timeout”.
- After EVAOI receive the PMP name, there is no need to send acknowledge message, since TCP is a reliable protocol.

Abort

- After the client program send QueryISP or QueryPMP, user may abort the operation. The client program will send the ‘Abort’ command to notify server the previous command is aborted.
- Cient send command to :
  - Command: Abort
- Server does not need to send response to client