Phone Recognition Communication

Version 1.2

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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 the server.
  - Command: QueryISP
- Server send ‘ISP’ to the 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 ‘PMP’ to the client
  - Success: ACK PMP {model 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

- The client program can send the ‘Abort’ command to notify the server that the previous command have been aborted.
- Cient send command to :
  - Command: Abort
- Server sends ERR response for the previous command to client:
  - Response: ERR {command} Abort, for example:
    - Client: QueryPMP
    - Client: Abort
    - Server: ERR PMP Abort

Query Phone Load

- Client request the server to notify the client when a phone is placed on the stage.
  - Command: QueryLoad
- Server sends response to client
  - Success: ACK Load
  - Fail: ERR Load {reason}

Query Phone Unload

- Client request the server to notify the client when a phone is removed from the stage.
  - Command: QueryUnload
- Server sends response to client
  - Success: ACK Unload
  - Fail: ERR Unload {reason}