Twig-Serial Camera

1. Introduction

- Serial Camera v0.9b is a JPEG color camera module easy for MCU use.It has integrated image processing DSP to generate 320x240 or 640x480 JPEG image without thumbnail information, captured picture will be stored in internal buffer and transferred via UART port.

2. Specification

- Stem - Base Shield Interface
- Default baud rate of serial port is 115200
- 640x480/320x240(default) resolution
- JPEG compressed image without Thumbnail Information
- DC 5v power supply
- Small and compact
- Protocol control
- Size 32mm X 32mm
- Current consumption: 80-100mA

3. Application

a. Different image capture systems

b. Environmental monitoring

c. Industry monitoring

d. Medical equipment

e. Video phone

f. Security

g. Vehicle based GPS

4. Communication Protocol

1. Reset

Command	Return
0x56 0x00 0x26 0x00	0x76 0x00 0x26 0x00

2. Take picture

Command	Return
0x56 0x00 0x36 0x01 0x00	0x76 0x00 0x36 0x00 0x00

3. Read JPEG file size

Command	Return
0x56 0x00 0x34 0x01 0x00	0x76 0x00 0x34 0x00 0x04 0x00 0x00 0xXH 0xXL

Note: XH XL is the file length of JPEG file, MSB is in the front, and followed by LSB.

4. Read JPEG file data

JPEG file starts with FF D8 and ends with FF D9.

To read the JPEG file, always starts with address 00 00,and choose a chunk size that are an integer times of 8, and read the chunk many times until reds FF D9 which indicates the end of the JPEG file.

Command	Return
0x56 0x00 0x32 0x0C 0x00 0x0A 0x00 0x00 0xAH 0xAL 0x00 0x00 0xLH 0xLL 0xXX 0xXX	0x76 0x00 0x32 0x00 0x00 (Interval time) 0xFF 0xD8 ... (Interval time)0x76 0x00 0x32 0x00 0x00

Note:(Interval time) = 0xXX 0xXX * 0.01ms, this is recommended to be 0x000A

0x0000AHAL:start address of the data to read

0x0000LHLL:Length of the data to read a time

5. Stop taking pictures

Command	Return
0x56 0x00 0x36 0x01 0x03	0x76 0x00 0x36 0x00 0x00

6. Compression Ratio

Command	Return
0x56 0x00 0x31 0x05 0x01 0x01 0x12 0x04 0xXX	0x76 0x00 0x31 0x00 0x00 0xXX

Note: 0xXX:0x00~0xFF normally is x36

7. Set Image size

Command	Return
0x56 0x00 0x31 0x05 0x04 0x01 0x00 0x19 0x11 (320*240)	0x76 0x00 0x31 0x00 0x00
0x56 0x00 0x31 0x05 0x04 0x01 0x00 0x19 0x00 (640*480)	0x76 0x00 0x31 0x00 0x00

8. Continue to take a picture

Command	Return
0x56 0x00 0x36 0x01 0x02	0x76 0x00 0x36 0x00 0x00

9. Power Saving

Enter Power Saving Command	Return
0x56 0x00 0x3e 0x03 0x00 0x01 0x01	0x76 0x00 0x3e 0x00 0x00

Exit Power Saving Command	Return
0x56 0x00 0x3e 0x03 0x00 0x01 0x00	0x76 0x00 0x3e 0x00 0x00

10. Chang baud rate

Command	Return
0x56 0x00 0x24 0x03 0x01 0xXX 0xXX	0x76 0x00 0x24 0x00 0x00

0xXX 0xXX	Baud rate
0xae 0xc8	9600
0x56 0xe4	19200
0x2a 0xf2	38400
0x1c 0x4c	57600

0x0d 0xa6	115200

5.Program flow chart