RAK ARDUINO VIDEO DEVELOPMENT BOARD PROGRAMMING GUIDE V1.0

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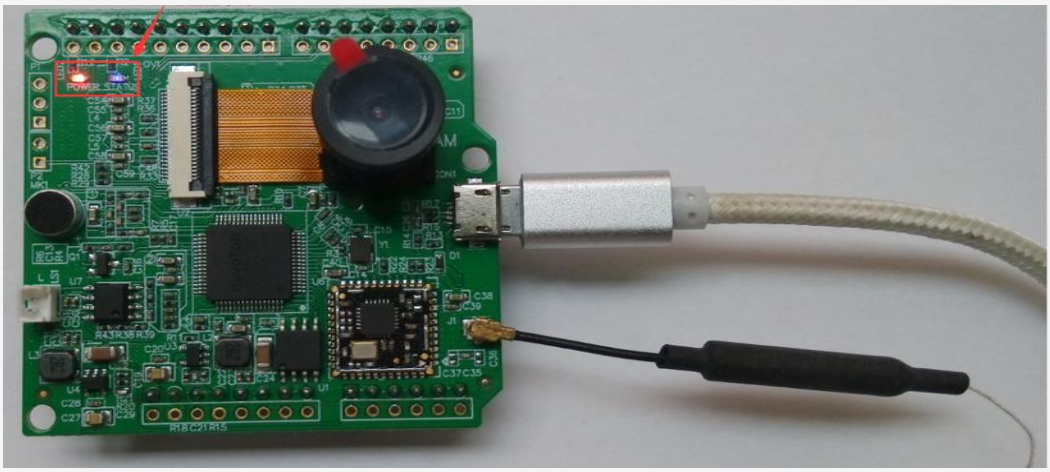
ETDX16100930

一 serial console:（RS232 Level）

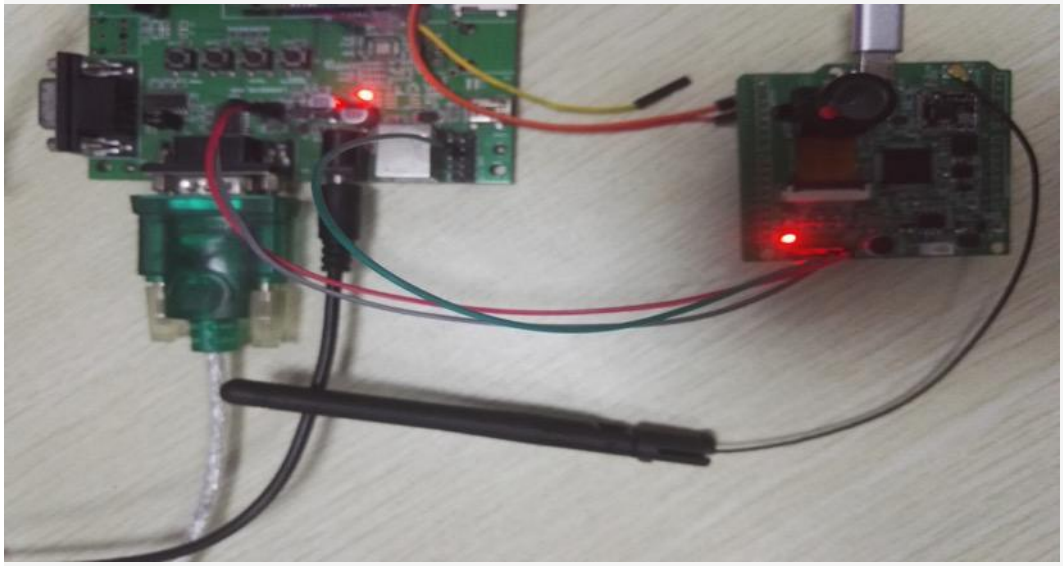
Install the antenna and camera of RAK CAM development board in the corresponding position，and power supply with the Micro USB（Voltage：5V ,1A，I am here to demonstrate a separate power supply situation, but you can combine with Arduino when you use it）Normal phenomenon：the red light is on ,and the blue light flashes after a few seconds，

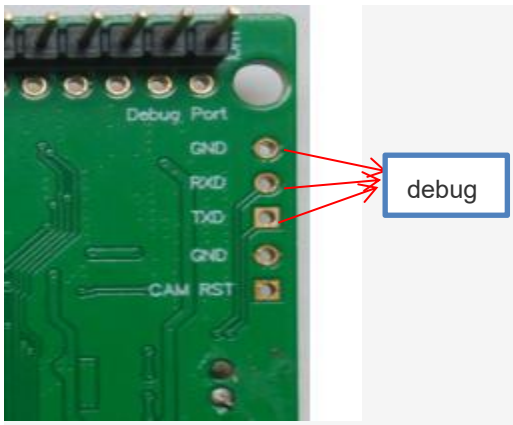
Example:



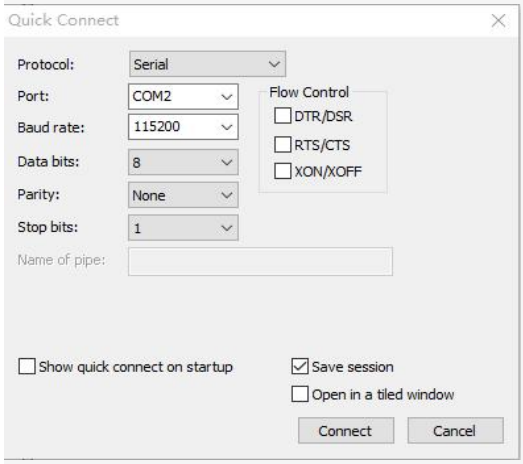
RAK CAM Normal Start

on the back of the board ,you can see "debug port",connect it to your serial console and the Baud rate is 115200.Then connect to the serial port,for example:

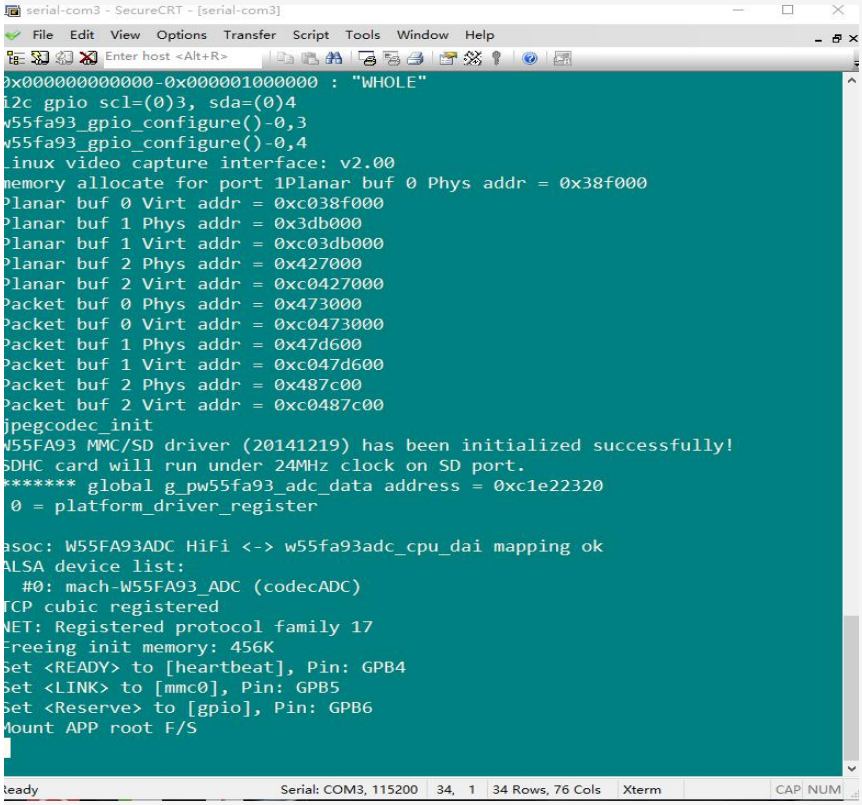




After connect your pc and board,configure your tool ,then click ‘connect’



Finally start your board ,you will see the print message



二 change AP to STA (connect the module to the router)

By default,the AP starts,and ssid: NuWicam+mac address

Password:12345678

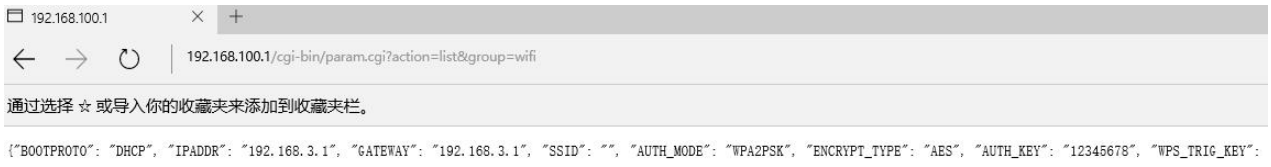
IP：192.168.100.1

(connect the module to the router)Through the “list”command (behind the interface command),you can see the wifi-related information.

BOOTPROTO：

STATIC：the static ip, you can manually set the ip and gateway ,and you can see the ip and gateway through the “list” command;

DHCP: the dynamic ip，ip address randomly assigned,but you can’t see the ip and gateway through the “list” command ,you can connect to the serial port and view the ip address through “ifconfig” command.



<1>When you distribute Network you can open the web,and input command（By default :DHCP,you can change it through command）：

http://<IP-Address>/cgi-bin/param.cgi?action=update&group=wifi&SSID=wifi name

http://<IP-Address>/cgi-bin/param.cgi?action=update&group=wifi&AUTH_KEY=wifi password

<2> restart the development board (the board will connect to the router)

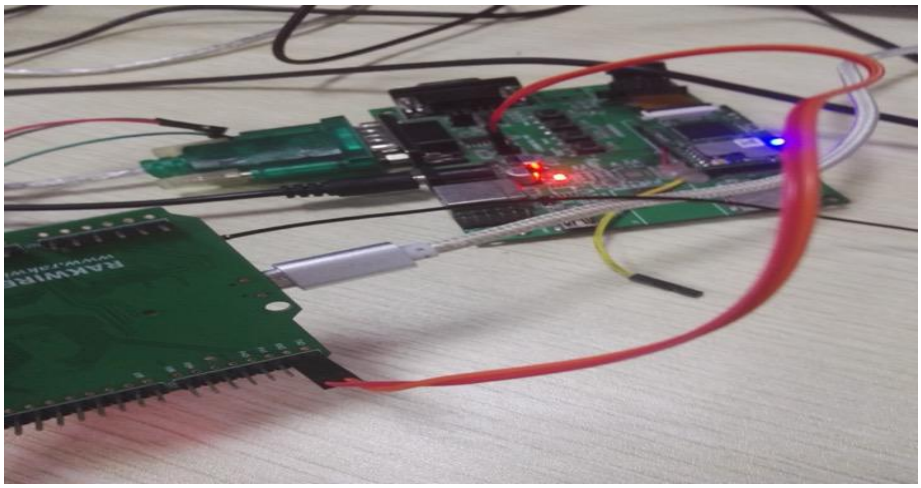
<3> connect your phone to the internet

<4> watch the video with your App

<5>In STA : if you want to restore factory (AP), you can pull down the GPIOA5 about 5 seconds

三 Transparent Transmission Text

Connect uart(Pin 1,2) to the serial port:

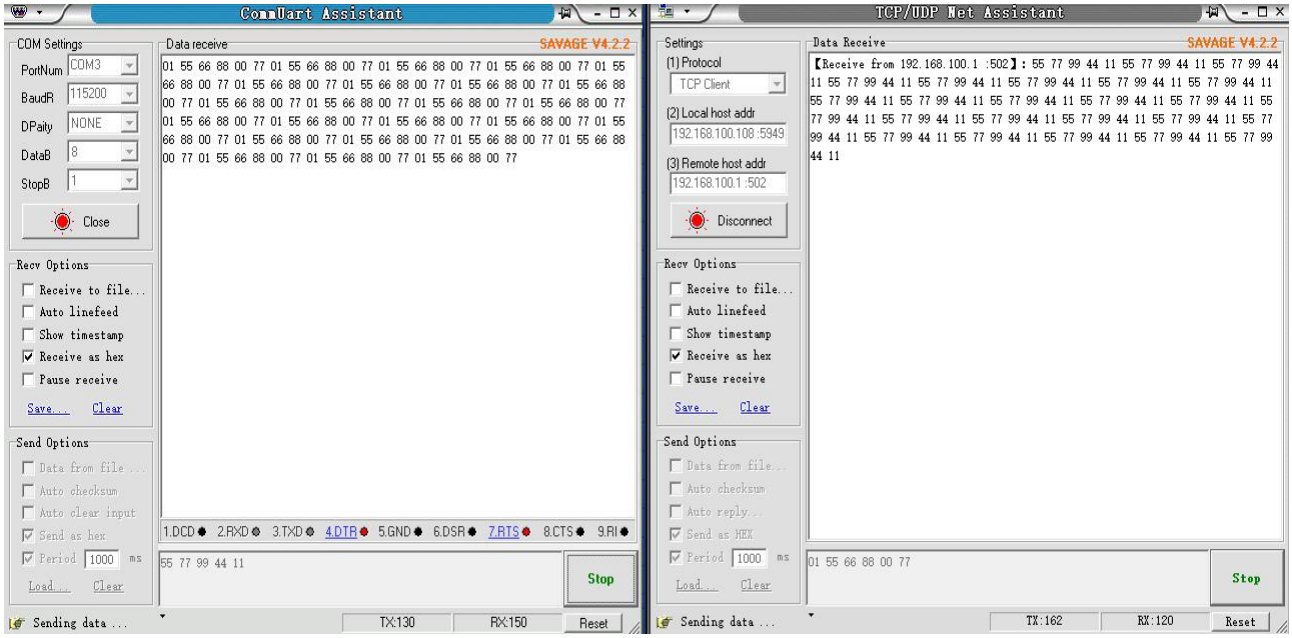


Through the “UartAssistant” and “NetAssistant” test：

UartAssistant：115200 N 8 1

NetAssistant：TCP Client , local ip, remote ip port 502

After connect you can send and receive data

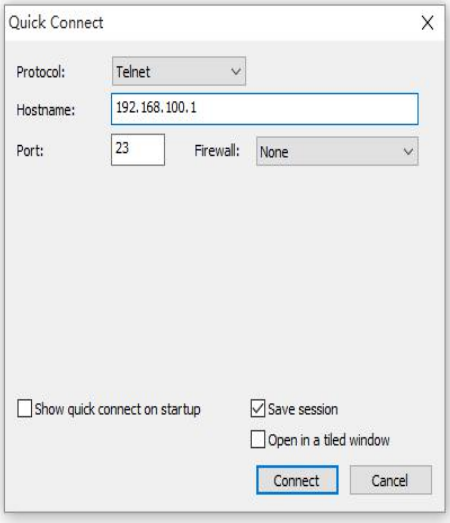


四 Telnet

Our module also supports remote control:**Telnet**

you can use your tool connect ,choose Telnet and input your hostname ,then connect ,finally you can control your board.

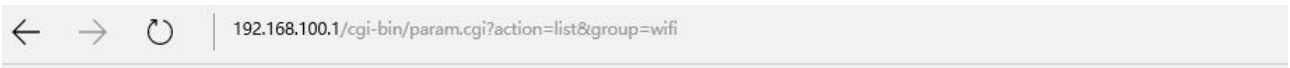
for example:



remote control：

五 Interface Command

Example：



1 http://<IP-Address>/cgi-bin/param.cgi?action=list&group=wifi

Name	Value	Description
BOOTPROTO	STATIC or DHCP	Boot protocol
IPADDR	xxx.xxx.xxx.xxx	IP address for static
GATEWAY	xxx.xxx.xxx.xxx	Gateway static
SSID	String	SSID

AUTH_MODE	OPEN/SHARED/WPAPSK/WPA2PSK	Authentication mode
ENCRYPT_TYPE	NONE/WEP/TKIP/AES	Encryption type
AUTH_KEY	String	Authentication key
WPS_TRIG_KEY	HOME	WPS key
AP_SSID	String	SSID
AP_AUTH_KEY	String	Soft AP's authentication key
AP_CHANNEL	1 ~ 13, AUTO	Soft AP's channel

http://<IP-Address>/cgi-bin/param.cgi?action=update&group=wifi&{Name}={Value}

Name	Value	Description
BOOTPROTO	STATIC or DHCP	Boot protocol
IPADDR	xxx.xxx.xxx.xxx	IP address for static
GATEWAY	xxx.xxx.xxx.xxx	Gateway static
SSID	String	SSID
AUTH_MODE	OPEN/SHARED/WPAPSK/WPA2PSK	Authentication mode
ENCRYPT_TYPE	NONE/WEP/TKIP/AES	Encryption type
AUTH_KEY	String	Authentication key
WPS_TRIG_KEY	HOME	WPS key
AP_SSID	String	SSID
AP_AUTH_KEY	String	Soft AP's authentication key
AP_CHANNEL	1 ~ 13, AUTO	Soft AP's channel

AP_AUTH_KEY:AP password > 8 bits

2 http://<IP-Address>/cgi-bin/param.cgi?action=list&group=stream

Check the video resolution and baudrate

Name	Value	Description
VINWIDTH	8~4096	Unit: pixel
VINHEIGHT	8~4096	Unit: pixel
JPEGENCWIDTH	8~4096	Unit: pixel
JPEGENCHEIGHT	8~4096	Unit: pixel
BITRATE	1024~8192	Unit: Kbps

http://<IP-Address>/cgi-bin/param.cgi?action=update&group=stream&{Name}={Value}

Modify the video resolution and baudrate

Name	Value	Description
VINWIDTH	8~4096	Unit: pixel
VINHEIGHT	8~4096	Unit: pixel
JPEGENCWIDTH	8~4096	Unit: pixel
JPEGENCHEIGHT	8~4096	Unit: pixel
BITRATE	1024~8192	Unit: Kbps

3 http://<IP-Address>/cgi-bin/param.cgi?action=list&group=nabto

Check the nabto id and password

Name	Value	Description
nabto_id	String	Nabto id
Nabto_key	String	Nabto key

http://<IP-Address>/cgi-bin/param.cgi?action=update&group=nabto&{Name}={Value}

Modify the nabto id and password

Name	Value	Description
nabto_id	String	Nabto id
Nabto_key	String	Nabto key

4 http://<IP-Address>/cgi-bin/restart.cgi?group={Name}

Name	Value	Description
wifi	wifi	Restart Wi-Fi start-up procedure
board	board	Reset board
stream	stream	Restart RTSP server

六 Open-source List

Item	Description	URL& Major modification
linux-2.6.35.4	Linux kernel	http://www.linux.org/
busybox.1.15.2	Linux shell	http://www.busybox.net/about.html
dnsmasq-2.60	DHCP server	http://www.thekelleys.org.uk/dnsmasq/doc.html
hostapd	Wi-Fi access point and authentication server	http://hostap.epitest.fi/wpa_supplicant/
spook-20050207	RTSP server	http://www.litech.org/spook/
wireless-tool.29	Network configuration utilities	http://www.hpl.hp.com/personal/Jean_Tourrilhes/Linux/Tools.html
wpa_supplicant	IEEE 802.11i supplicant	http://hostap.epitest.fi/wpa_supplicant/
ser2net-2.10.0	Serial to Network Proxy	http://ser2net.sourceforge.net/
boa-0.94.13	Light-weight Webserver	http://www.boa.org/

七 Modification Record

Version	Author	Time	Modify The Content
V1.0	Wentao.Sun	2016/11/16	Create the Document