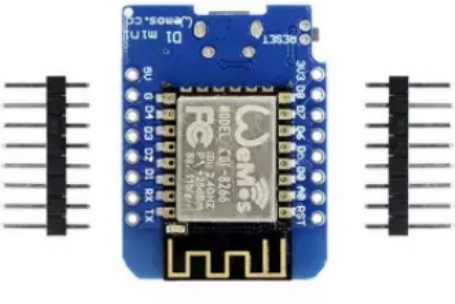
YETALA LOGIC ANALYZER CONSTRUCTIN GUIDE

Section 1.

Obtain the following modules:

1.1 Altera board TB276, can be purchased from https://www.ebay.com/itm/Cyclone-IV-FPGA-Board-EP4CE6E22C8N-EP4CE6-Development-kit-CPLD-ALTERA-PLD-NiosII/272912964704?_trkparms=aid%3D555018%26algo%3DPL.SIM%26ao%3D2%26asc%3D40719%26meid%3D0af71360d119405484d7d8f454a799ad%26pid%3D100623%26rk%3D1%26rkt%3D6%26sd%3D183440646617%26itm%3D272912964704%26pmt%3D1%26noa%3D0%26pg%3D2047675&_trksid=p2047675.c100623.m-1



1.2 WeMos D1 Mini WiFi, Can be purchased from https://www.ebay.com/itm/ESP-12-ESP8266-WeMos-D1-Mini-WIFI-4M-Bytes-Development-Board-Module-NodeMCU-Lua/382715216856?hash=item591b9ac3d8:g:roQAAOSwdhpdUoZJ

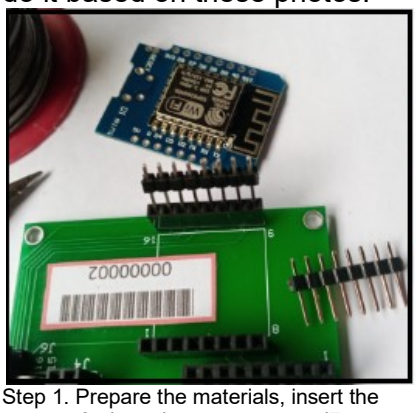
Beware of WeMOS modules with pinouts not the same to the one in the picture

1.3 YETALA276 baseboard, Can be purchased from https://www.lazada.com.ph/products/yetala-logic-analyzer-baseboard-i429354106-s1065384111.html?spm=a2o4l.searchlist.list.1.678760e9rOOoF8&search=1

OR

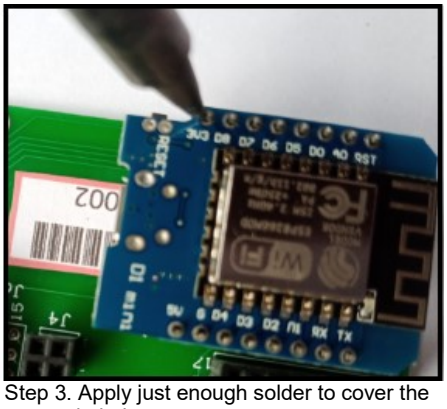
https://www.ebay.com/itm/YETALA-baseboard/362819697158?_trkparms=aid%3D111001%26algo%3DREC.SEED%26ao%3D1%26asc%3D40719%26meid%3Dccfeaae5c6f24c72b97c5fc0d40974d4%26pid%3D100667%26rk%3D1%26rkt%3D3%26sd%3D362819697158%26itm%3D362819697158%26pmt%3D0%26noa%3D1%26pg%3D2334524&_trksid=p2334524.c100667.m2042

1.4 If your WeMOS module arrived with the connector pins not yet soldered, you can easily do it based on these photos:



Step 1. Prepare the materials, insert the 8-pin male connectors to J7.

Step 2. Mount the WeMOS to J7, please observe board orientation.



Step 3. Apply just enough solder to cover the pin hole.

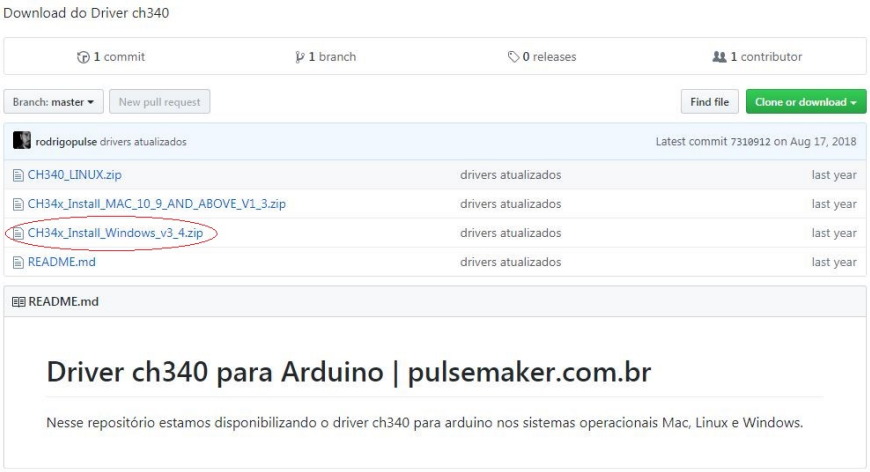
You must have a really clean soldering iron tip, melt a small amount of lead to the tip. Touch the melted lead to one of the hole to solder for about 2 sec, then melt just enough solder to cover the hole, then lift the soldering iron tip in a swift motion. Repeat 16 times. IMPORTANT: Please always observe safety precautions, iron tips are hot, avoid inhaling fumes, wear protective gears as necessary.

Section 2

Download the following files:

2.1 CH34x_Install_Windows_v3_4.zip from

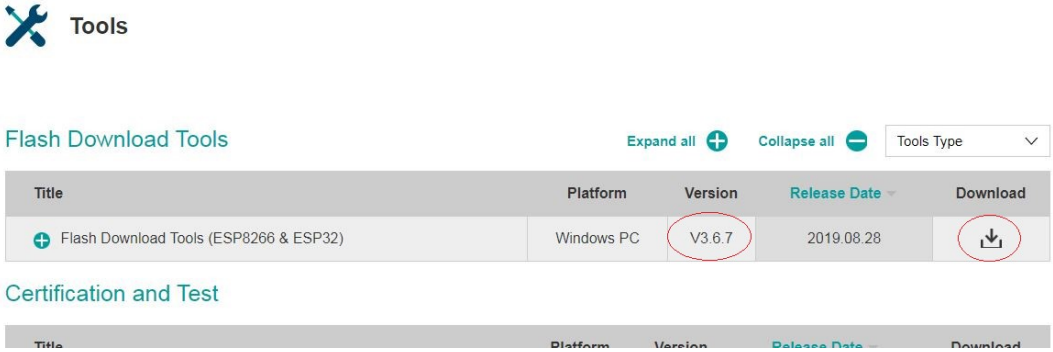
https://github.com/rodrigopulse/driver-ch340
MD5SUM: 69dc9956f983c3bc1bf16d4dbbdf4eb5
file size: 189KB



This is the USB driver for the WeMOS UART chip CH340. This Instructable is using a WeMOS module equipped with a CH340 chip. If your WeMOS module is using a different chip, then you need to find the appropriate USB driver for your WeMOS module. We highly recommend that you insist on buying a WeMOS module with a CH340 in it to be compatible to this instructable. Beware of WeMOS modules with pinouts not the same to the one in the picture.

2.2 flash_download_tools_v3.6.7_1.zip from

https://www.espressif.com/en/support/download/other-tools
MD5SUM: 1b3d5d3fd1a397c98a2c2f3be6cf945f
file size: 18.9MB



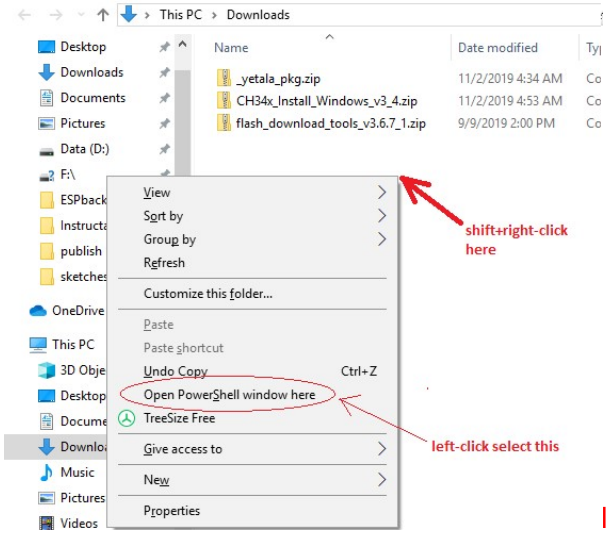
This software is made by Espressif to flash firmwares into the WeMOS module via USB.

2.3 _yetala_pkg.zip from this instructable or from the link below

http://www.yetala.com/_yetala_pkg.zip
MD5SUM: 1780b9a5140a918552f46216f14765f9
file size: 734KB
This zipped file contains a collection of files needed to complete the setup described in this instructable.

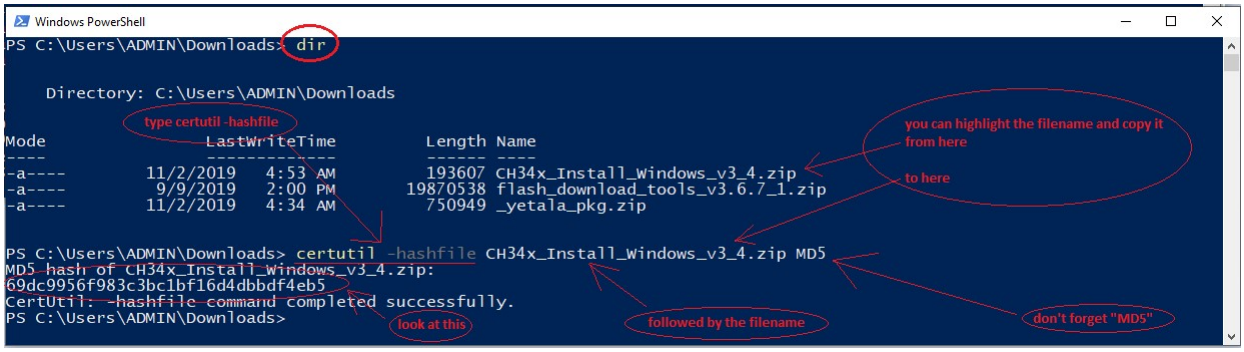
!!!! IMPORTANT !!!! PLEASE READ:

To ensure that the downloaded file is not tampered, please make sure that the MD5SUM of the downloaded file is the same as shown in this instructable.
For example: the MD5SUM of _Install_Windows_v3_4.zip is 69dc9956f983c3bc1bf16d4dbbdf4eb5
To calculate the MD5SUM in Windows, open a cmd prompt or a PowerShell. Here's a shortcut to do that, open a File Explorer and navigate to the folder where the downloaded zips are located. SHIFT+RIGHT CLICK anywhere in the "Name" pane of File Explorer, meaning click the right mouse button while holding down the Shift key, then select Open PowerShell:



In Windows 7/XP, select Open Command prompt

and type the following command as shown below:

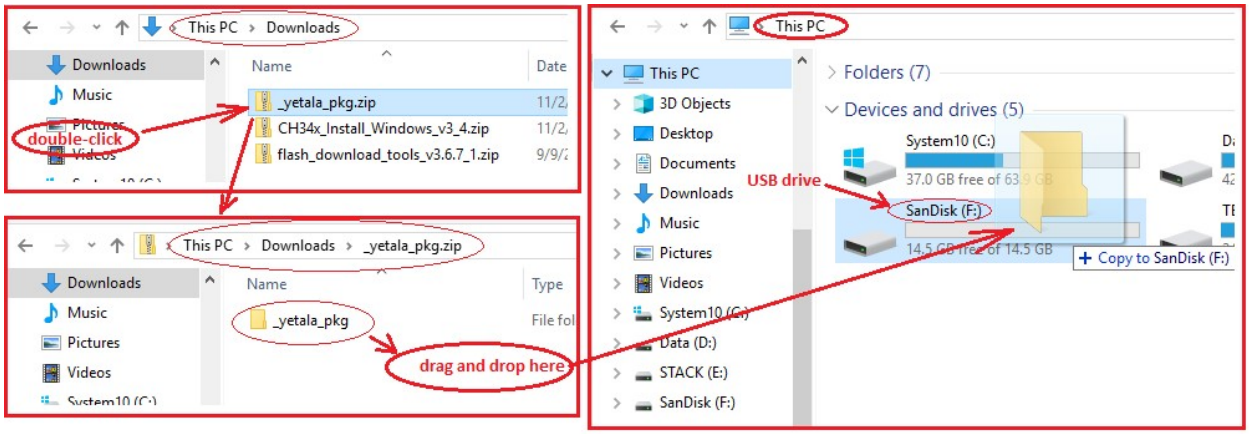


NOTE: The word "MD5" must be in **uppercase**.
Repeat the same command for the other two files.

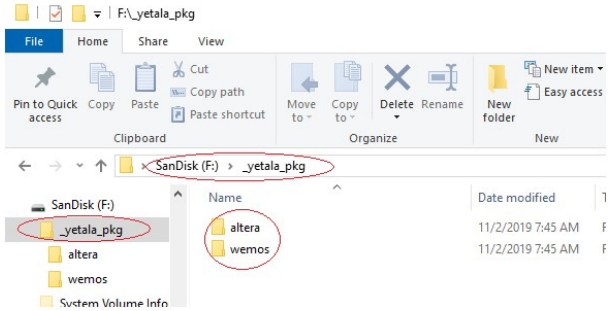
Section 3.

Extract the files:

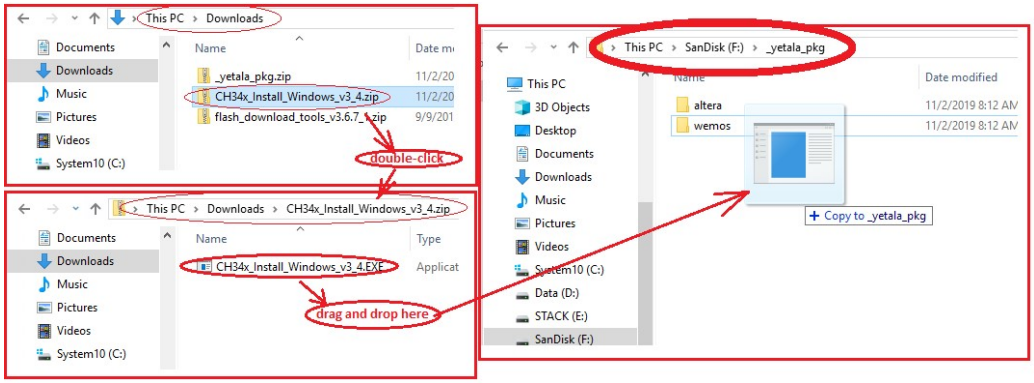
3.1 Begin with _yetala_pkg.zip, unzip and paste the folder "_yetala_pkg" in the root directory of a USB drive, it is recommended that you paste in the root directory of a USB drive to become compatible with the instructions here, follow the image below:



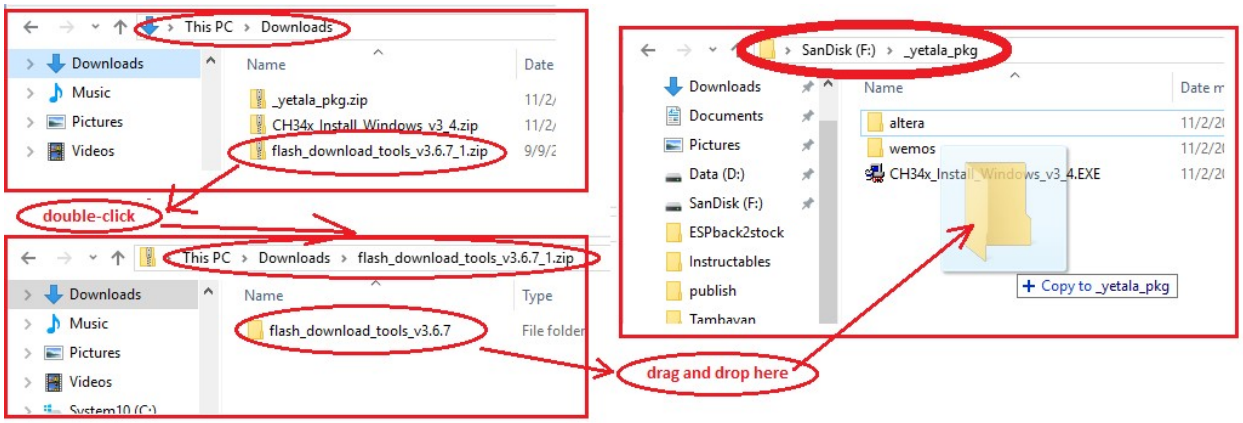
After doing that, you will have:



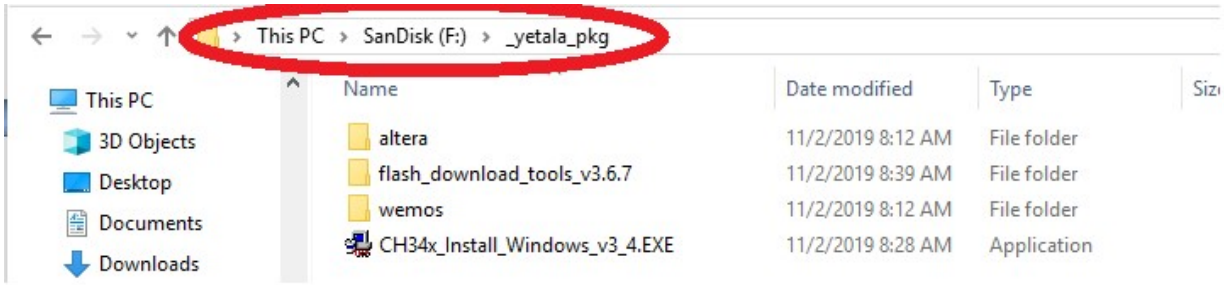
3.2 Unzip CH34x_Install_Windows_v3_4.zip and paste the EXE file to the _yetala_pkg folder as shown in the image below:



3.3 Unzip flash_download_tools_v3.6.7_1.zip as shown below:



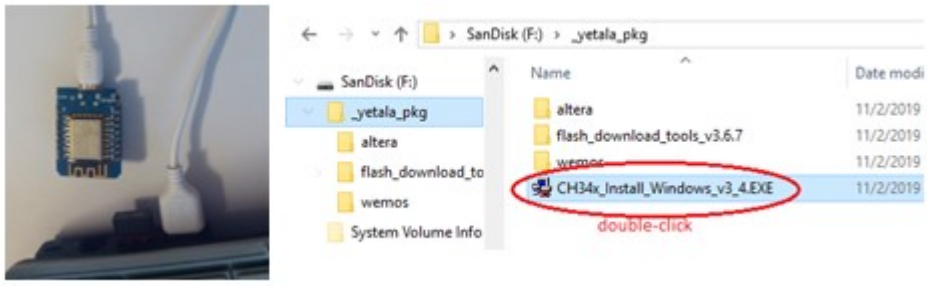
Finally, you should have:



Section 4.

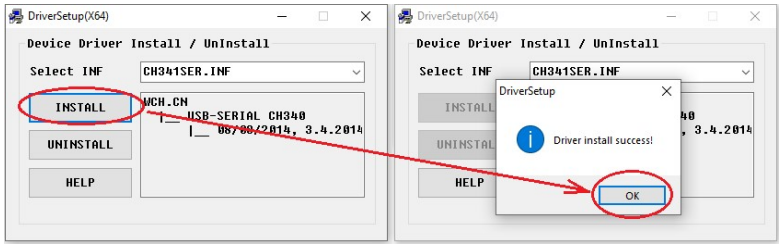
Installing the CH340 USB driver

4.1 Connect the WeMOS module to your computer using a cable with a micro-USB in one end as shown below



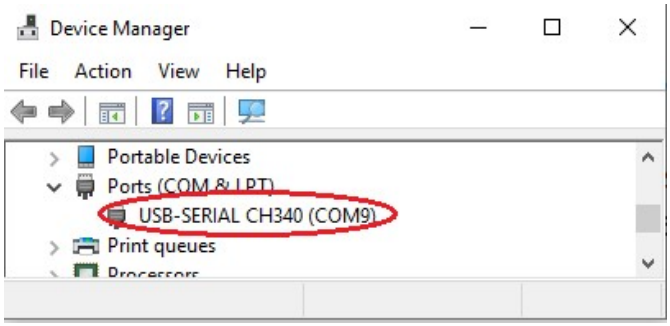
Run _yetala_pkg\CH34x_Install_Windows_v3_4.EXE by double-click as shown above.

Follow the install prompts:



Windows will show a message that the device driver for the USB was installed and ready to use. In case of an error message, make sure that you have a good USB connection to WeMOS, check the USB cable. Make sure you are not running version 1903 of Windows 10, google version 1903 for more information.

4.2 You will need to know the COM number of the WeMOS module in order to communicate to it properly. Click Windows-Start then type: Device Manager
Click open Device Manager, expand "Ports (COM & LPT)" to view the available ports.

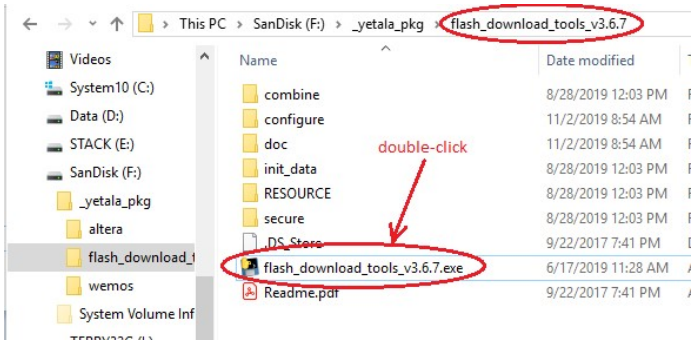


Write down the COM number associated with CH340, in my case : "COM9"
Keep the WeMOS plugged in the USB port for the next step.

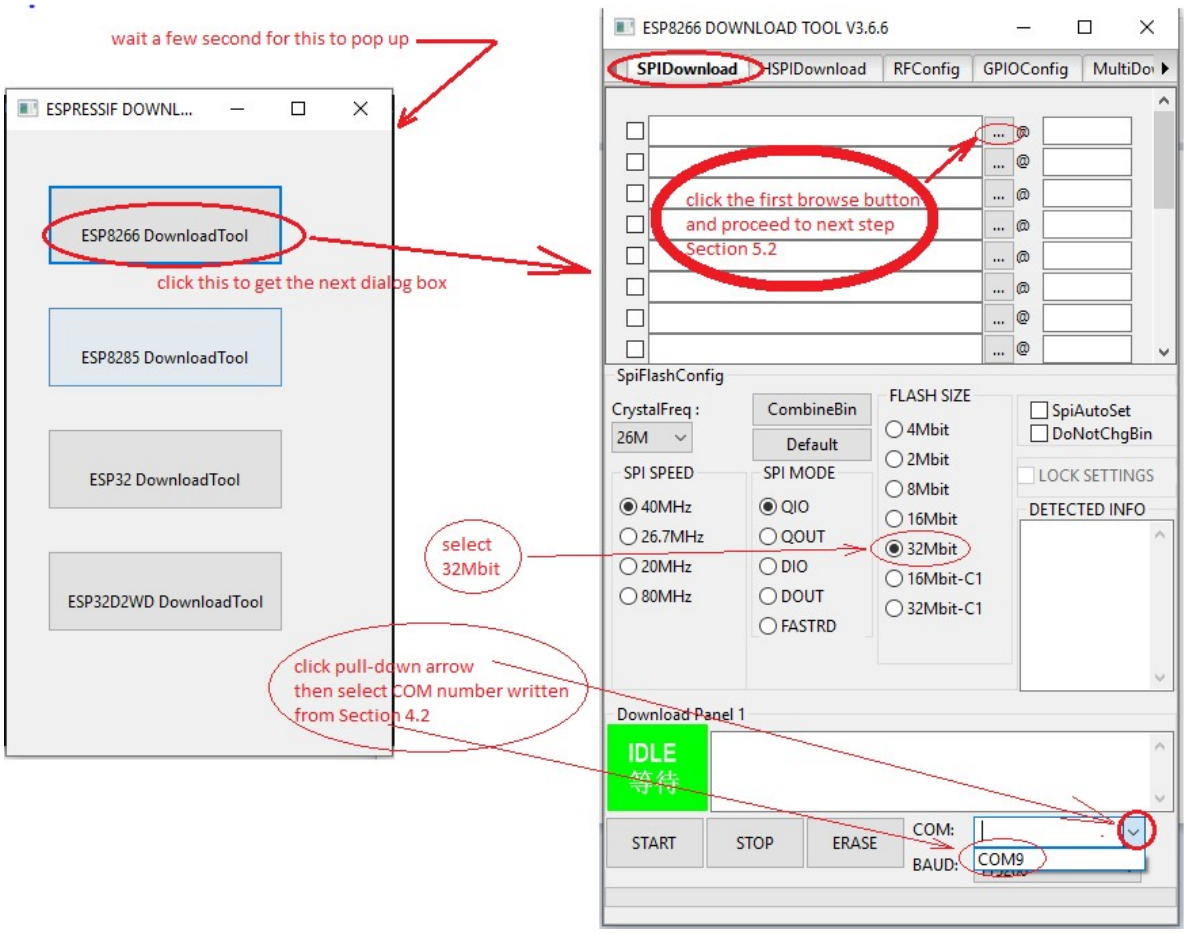
Section 5.

Flashing the WeMOS module.

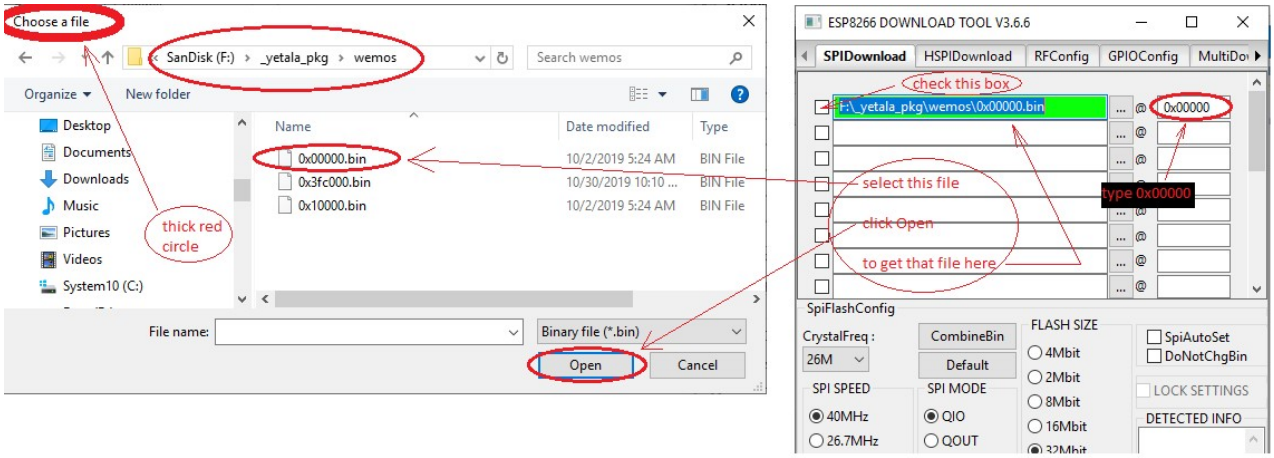
5.1 While the WeMOS module still plugged in, run _yetala_pkg\flash_download_tools_v3.6.7\flash_download_tools_v3.6.7.exe by double-click:



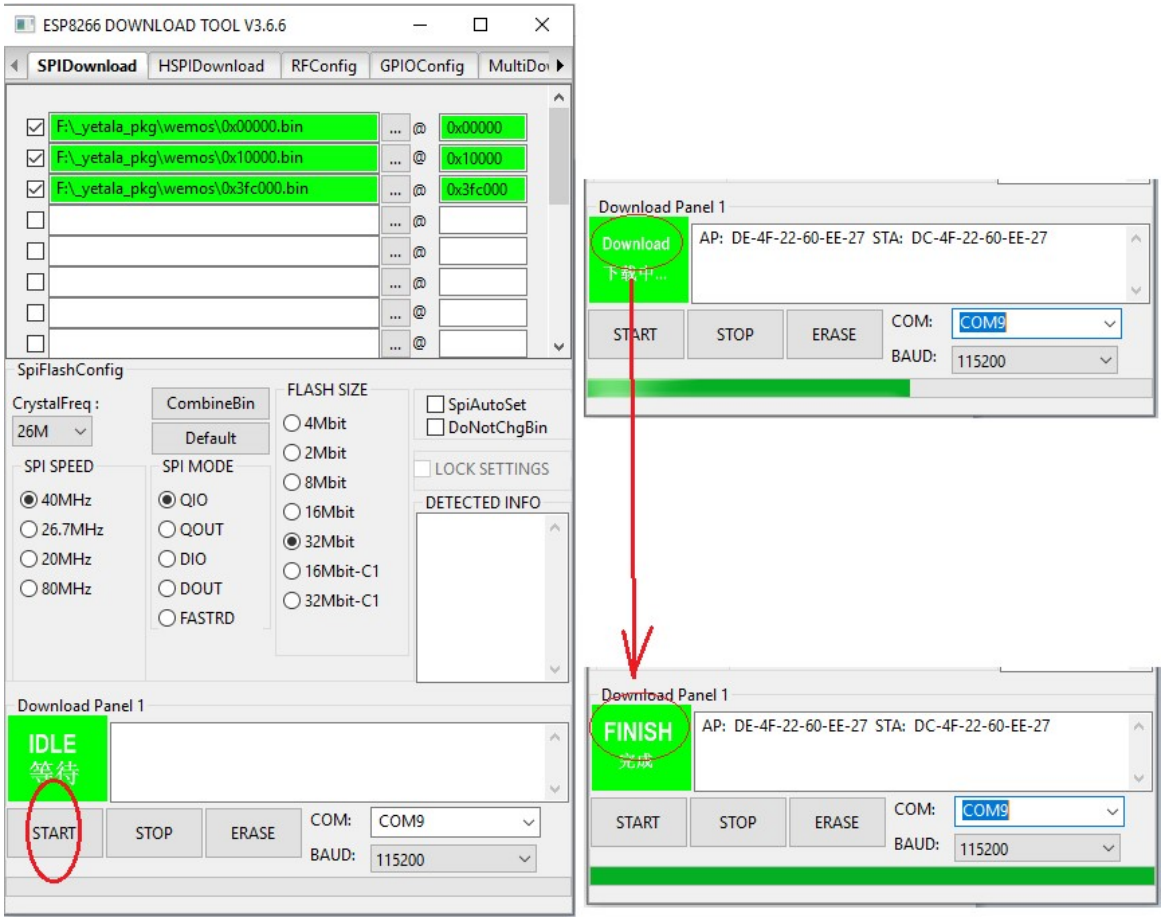
Wait for the Dialog box to pop up as shown below, then click "ESP8266" button.



5.2 Click the first browse button [...], then navigate to _yetala_pkg\wemos\, select 0x00000.bin and hit Open. Type 0x00000 at the "@" space shown below:



Click the next browse button just right below the first one, do the same for 0x10000.bin and 0x3fc000.bin, your dialog box should look like:



Click the START button as shown above and wait for several minutes to FINISH.

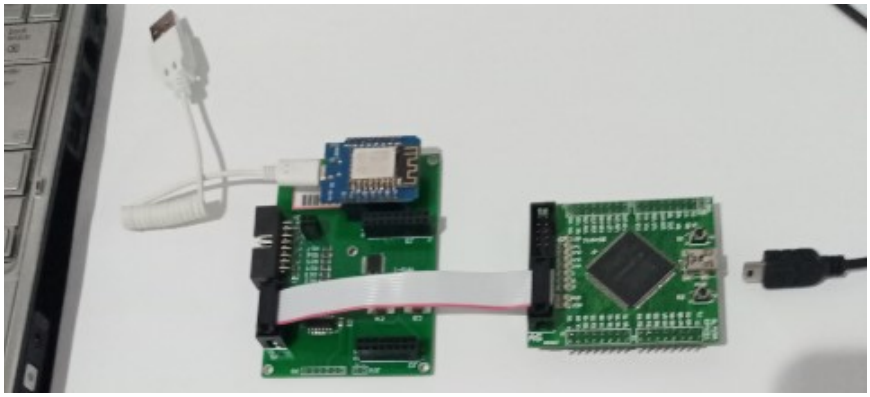
5.3 Disconnect the WeMOS module from the USB port in preparation for the next step.

Section 6.

Flashing the TB276 module.

6.1 After a successful completion of Section 5, you are now ready to flash the FPGA board.You cannot proceed to this section without completing section 5 successfully.

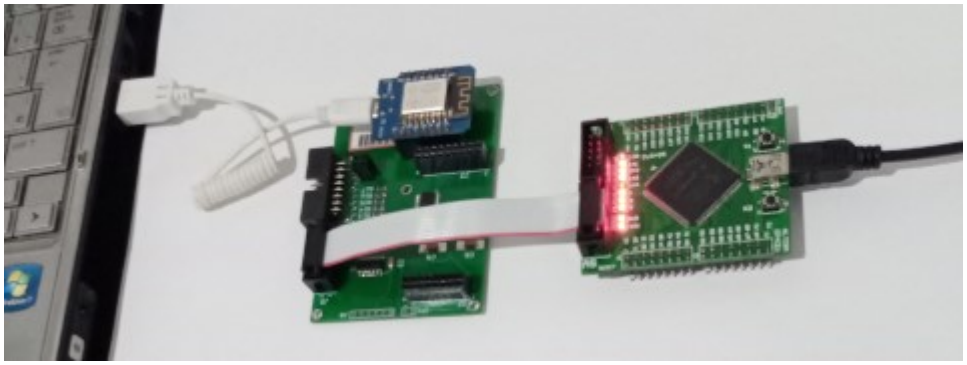
6.2 Assemble the WeMOS module, the YETALA276 baseboard, and the TB276 module as shown below, do not apply power yet to the assembly.



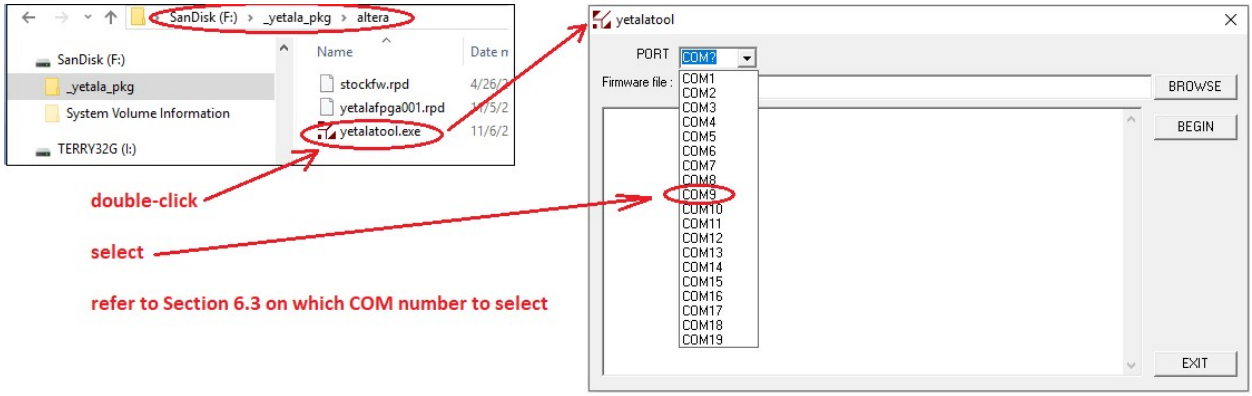
Please observe the orientation of the red stripe in the AS cable as shown above.

6.3 Connect the WeMOS module to your computer's USB port, use the same USB port that was used in Section 5 (Reminder: do not apply power to the TB276 module yet). Sometimes, Windows change the COM assignment, write down the COM number of CH340 as described in Section 4.2

6.4 After the WeMOS module successfully acquired a COM number, power-up the TB276 module. Connect a mini-USB cable to the TB276 module and the other end to a power source such as power-bank as shown below:

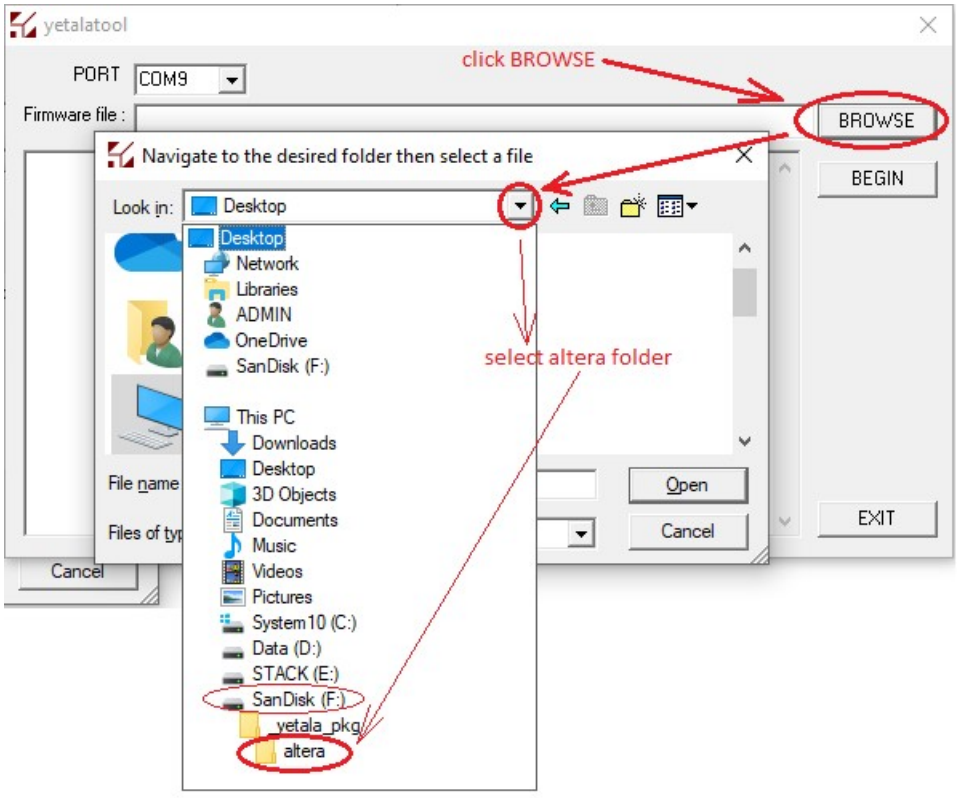


6.5 Run D:_yetala_pkg\altera\yetalatool.exe by double-click, shown below



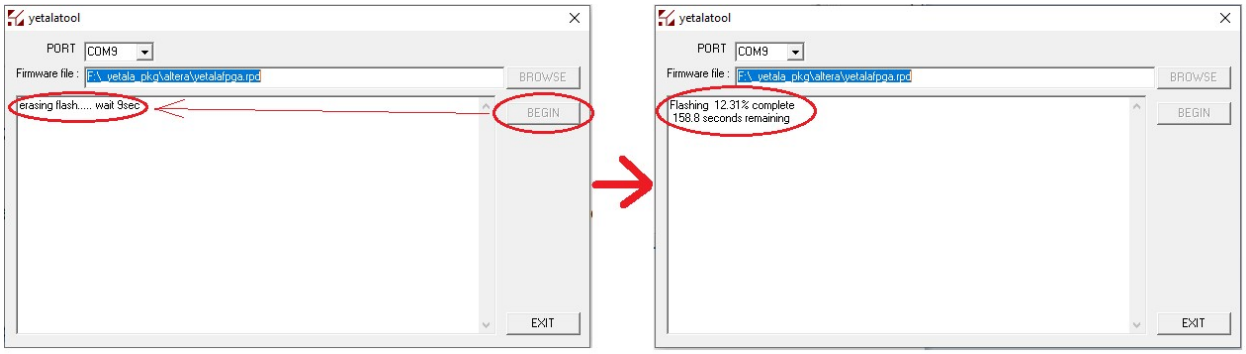
When the yetalatool popped up, change the COM number to match the number written down from Section 6.3

6.6 Click the browse button and navigate to the _yetala_pkg\altera\ folder in your usb drive, as shown below,



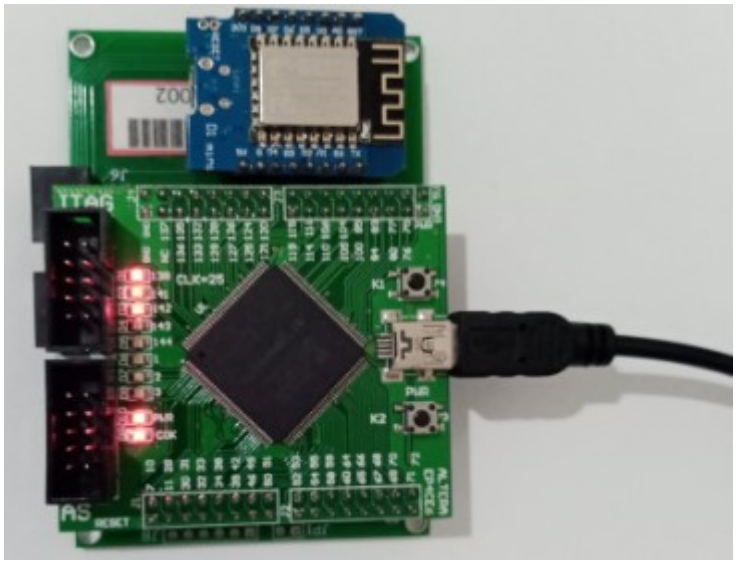
and select the yetalafpga001.rpd file. This rpd file contains the circuit description that will be programmed to the FPGA. This file can be upgraded in the future as bugs were discovered, or new features are activated.

6.7 Click the BEGIN button as shown below:



Wait for the task to finish, approximately 1.8 minutes

6.8 When yetalatool shows 100% complete, exit yetalatool, disconnect all USB cables and AS cable then re-assemble the modules as shown below:



6.9 Power up by connecting the USB cable as shown above.

The PWR & COK LEDs should turn on, D1 should be lit, D2 and D3 are blinking.

Section **7**.

Connecting your Android to WeMOS Wifi.

7.1 You must complete Section 6 successfully before procedding to this section. Download the Yetala app from Google play, if you haven't done so, in your Android device, go to the Play store and search for the Yetala app. Download, but do not launch yet.

7.2 From Section 6, your Yetala gadget is now powered-up and waiting for connections.

Open the WiFi settings in your Android device and connect to your gadget's WiFi.
If you're not sure which SSID to connect, you can reset your gadget's SSID. To reset the SSID, hold down K1 and K2 at the same time in your gadget for about 3 seconds, or until all LED turned-on, this is called the K1K2 reset. After a K1K2 reset, the SSID will become "Yetala" with no WPA "password". In your Android device, connect the WiFi to Yetala SSID.

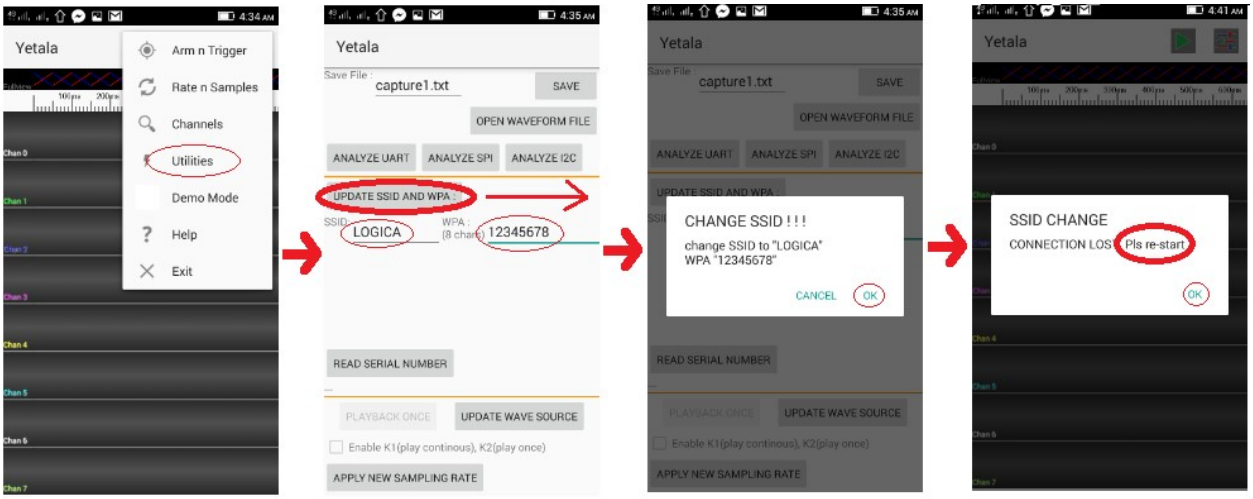
Tip: the K1K2 reset is useful in situation where you forgot the WPA password.

7.3 In your Android device, connect to the Yetala SSID. If the connection is successful, you can observe D2 stopped blinking. In your Android device, launch the Yetala app. Wait a few seconds for the Wifi connection to stabilize then touch the run  button,

the Yetala app will show the images below one after the other.

The waveform you will see are flatlines because there were no signal present at the inputs.

7.4 The SSID and WPA password of the Yetala gadget can be changed, it is highly recommended that you change the WPA password in your Yetala gadget as soon as possible. To change the SSID and WPA, open the Yetala app in your Android device. Touch the settings  icon as shown in Section 7.3, and select "Utilities" from the drop-down list as shown below:



As shown above, the Utilitiess page will show up after selecting Utilitiess from the drop-down list. In the SSID field, type "LOGICA" and then type "12345678" in the WPA password field. Then touch the "UPDATE SSID" button as shown above. After touching the "UPDATE SSID" button, the Yetala app will show the message like above, touch OK to confirm. The SSID will be changed to LOGICA with a password, touch OK to dismiss the message.

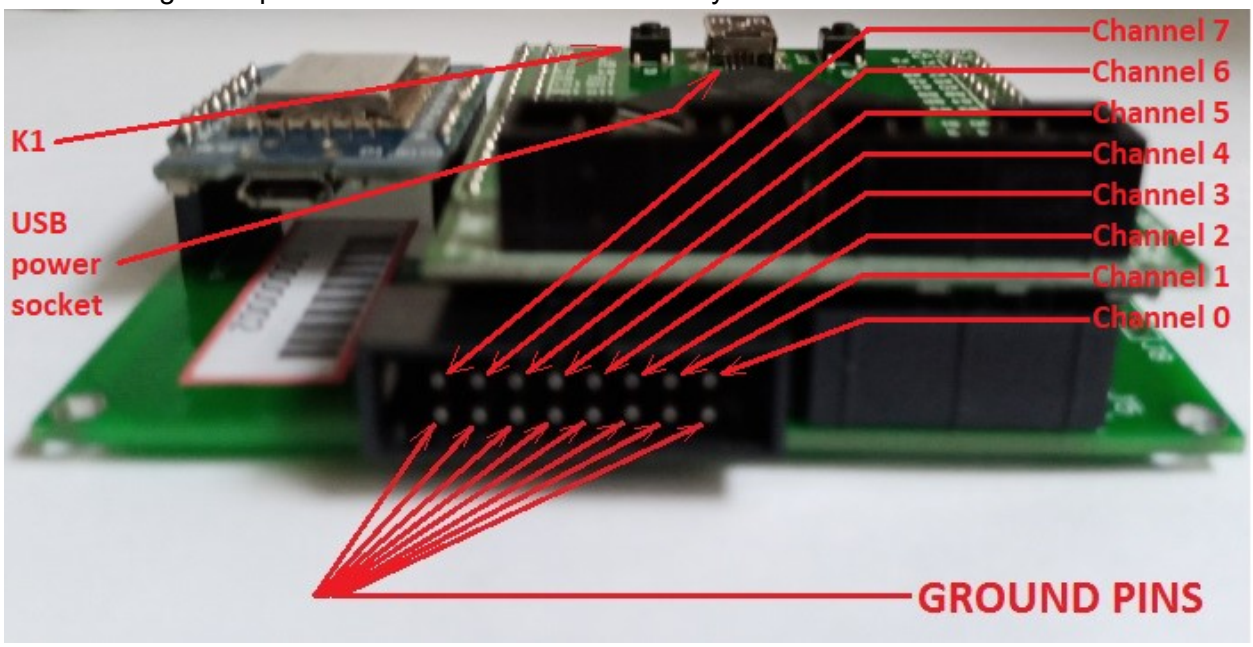
Finally, touch  icon from the menu, and select Exit from the drop-down list. Power down the Logic Analyzer gadget, wait for a moment, then bring the power back.

In your Android device, look for the new ""LOGICA SSID"" in the available WiFi list.
Connect to the new ""SSID"", you need to enter the WPA password: 12345678

Instead of "LOGICA", you can choose your own SSID name and WPA password. Nothing to worry, in case you forgot the WPA password, refer to Section 7.2 on how to do the K1K2 reset.

7.5 If you have a circuit to debug, connect the signals to your brand new logic analyzer.

There are 8 ground pins and there are 8 channels that you can use as shown below:



7.6 You're all set and ready to go.