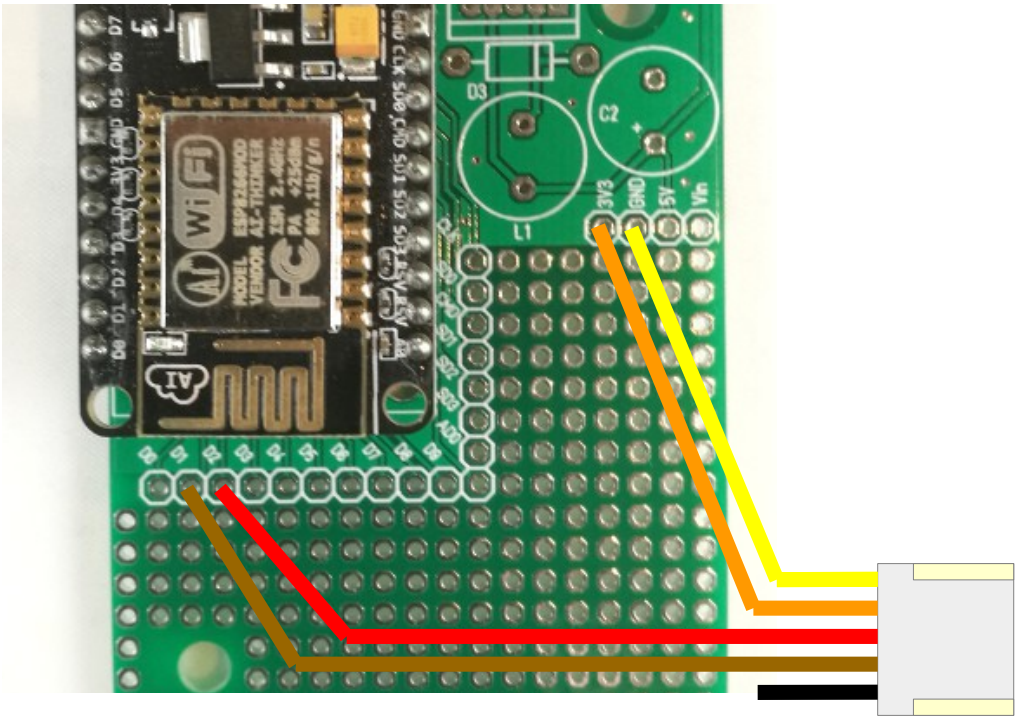
Display Shield ArduiBox NodeMCU

construction and programming manual

Rev.	Date	Description
A	2018-01-19	First release

1.) *Electrical connection*

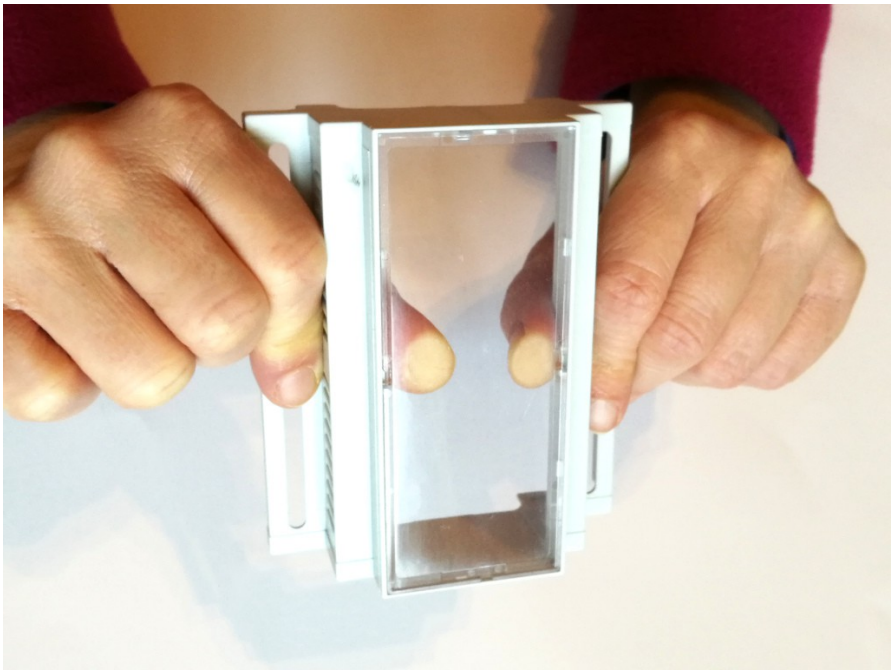
Pin	Cable color	NodeMCU	Description
1	black	N.C.	Optional Interrupt line – not used[1]
2	brown	D1	SCL – I2C clock
3	red	D2	SDA – I2C data
4	orange	3,3V	3,3V power supply
5	yellow	GND	Ground connection



1 If you want, you can connect this wire with a GPIO of your choice. In our programming example we don't use this line!

2.) Mechanical assembly in RasPiBox enclosure

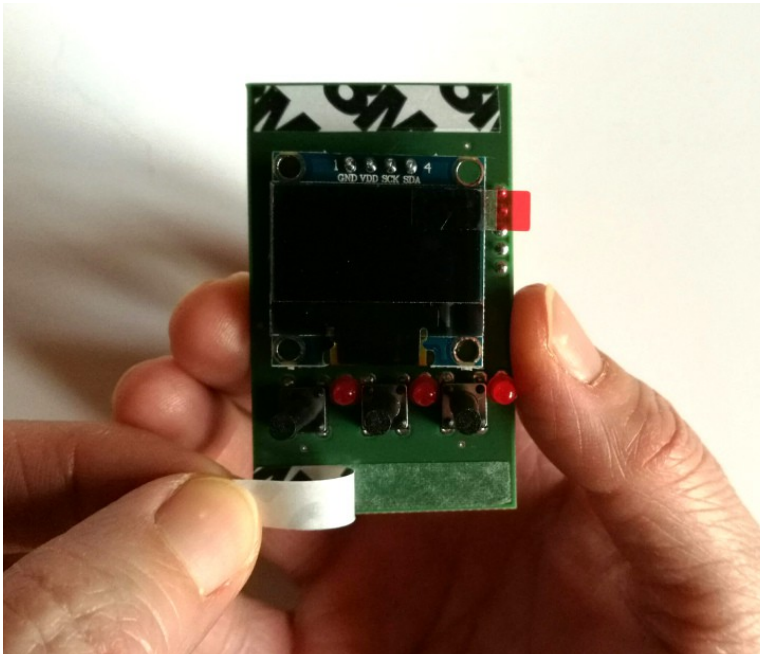
2.1) Remove the old front glass from top shell



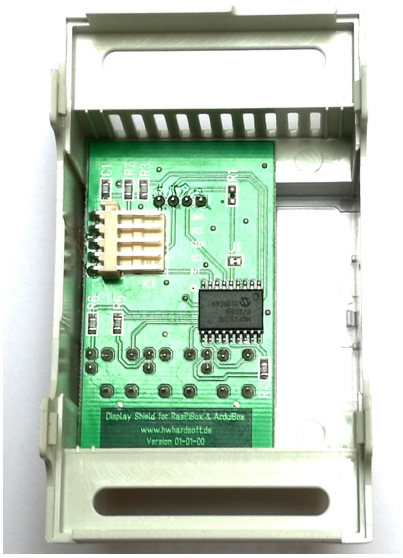
Press the glass careful with your thumbs out of the top shell.

2.2) Assemble the Display Shield

Remove the protection foil from the double adhesive tape first:



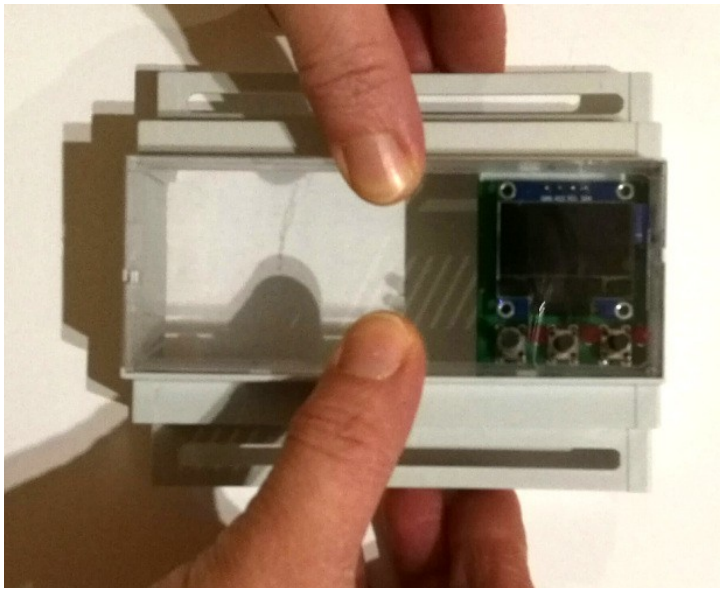
Glue the shield into the top shell:



Place it exactely as in the picture above and close as possible to the left wall!

Please note: The OLED Shield have to be placed exactely on the expected position.

2.3) Assemble the new front plate



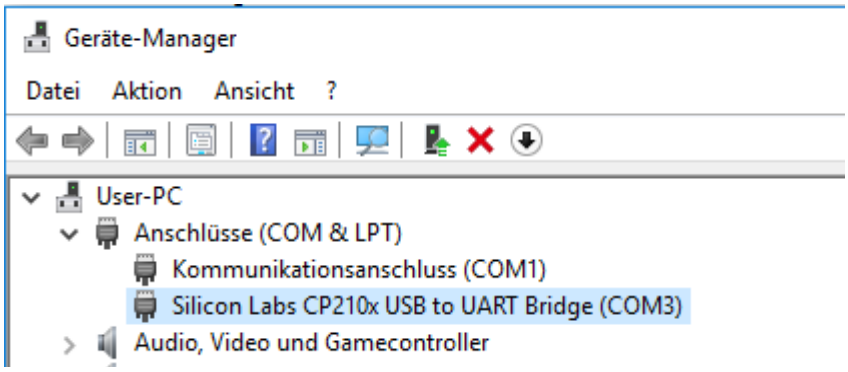
Press the glass careful with your fingers from the top into the top shell.

3. Install the drivers for NodeMCU

The NodeMCU module includes a CP2102 chip for the USB interface. Usually the driver will be installed automaticaly if the NodeMCU is connected the first time with the PC. Sometimes this procedure failed. In this case you have to install the driver

http://www.silabs.com/products/development-tools/software/usb-to-uart-bridge-vcp-drivers

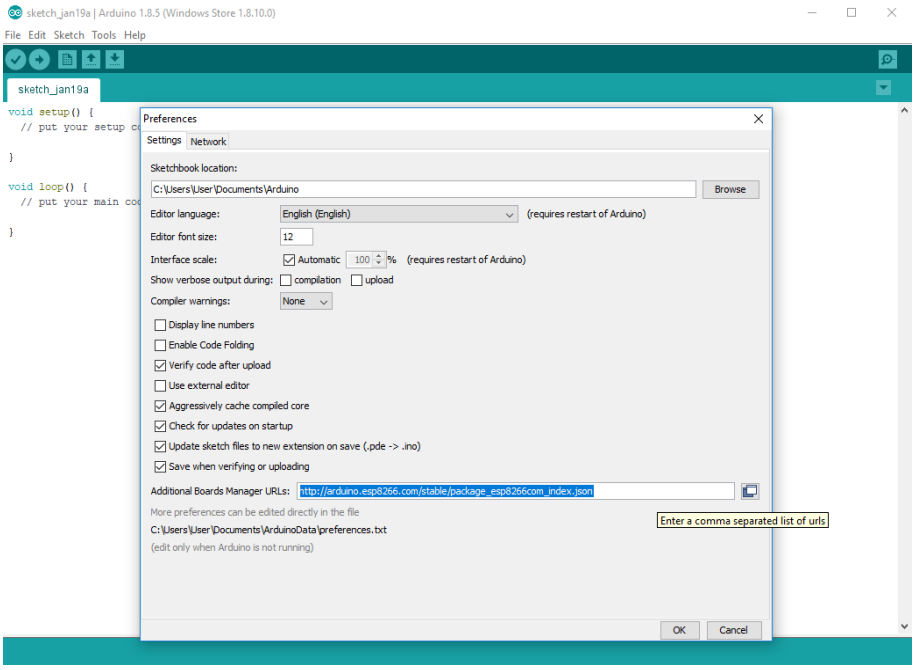
manually in the Windows device manager.



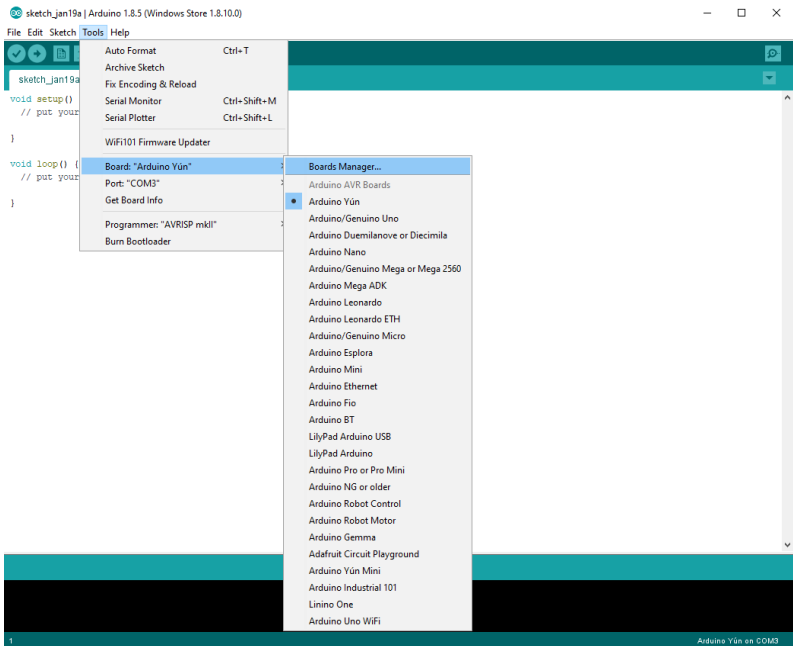
4. Preparation of Arduino IDE for NodeMCU

The NodeMCU module isn't part of the Arduino-IDE. We have to install it first.

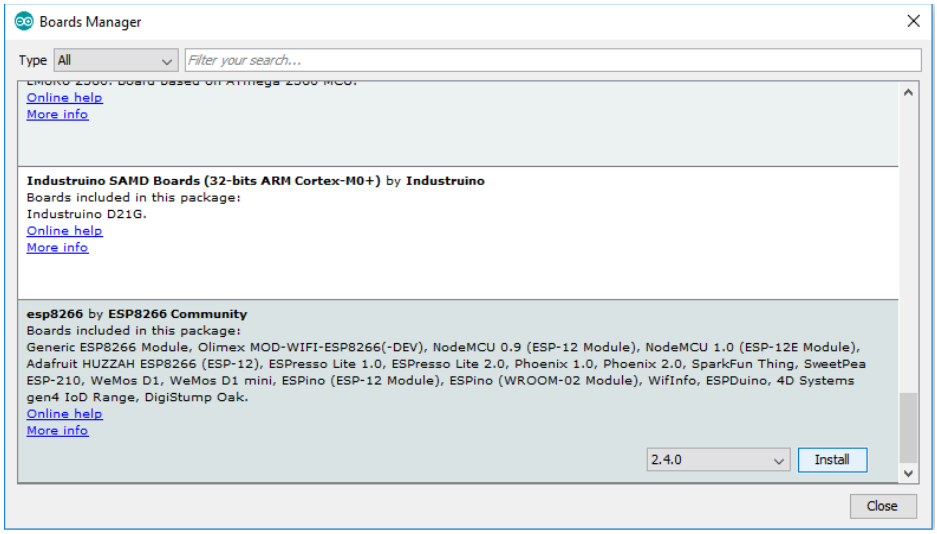
*Open **file / preferences** in the Aduino-IDE and insert the following link in the **Additional Boards Manager URLs field**:*
http://arduino.esp8266.com/stable/package_esp8266com_index.json



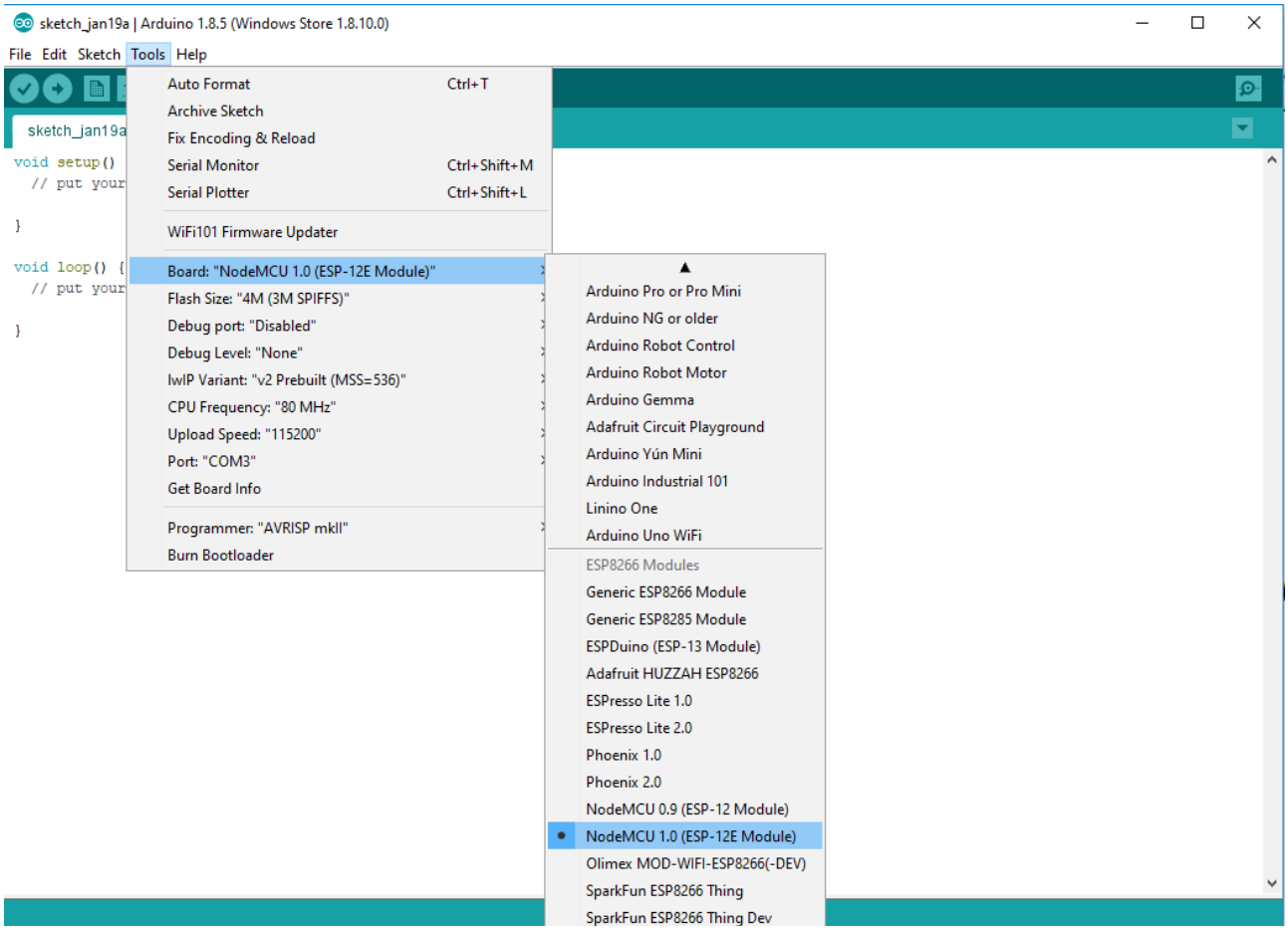
Close this window with the OK Button.
*Open now the board manager: **Tools / Board / Board Manager***



Go to the ESP8266 entry and install it:



Now you can choose NodeMCU 1.0 (ESP-12E Module). Set the CPU frequency to 80MHz, Flash Size to „4M (3M SPIFFS)“ , the baud rate of your choice and the COM port.



5. Programming

5.1) Install Adafruit SSD1306 Library

Start by installing the support library for the OLED display, you'll need it to talk to the OLED controller chip. We are using the Adafruit SSD1306 library repository on GitHub if you're interested in looking at the code. You can download the library also directly as ZIP file via this link:
https://github.com/adafruit/Adafruit_SSD1306/archive/master.zip

Rename the uncompressed folder Adafruit_SSD1306 and check that the Adafruit_SSD1306 folder contains Adafruit_SSD1306.cpp and Adafruit_SSD1306.h

Place the Adafruit_SSD1306 library folder your arduinosketchfolder/libraries/ folder.

5.2) Install Adafruit GFX Library

You will need to do the same for the Adafruit_GFX library available here:
https://github.com/adafruit/Adafruit-GFX-Library/archive/master.zip

Rename the uncompressed folder Adafruit_GFX and check that the Adafruit_GFX folder contains Adafruit_GFX.cpp and Adafruit_GFX.h

Place the Adafruit_GFX library folder your arduinosketchfolder/libraries/ folder like you did with the SSD1306 library

5.3) Install Adafruit MCP23008 Library (for standard version only)

You will need to do the same for the Adafurit_MCP23008 library available here:
https://github.com/adafruit/Adafruit-MCP23008-library/archive/master.zip

Rename the uncompressed folder Adafruit_MCP23008 and check that the Adafruit_MCP23008 folder contains Adafruit_MCP23008.cpp and Adafruit_MCP23008.h

Place the Adafruit_MCP23008 library folder your arduinosketchfolder/libraries/ folder like you did with the libraries above

5.4) Run the demo

After installing the Adafruit libraries, restart the Arduino IDE. You should now be able to access the sample code by navigating through menus in this order: File→Sketchbook→Libraries→Adafruit_SSD1306→SSD1306...

You have to download our sample code for the NodeMCU & OLED Shield from **https://www.hwhardsoft.de/english/projects/display-shield/**

now. Please open this sample in the Arduino IDE. After compilation and upload you have to press the 3 buttons to view different screens.

Our demo contains only some samples of the possiblities of the Adafruit GFX engine. Please visit this link of additional informations about the Adafruit library:

https://learn.adafruit.com/monochrome-oled-breakouts/arduino-library-and-examples