

Getting Started

How to use SensiBLE 1.0 with ARDUINO IDE (Win10)

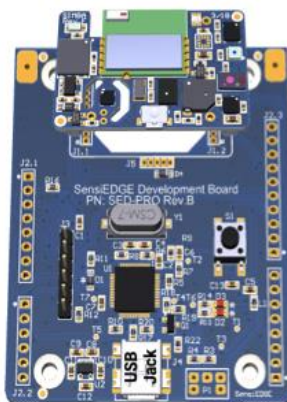
SensiBLE | duino

Function 5	Function 4	Function 3	Function 2	Function 1	Type	MCU Name	Pin #
SPL_NSS		CAN_TX	TIMER	I2C_SDA	I/O	PB9	13
		CAN_RX	TIMER	I2C_SCL	I/O	PB8	12
		TSC_IO	TIMER	SD_D0	I/O	PC8	11
	USB_NOE			SD_D1	I/O	PC9	10
SPL_SCK		TSC_IO	UART_TX	SD_D2	I/O	PC10	9
SPL_MISO		TSC_IO	UART_RX	SD_D3	I/O	PC11	8
	SAL_SD	TSC_IO	UART_TX	SD_SCK	I/O	PC12	7
		TSC_SYNC	TIMER	SD_CMD	I/O	PD2	6
				USB_ID	I/O	PA10	5
				USB_DM	I/O	PA11	4
				CAN_RX	I/O	PA12	3
				CAN_TX	I/O	PA12	3
				USB_DP	I/O	PA12	3
					S	GND	2
SAL_SD					I/O	PB15	1



Pin #	MCU Name	Type	Function 1	Function 2	Function 3	Function 4	Function 5	Function 6
14	GND	S						
13	nReset	I						
12	SWD	I/O						
11	SWCLK	I/O						
10	PA2	I/O	USART_TX	ADC	TIMER	SYS_WKUP	RCC_LSCO	
9	PA3	I/O	USART_RX	ADC	TIMER			
8	PC3	I/O	SPL_NSS	ADC	TIMER			SAL_SD
7	PB14	I/O	SPL_SCK	USART_DE	TIMER	I2C_SDA	TSC_IO	SAL_MCLK
6	PB13	I/O	SPL_MISO	USART_CTS	TIMER	I2C_SCL	TSC_IO	SAL_SCK
5	PB12	I/O	SPL_MOSI	USART_CK	TIMER	SWPMI_IO	TSC_IO	SAL_FS
4	PC4	I/O	ADC	USART_RTS				
3	PB1	I/O	TIMER	USART_RTS	ADC			
2	VDD	S						
1	+5V_USB	S						

Function 4	Function 3	Function 2	Function 1	Type	MCU Name	Pin #
				S	NC	1
				S	VDD	2
				I	nReset	3
				S	VDD	4
				S	Vin	5
				S	GND	6
				S	GND	7
				S	Vin	8
TSC_IO	TIMER	SPL_MOSI	TIMER	I/O	PA10	1
	SAL_SD			I/O	PB15	2
	ADC	USART_DE	TIMER	I/O	PB1	3
		USART_TX	ADC	I/O	PC4	4
SPL_NSS	CAN_TX	TIMER	I2C_SDA	I/O	I2C_SDA	5
	CAN_RX	TIMER	I2C_SCL	I/O	I2C_SCL	6



Pin #	MCU Name	Type	Function 1	Function 2	Function 3	Function 4	Function 5	Function 6
10	I2C_SCL	I/O	I2C_SCL	CAN_RX	TIMER			
9	I2C_SDA	I/O	I2C_SDA	CAN_TX	TIMER			
8	AVDD	S						
7	GND	S						
6	PB13	I/O	SPL_SCK	USART_CTS	TIMER	I2C_SCL	TSC_IO	SAL_SCK
5	PB14	I/O	SPL_MISO	USART_RTS	TIMER	I2C_SDA	TSC_IO	SAL_MCLK
4	PC3	I/O	SPL_MOSI	USART_CK	TIMER	ADC		SAL_SD
3	PB12	I/O	SPL_NSS	USART_CK	TIMER	SWPMI_IO	TSC_IO	SAL_FS
2	PA11	I/O	USB_DM	CAN_RX	TIMER			
1	PA12	I/O	USB_DP	CAN_TX	TIMER			
8	PC11	I/O	SD_D3	UART_RX	TSC_IO			SPL_MISO
7	PC10	I/O	SD_D2	UART_TX	TSC_IO			SPL_SCK
6	PD2	I/O	SD_CMD	UART_RX	TIMER	TSC_SYNC		
5	PC12	I/O	SD_CK	UART_TX	TSC_IO	SAL_SD		SPL_MOSI
4	PC8	I/O	SD_D0	TIMER	TSC_IO			
3	PC9	I/O	SD_D1	TIMER	TSC_IO			
2	PA2	I/O	USART_TX	ADC	TIMER	USB_NOE		
1	PA3	I/O	USART_RX	ADC	TIMER	SYS_WKUP	RCC_LSCO	

1. Download and install the latest [Arduino IDE](#).

Downloads



Arduino IDE 1.8.13

The open-source Arduino Software (IDE) makes it easy to write code and upload it to the board. This software can be used with any Arduino board.

Refer to the [Getting Started](#) page for Installation instructions.

SOURCE CODE

Active development of the Arduino software is [hosted by GitHub](#). See the instructions for [building the code](#). Latest release source code archives are available [here](#). The archives are PGP-signed so they can be verified using [this](#) gpg key.

DOWNLOAD OPTIONS

Windows Win 7 and newer
Windows ZIP file

Windows app Win 8.1 or 10 [Get](#) 

Linux 32 bits
Linux 64 bits
Linux ARM 32 bits
Linux ARM 64 bits

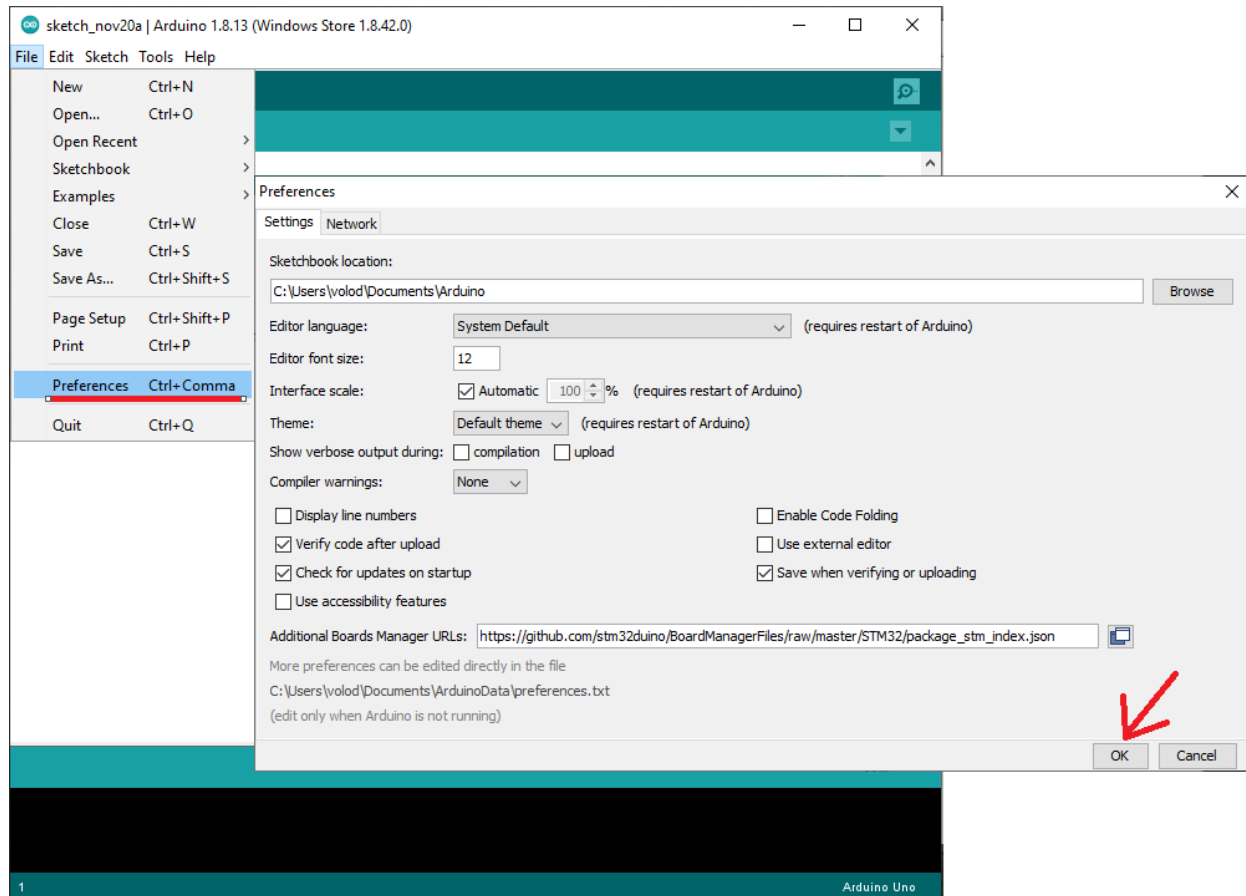
Mac OS X 10.10 or newer

[Release Notes](#)
[Checksums \(sha512\)](#)

2. Launch Arduino IDE.
Click on **File** menu and then **Preferences**
The Preferences dialog will open, then add the following link to the **Additional Boards Managers URLs** field:

[https://github.com/stm32duino/BoardManagerFiles/raw/master/STM32/package_stm_index.js](https://github.com/stm32duino/BoardManagerFiles/raw/master/STM32/package_stm_index.json)
on

- Click **Ok**
See below.

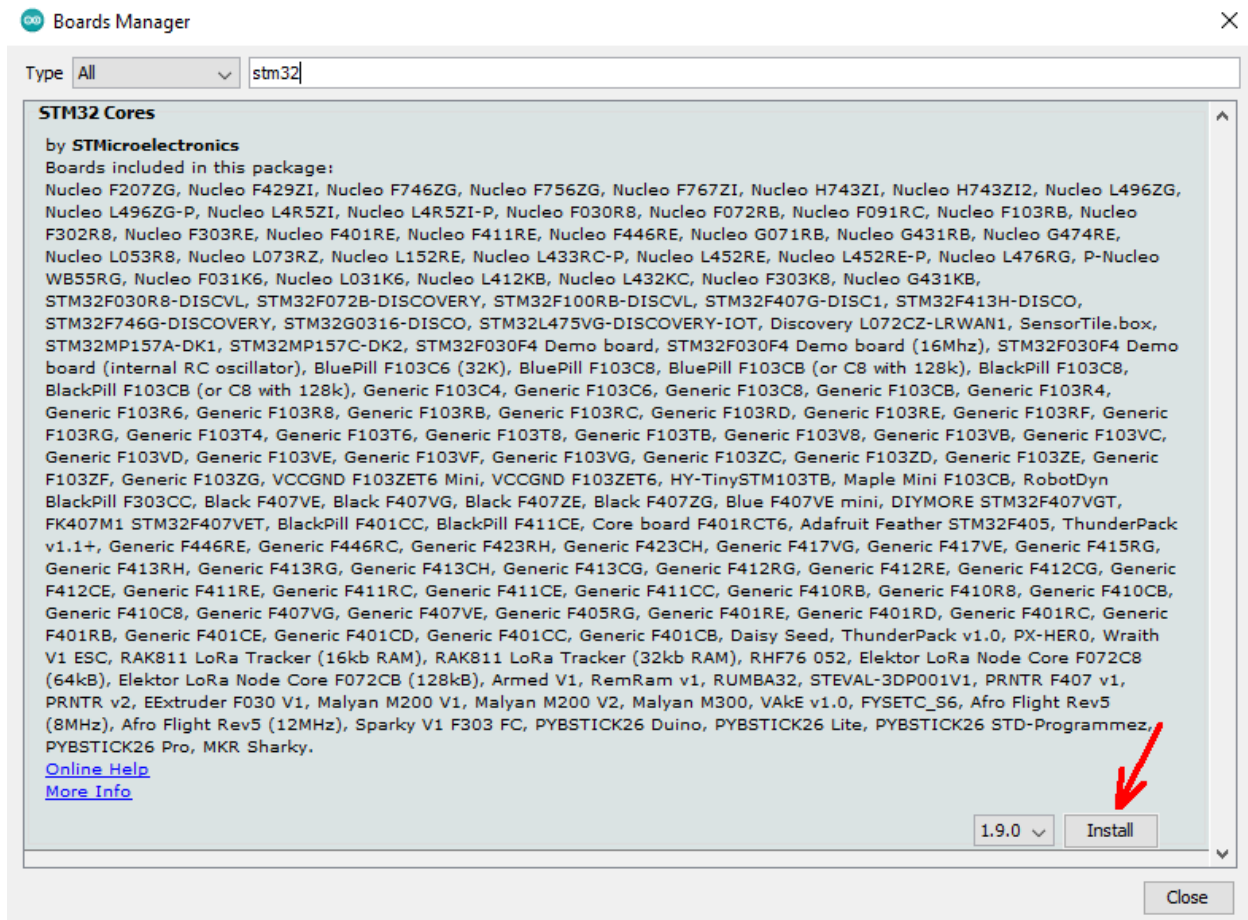


- Click on **Tools** menu and then **"Boards > Boards Manager"**

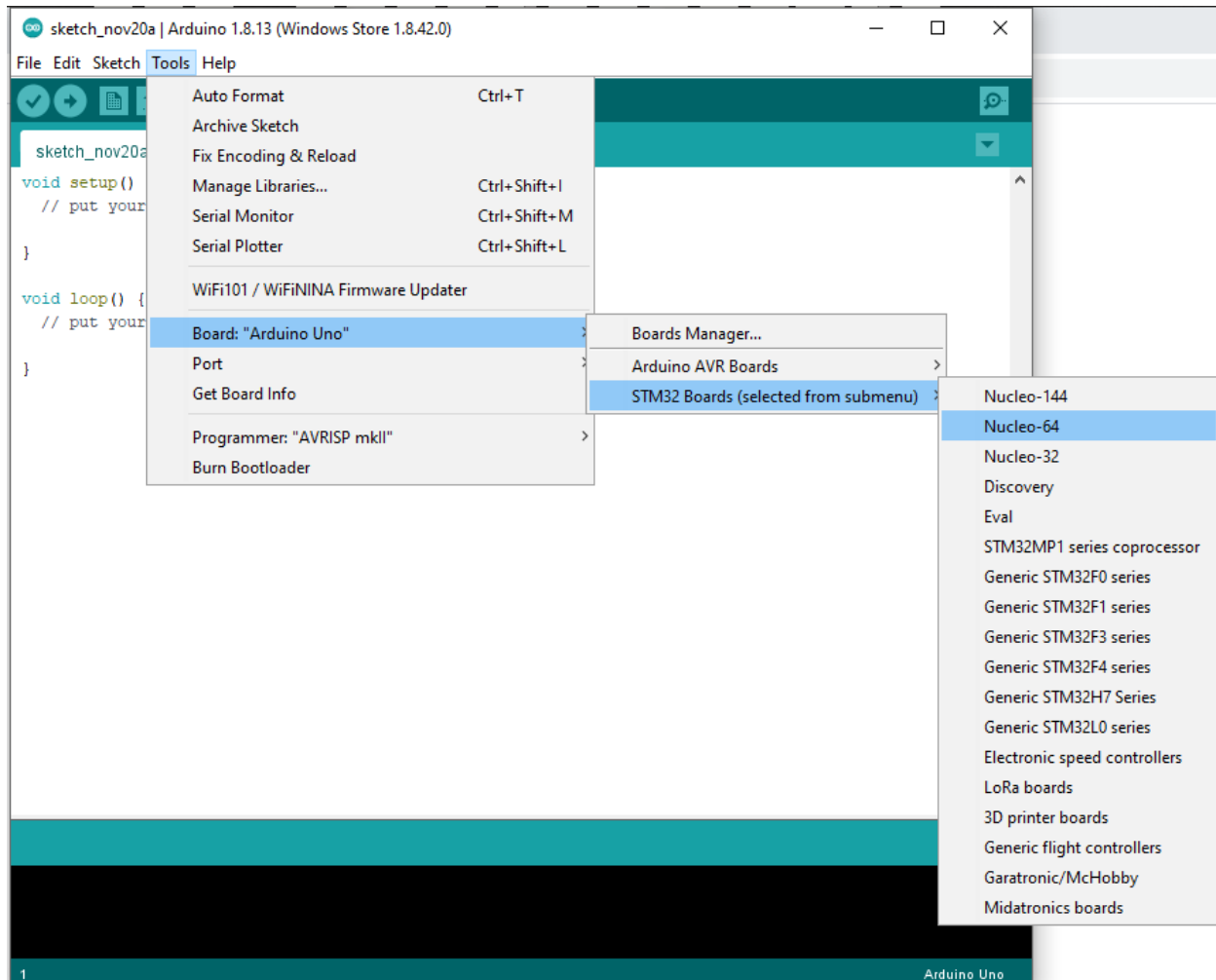
Next in the box type: **stm32**

and install all the boards that appears.

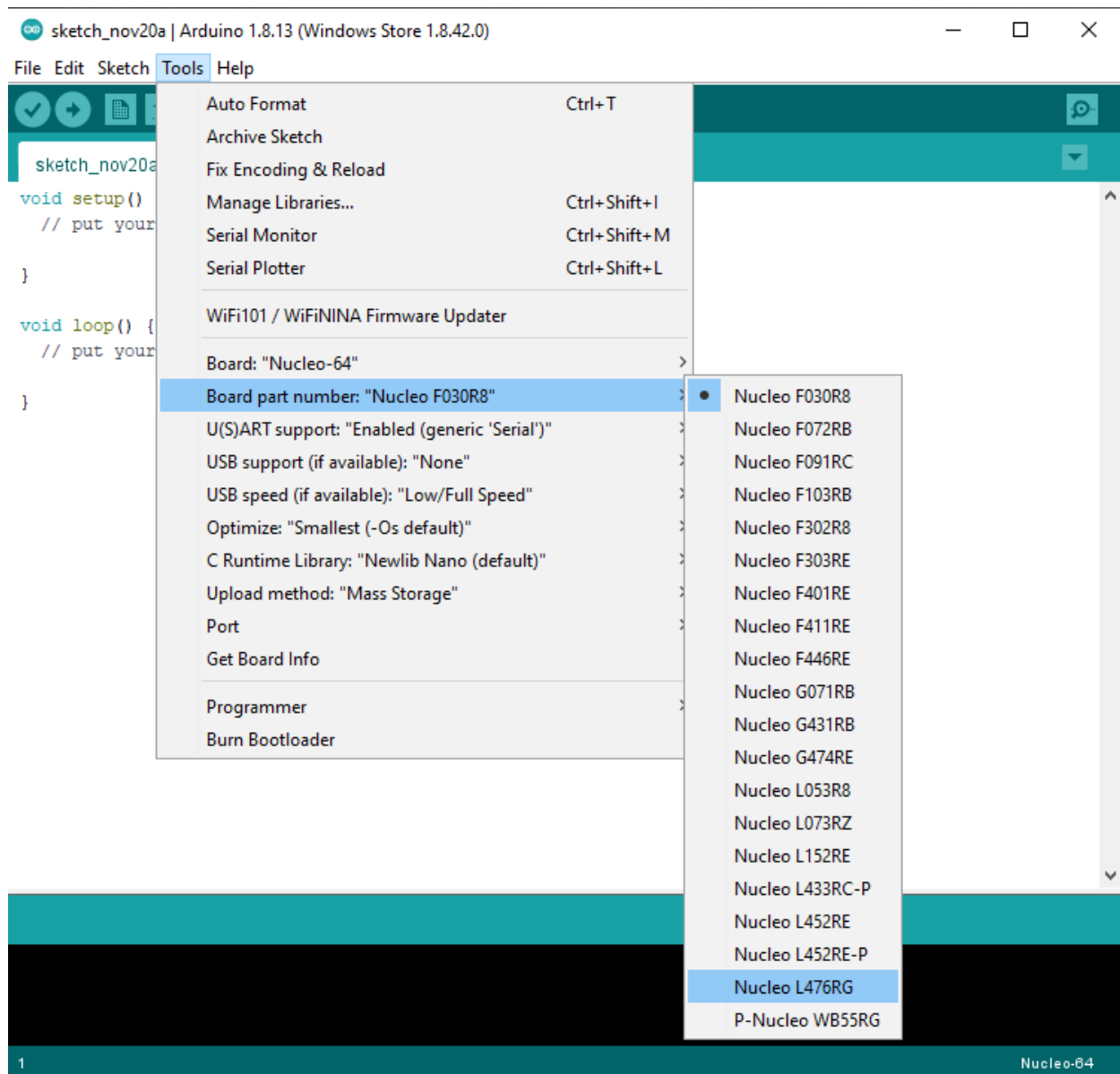
See below.



- Now select again: **Tools > Boards** and choose the **NUCLEO-64** board.

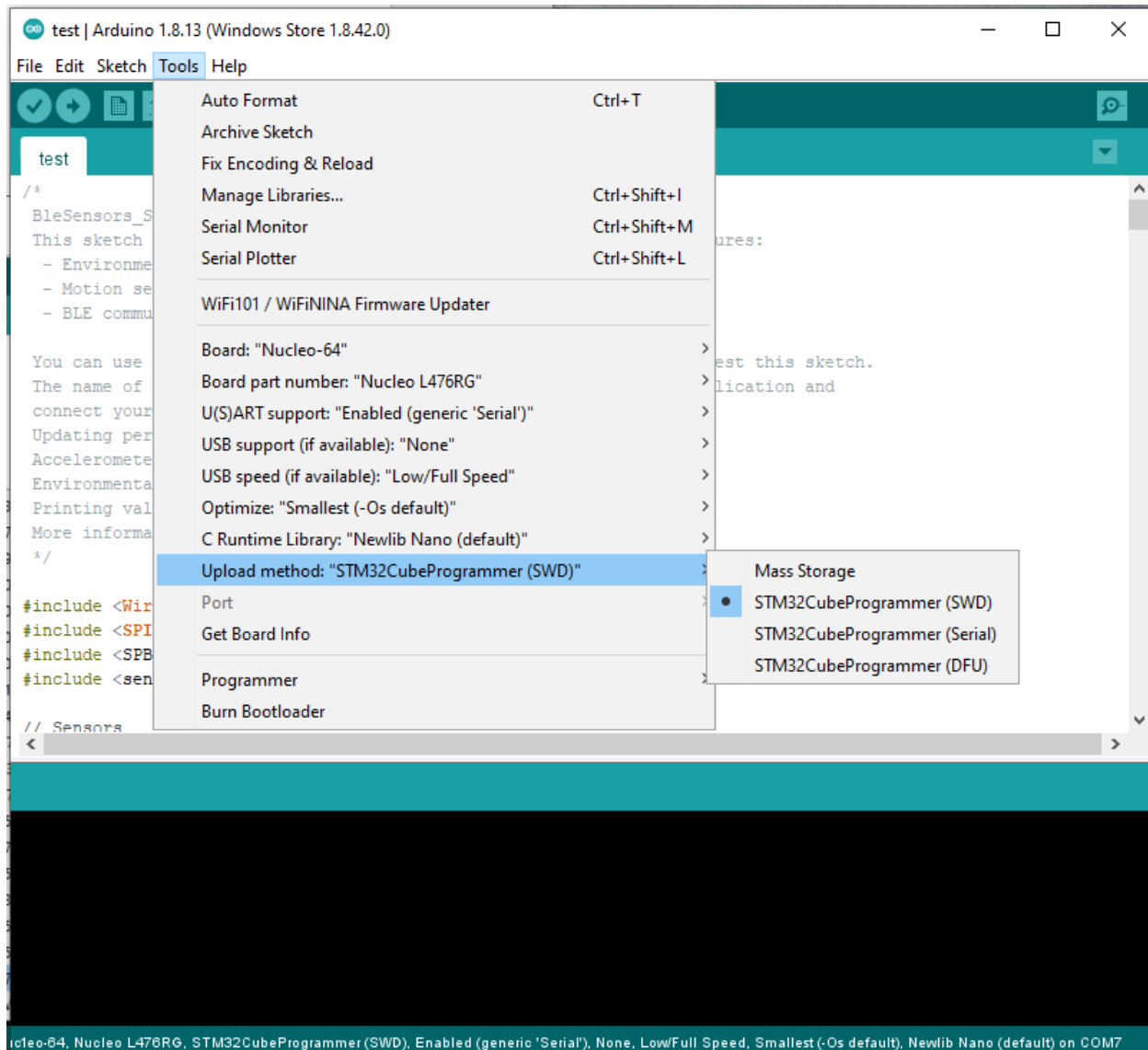


- Now select again: **Tools > Board part number** and choose the **NUCLEO L476RG**



7. Now select again: **Tools**
and choose the next:

- U(S)ART support: "Enable (generic 'Serial')"
- USB support (if available): "None"
- USB speed (if available): "Low/Full Speed"
- Optimize: "Smallest (-Os default)"
- C Runtime Library: "Newlib Nano (default)"
- Upload method: "STM32CubeProgrammer (SWD)"

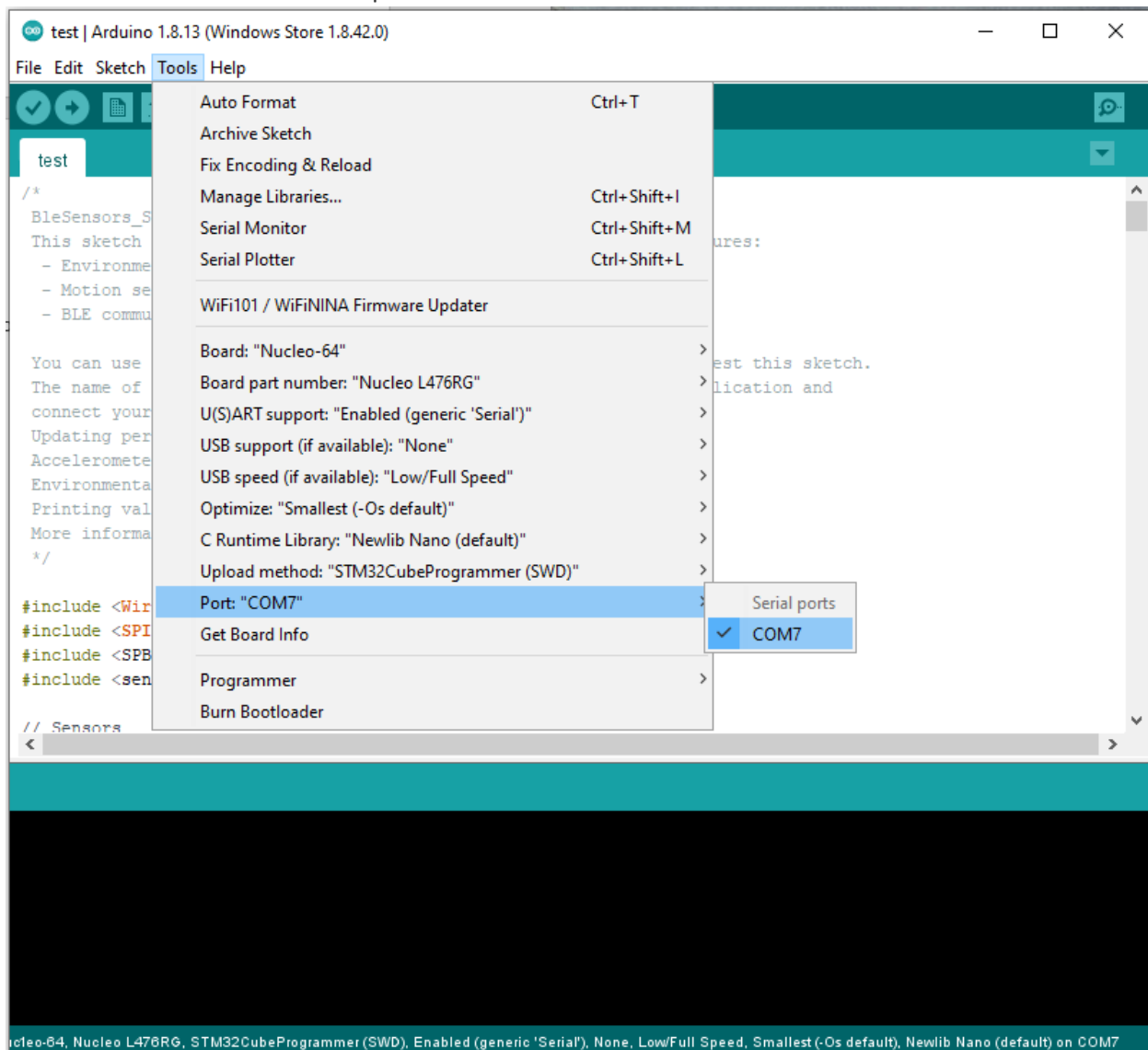


8. Now connect **SED-PRO** with **SensiBLE** to computer via USB,



select **Tools > Board part number**

and choose the available port:

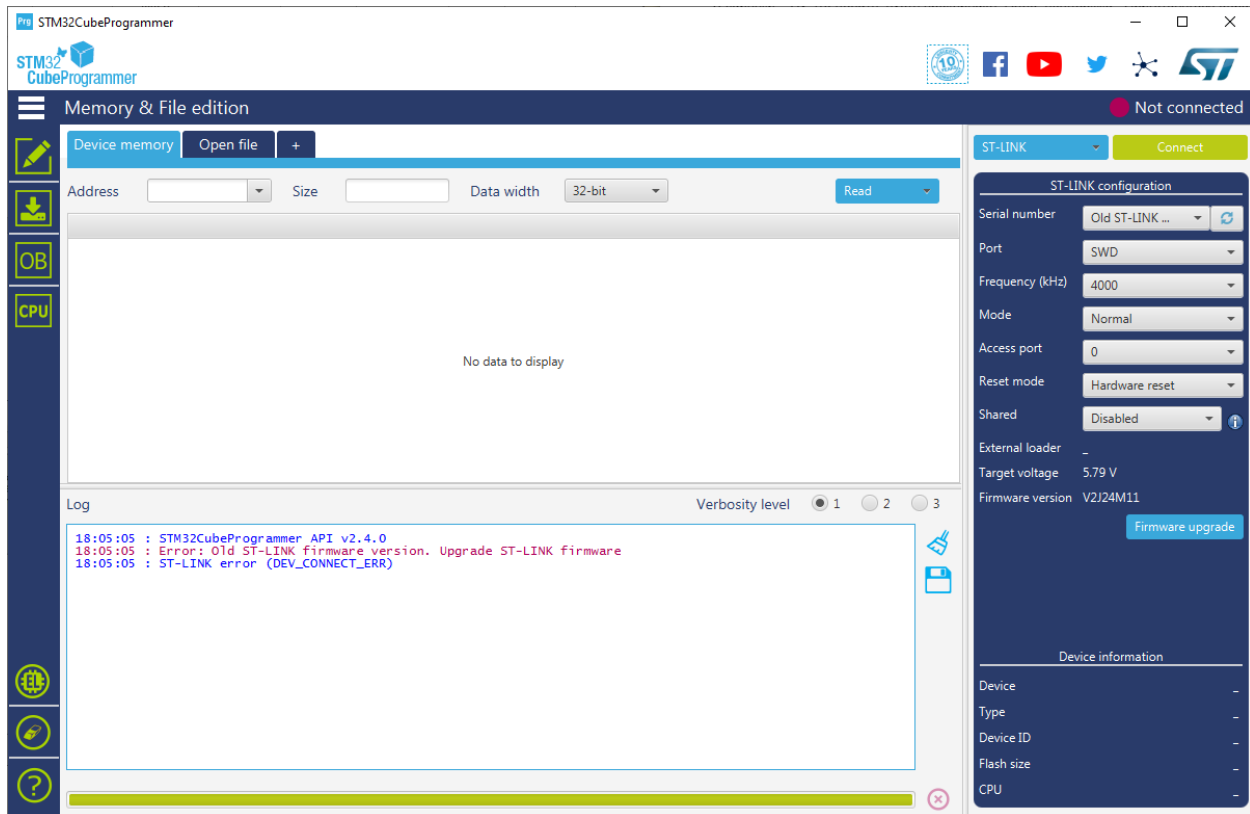


9. Download and install the [STM32CubeProgrammer](#)

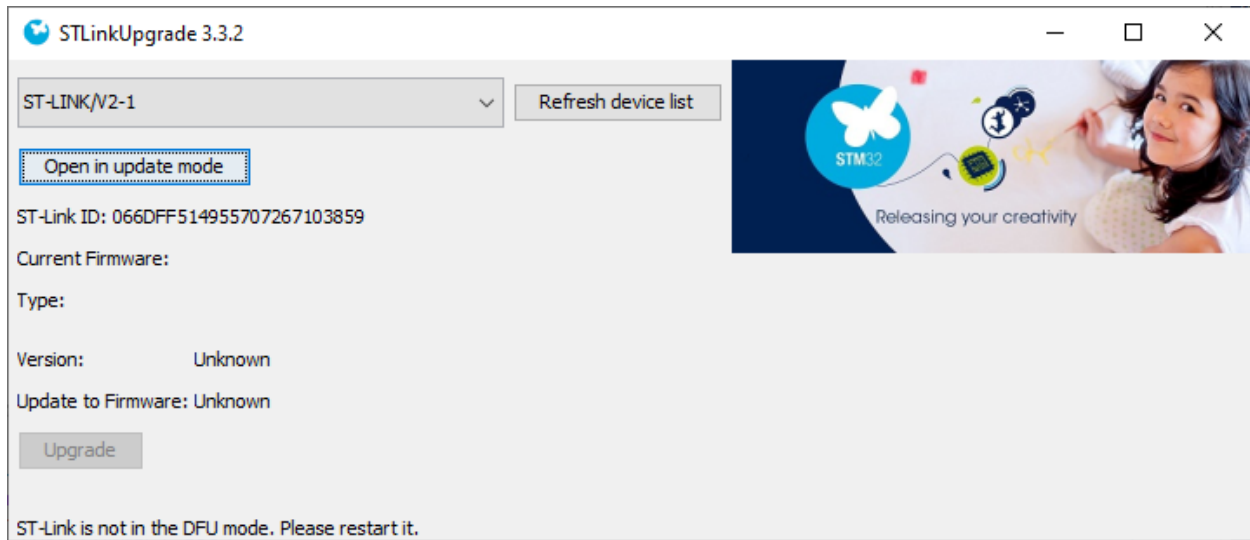
Get Software

	Part Number	Download	Previous versions
+	STM32CubePrg-Lin	Get Software	Select version ▾
+	STM32CubePrg-Mac	Get Software	Select version ▾
+	STM32CubePrg-W32	Get Software	Select version ▾
+	STM32CubePrg-W64	Get Software	Select version ▾

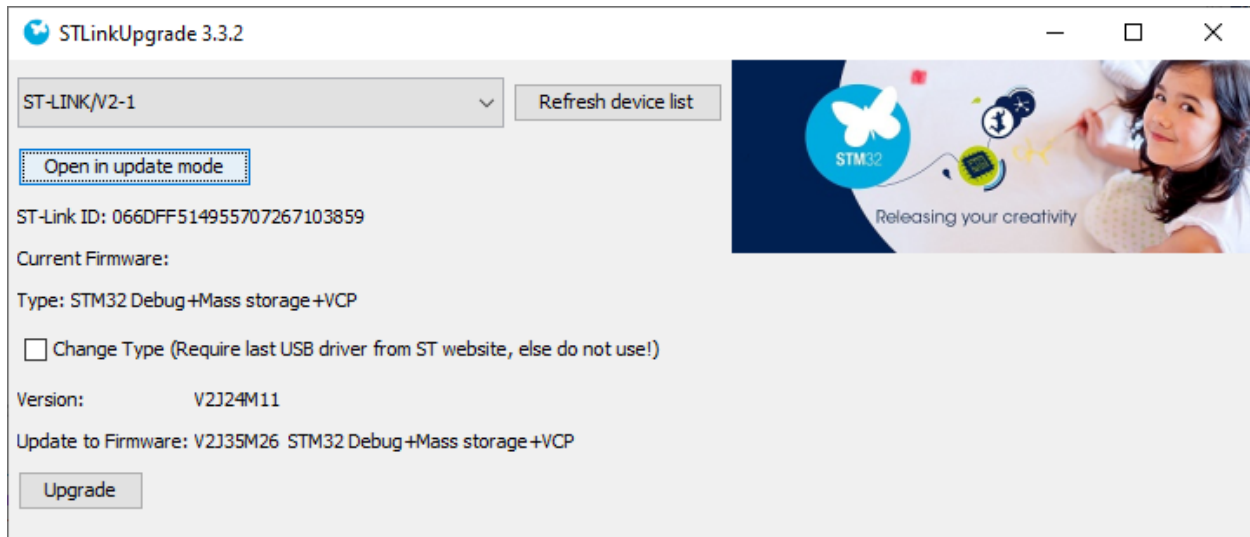
- Run the [STM32CubeProgrammer](#) and select “Firmware upgrade” if available Serial number: “Old ST-LINK...”



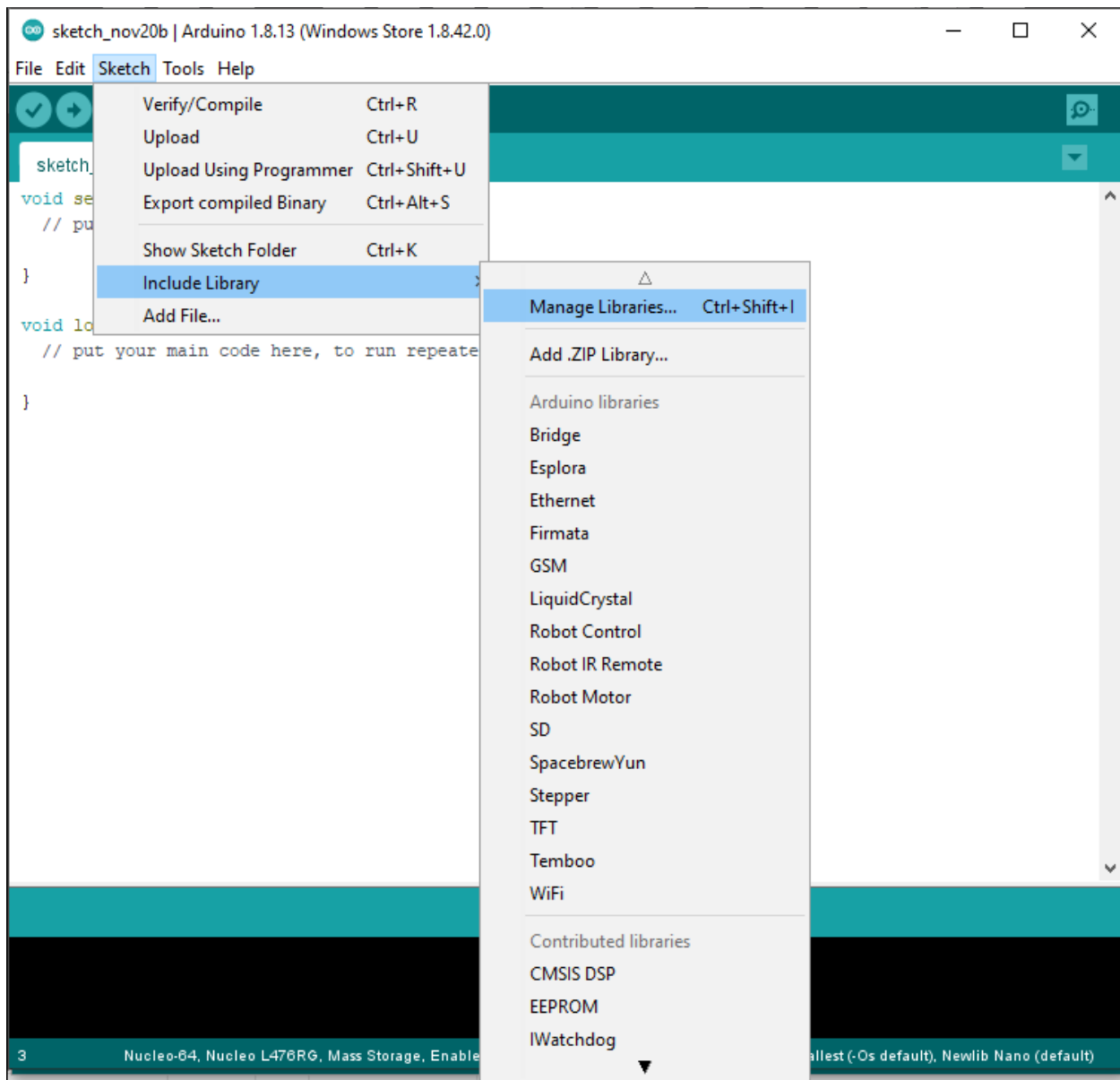
11. Press **Open in update mode**. If need, press twice.



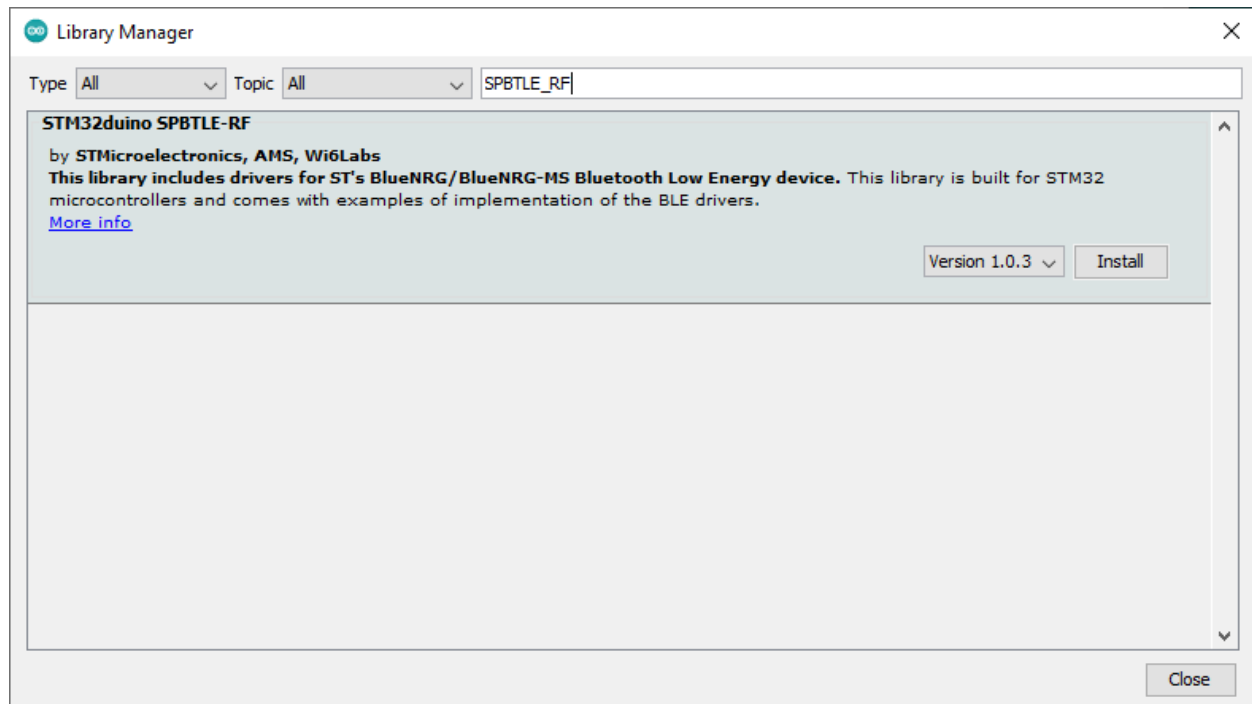
12. Press **Upgrade** and close all STMCubeProgrammer windows after correct upgrade.



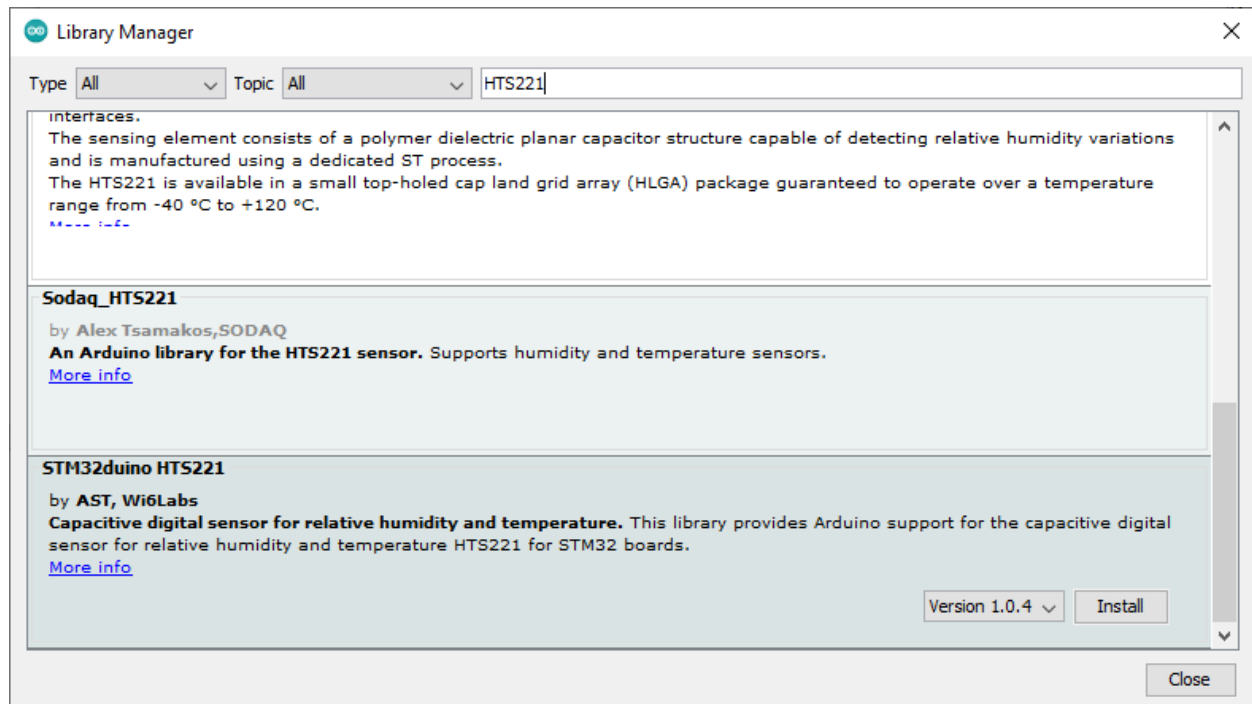
13. Now select again: **Sketch > Include Library** and choose the **Manage Libraries...**



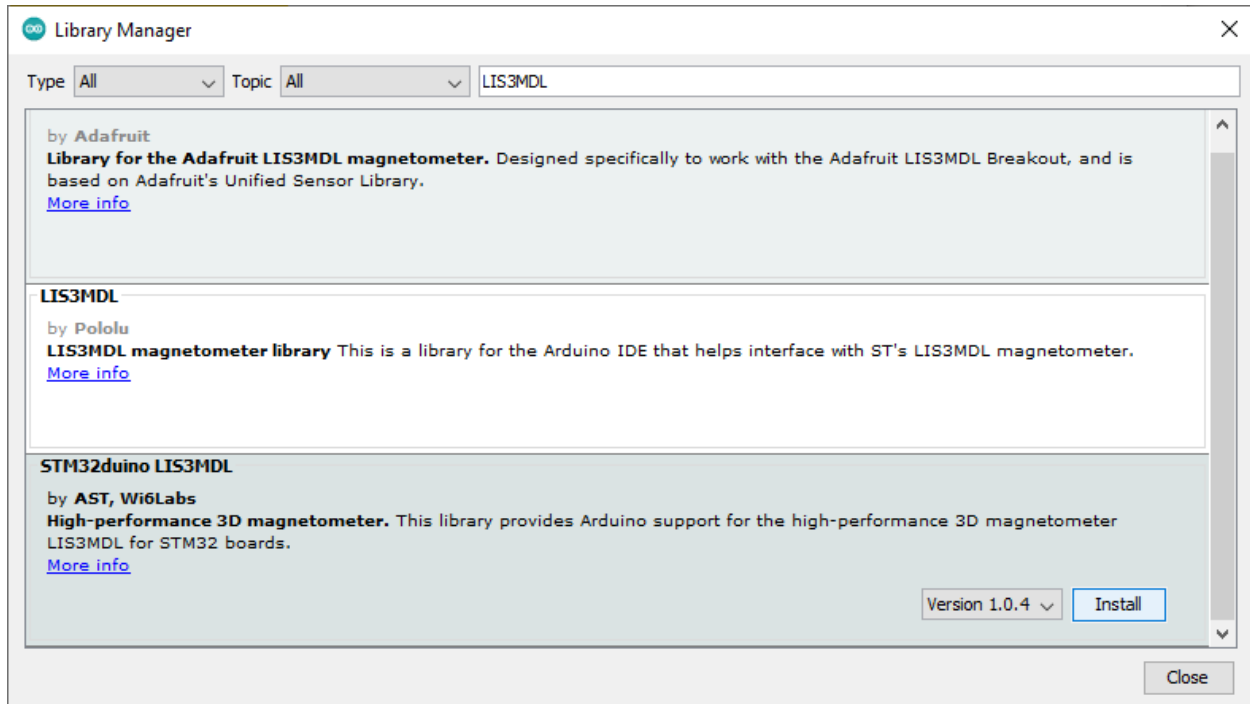
- Next in the box type: **SPBTLE_RF**
and install next library.
See below



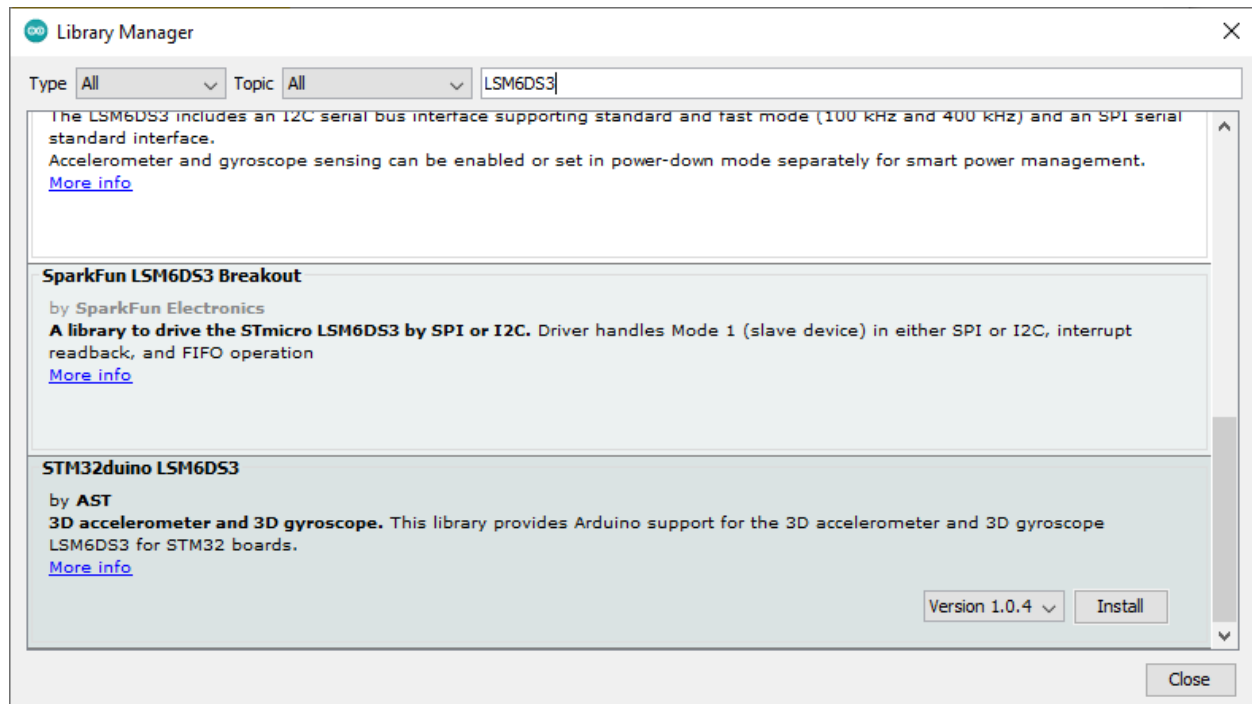
15. Repeat #13 and next in the box type: **HTS221**
and install next library **STM32duino HTS221**.
See below



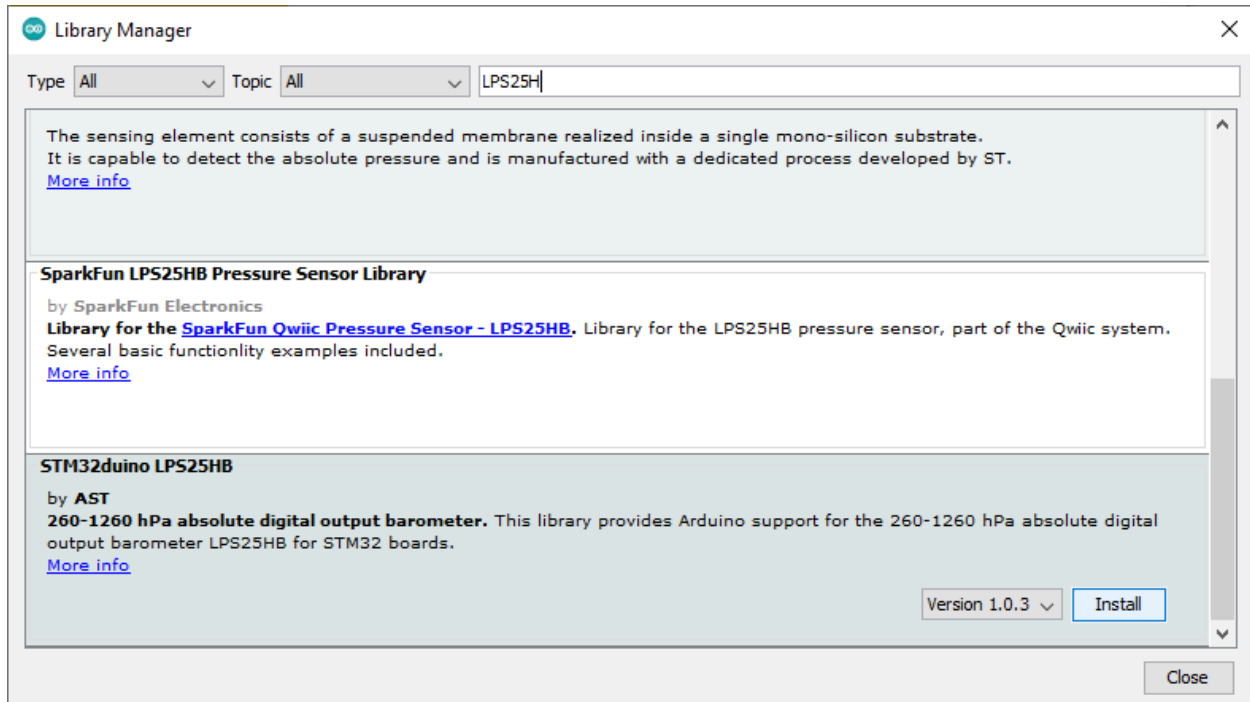
16. Repeat #13 and next in the box type: **LIS3MDL**
and install next library **STM32duino LIS3MDL**.
See below



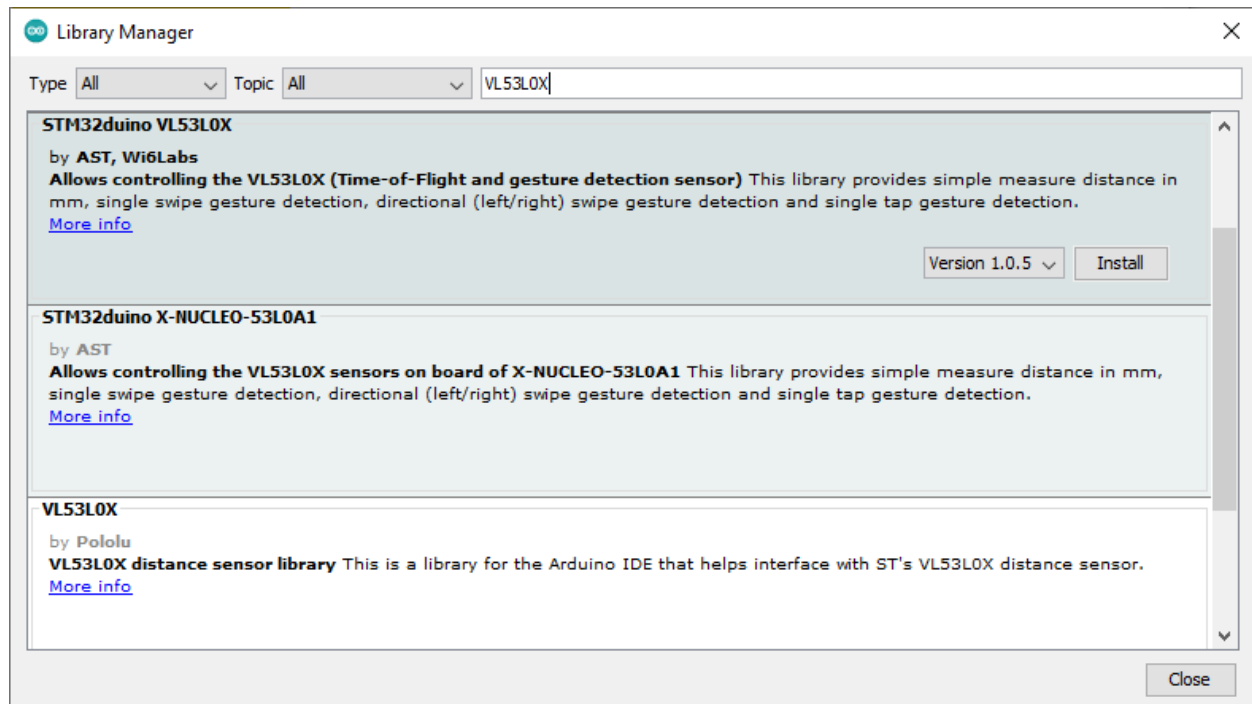
- Repeat #13 and next in the box type: **LSM6DS3**
and install next library **STM32duino LSM6DS3**.
See below



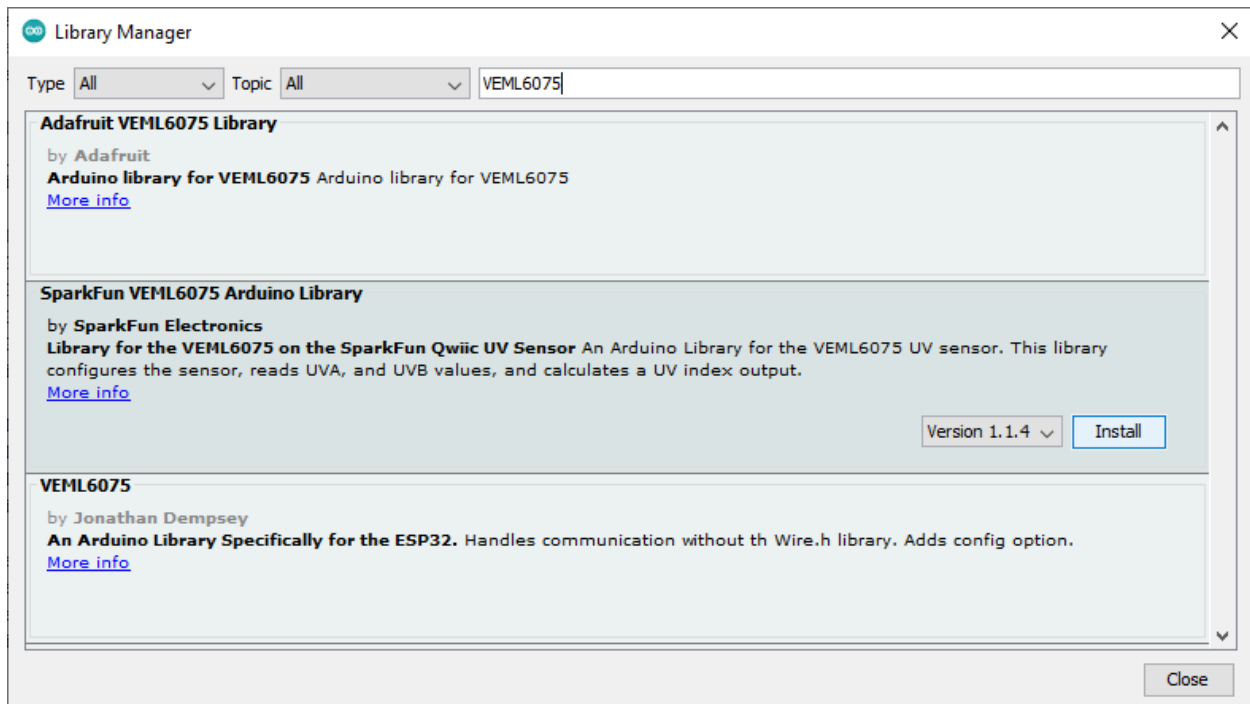
18. Repeat #13 and next in the box type: **LPS25HB**
and install next library **STM32duino LPS25HB**.
See below



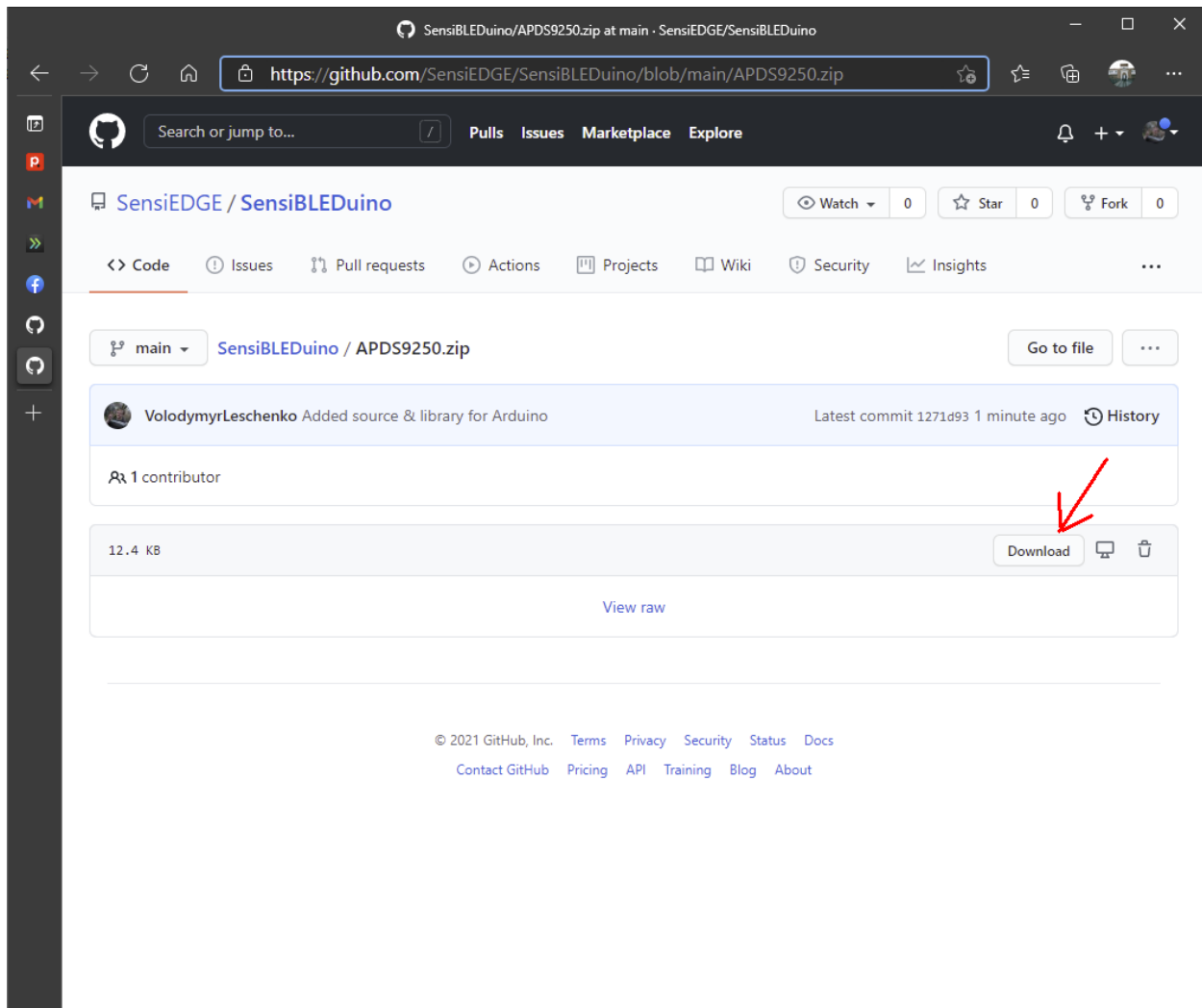
19. Repeat #13 and next in the box type: **VL53L0X**
and install next library **STM32duino VL53L0X**.
See below



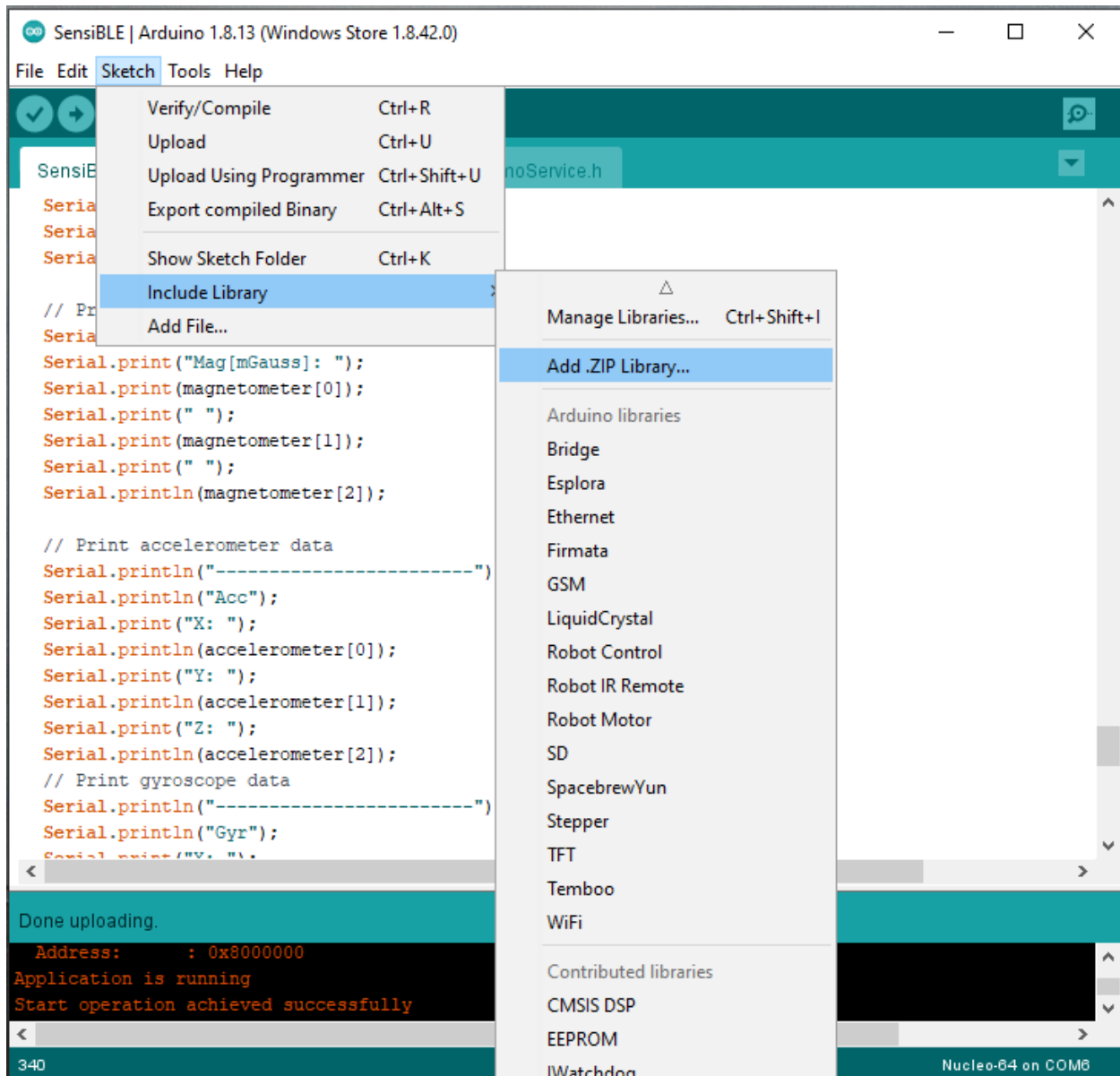
20. Repeat #13 and next in the box type: **VEML6075**
and install next library **SparkFun VEML6075 Arduino Library**.
See below



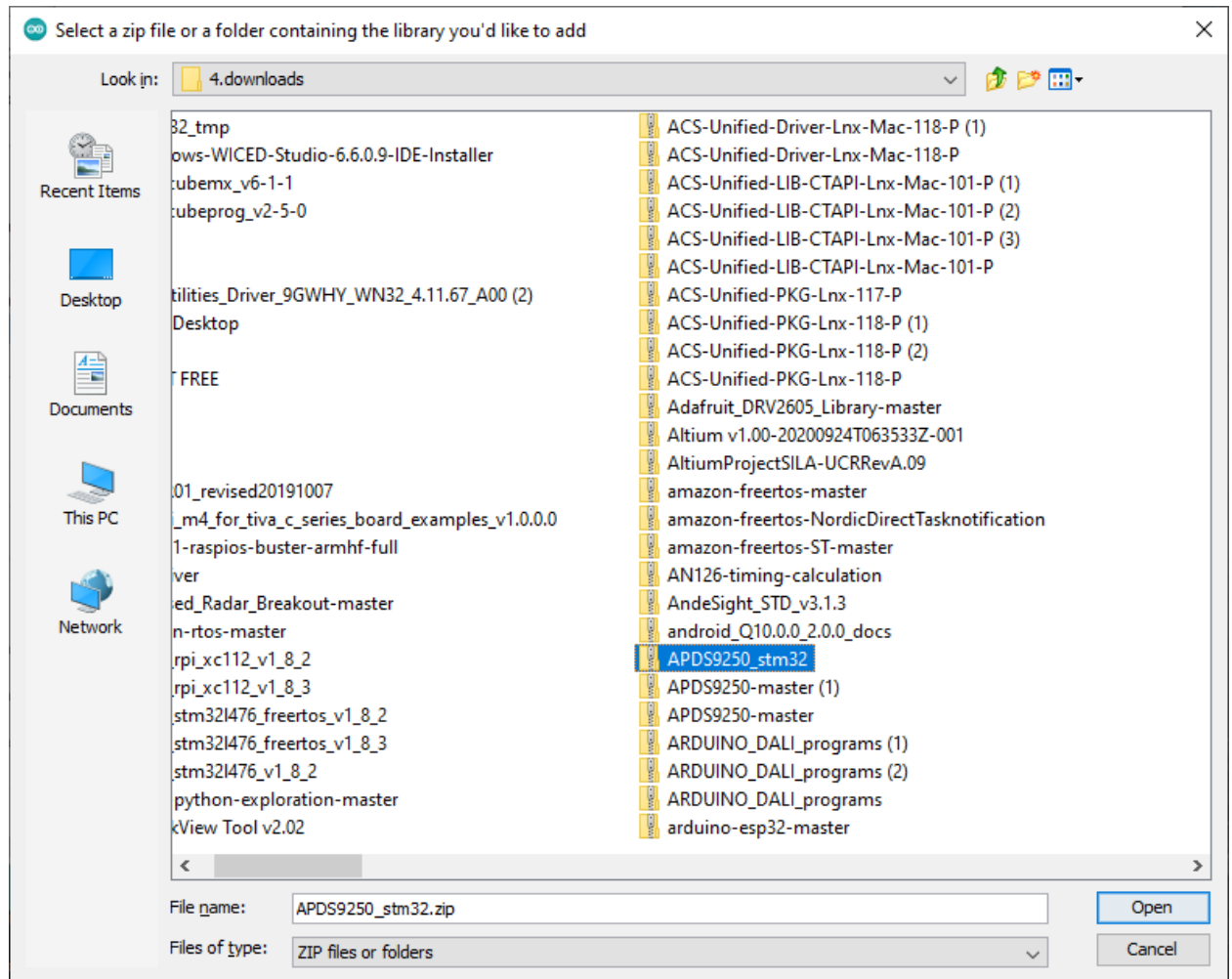
21. Download from <https://github.com/SensiEDGE/SensiBLEduino/blob/main/APDS9250.zip> library for APDS9250.



22. Install APDS9250 Library into Arduino IDE. Select again: **Sketch** > **Include Library** and choose the **Add .ZIP Library...**



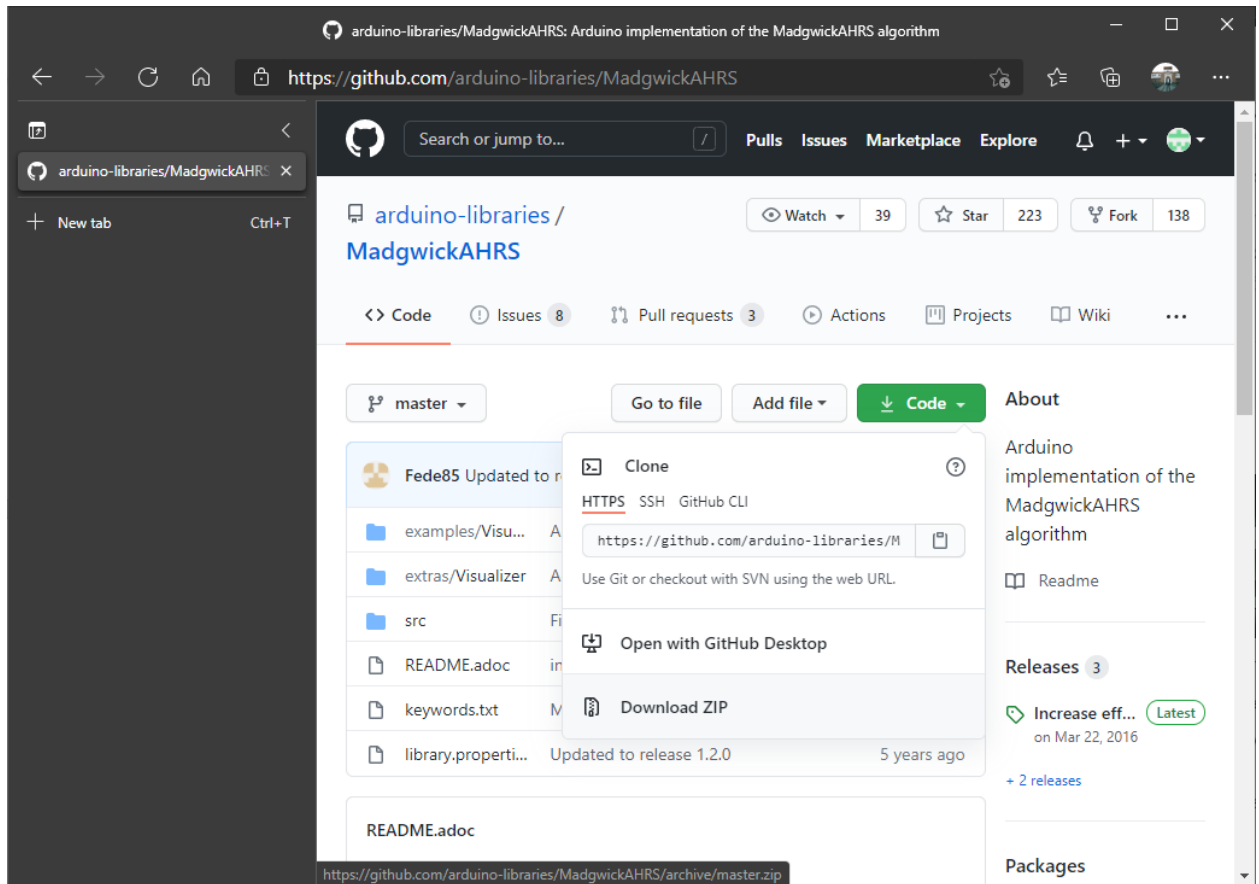
23. Select file **APDS9250.zip** and choose the **Open**



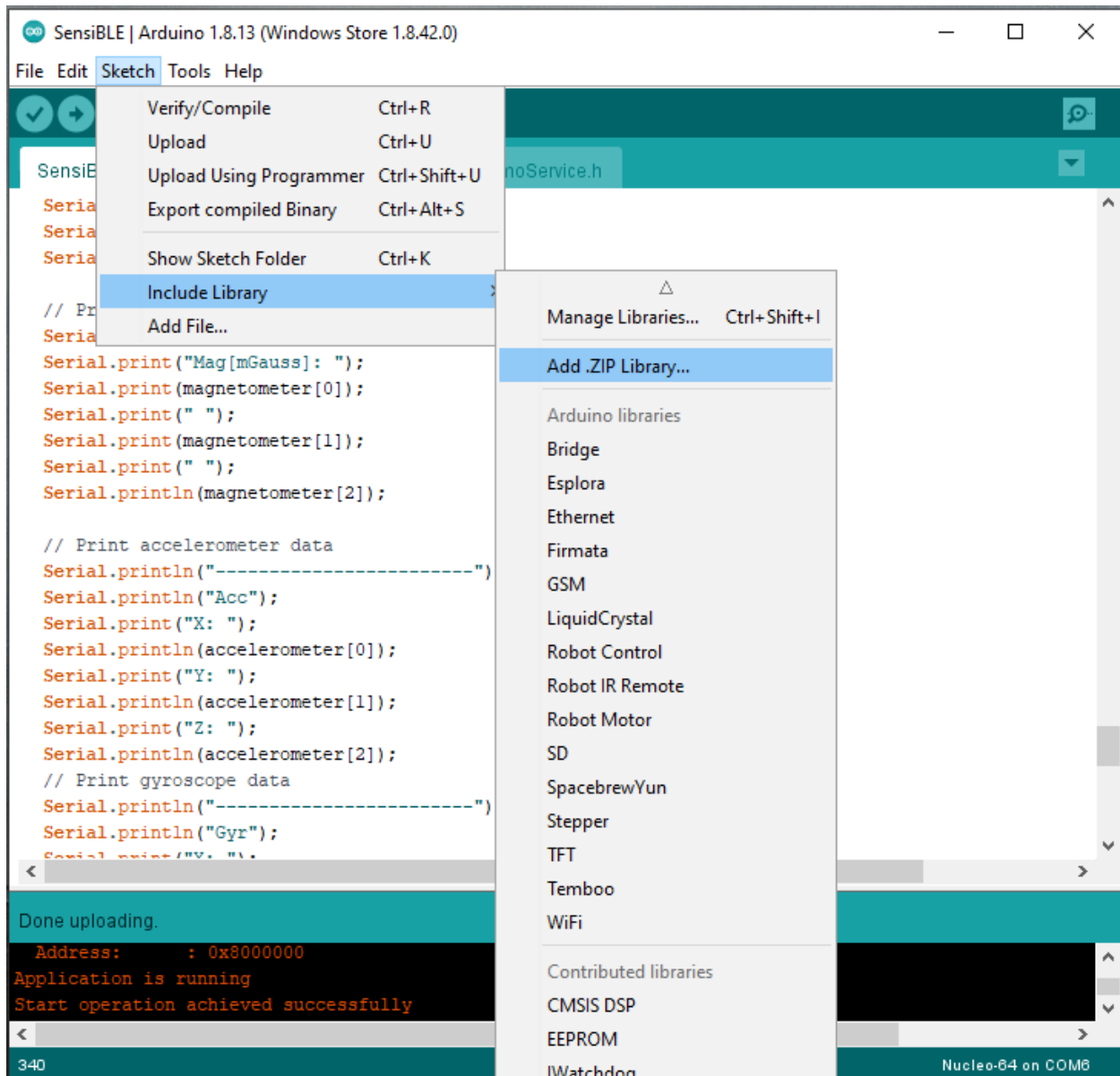
24. Download from <https://github.com/arduino-libraries/MadgwickAHRS> library for MadgwickAHRS algorithm.

Select **Code** and **Download ZIP**

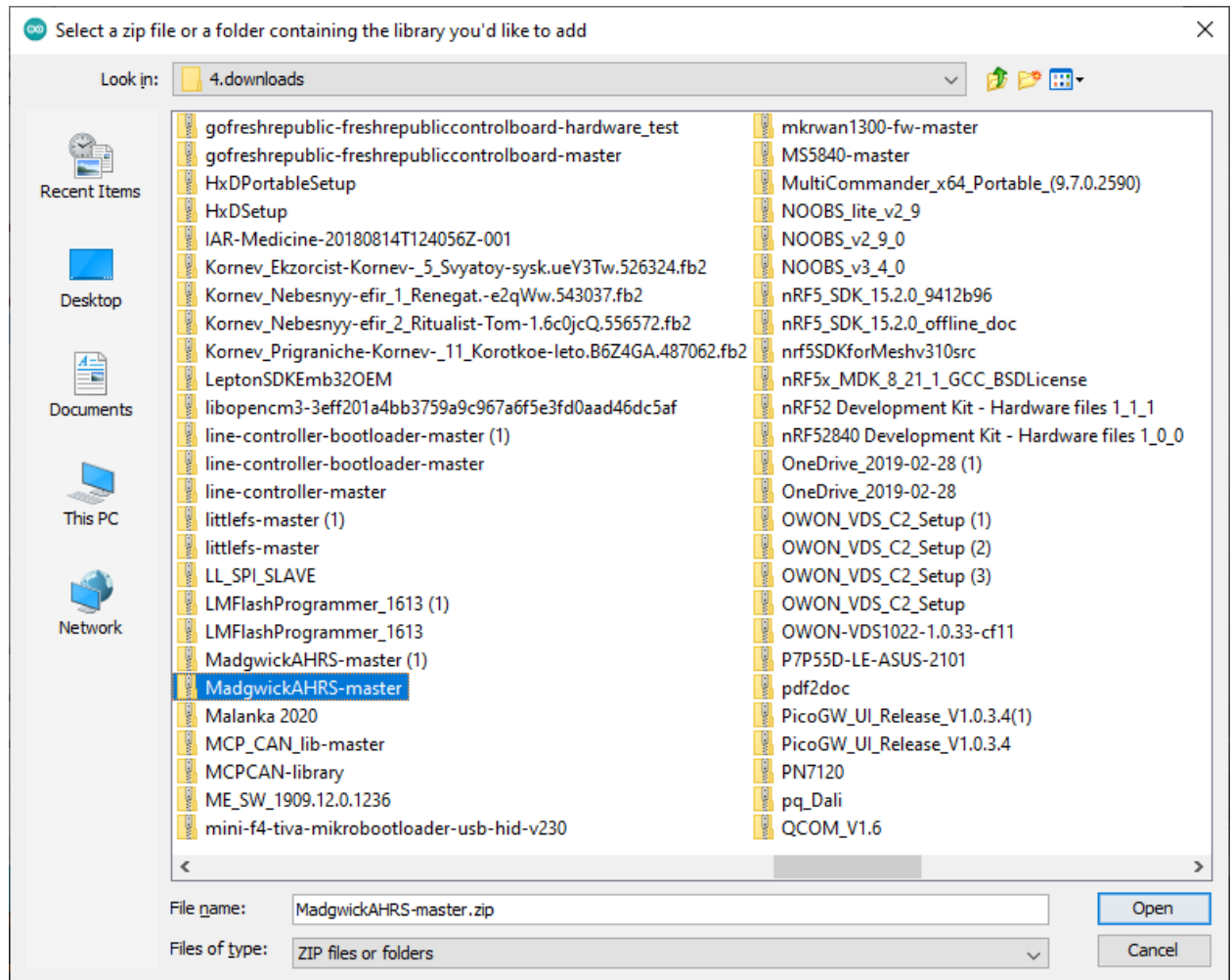
See below



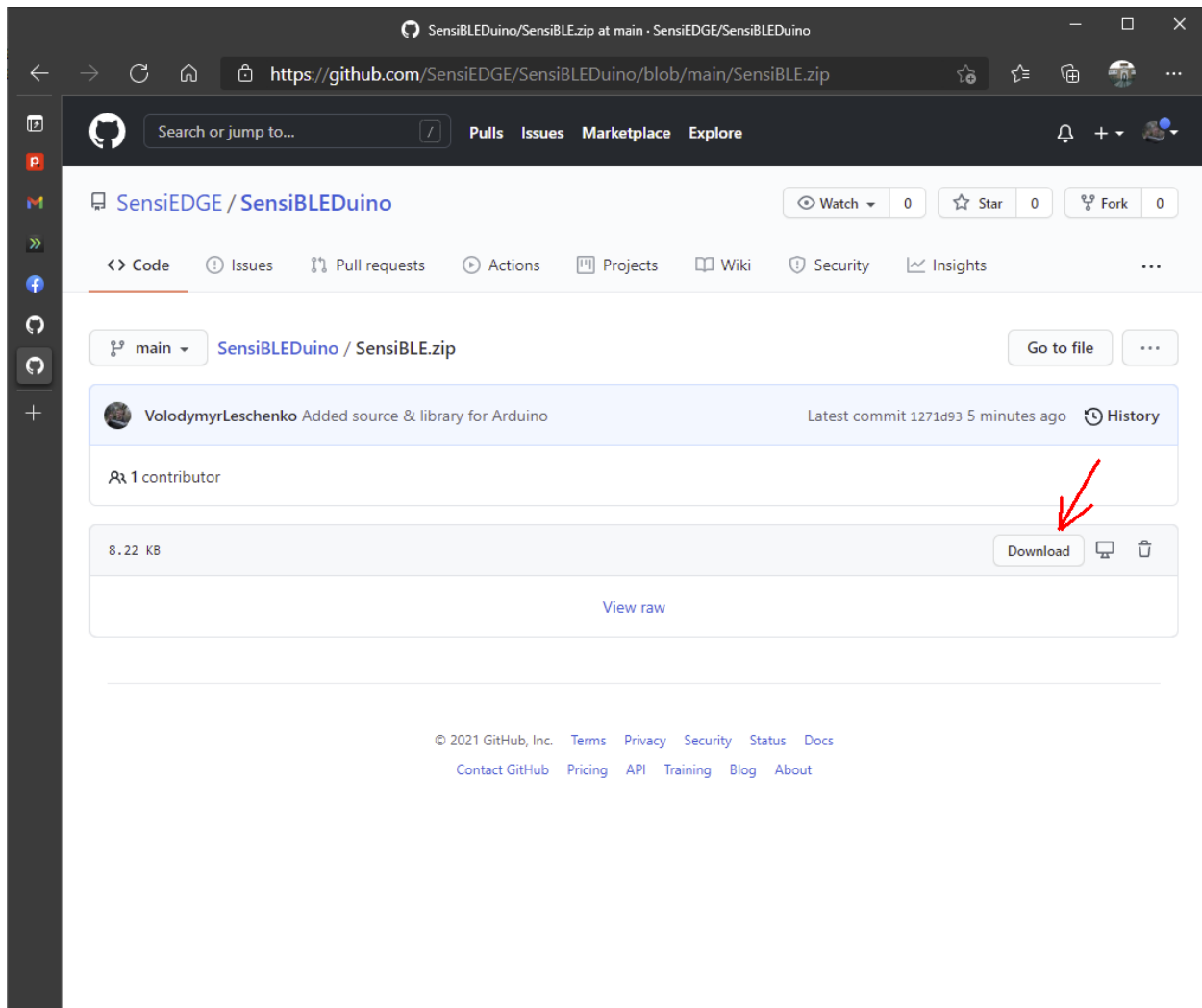
25. Install Madgwick Library into Arduino IDE. Select again: **Sketch > Include Library** and choose the **Add .ZIP Library...**



26. Select file **MadgwickAHRS-master.zip** and choose the **Open**



27. Download SensiBLE.zip from <https://github.com/SensiEDGE/SensiBLEduino/blob/main/SensiBLE.zip>, unpack to your work directory and to open SensiBLE.ino.



Press Upload button and open into your smartphone application “ST BLE Sensor”. Enjoy!

