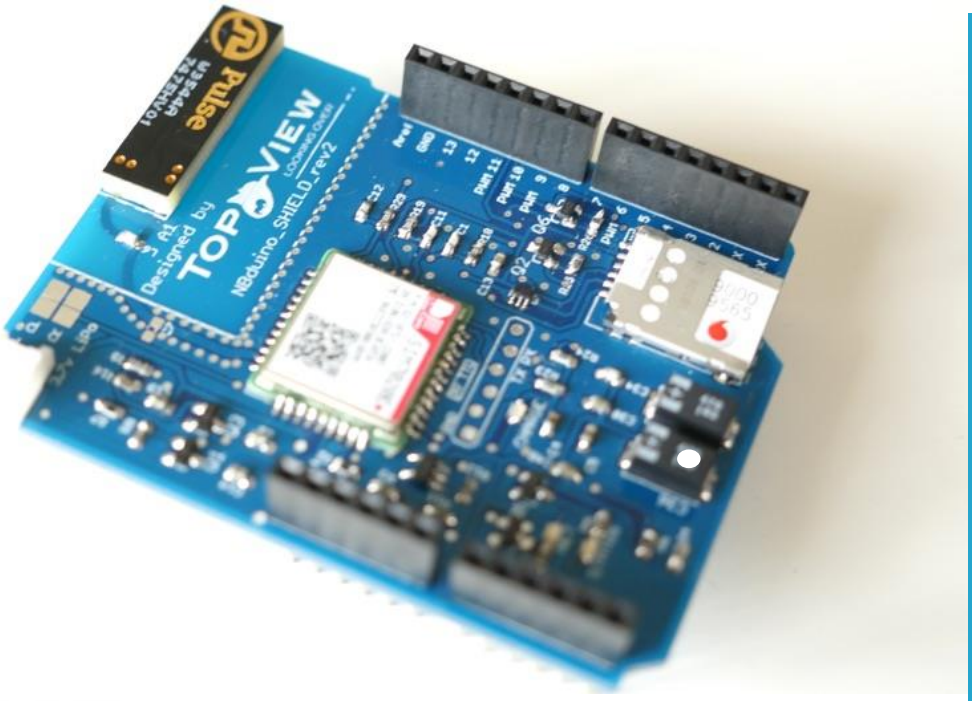

NBDUINO

NARROWBAND IOT SHIELD ARDUINO COMPLIANT

PLUG AND PLAY

DUAL POWER

LOW CONSUMPTION

LONG RANGE

CLOUD STORAGE

MQTT READY

EMBEDDED ANTENNA

NBduino is a new shield aiming to transfer data through the NB-IoT public network.

The board can work as an Arduino shield or as a standalone serial interface for general computing.

Arduino libraries and sample codes are available at this link, to help developing fastly your application and to transfer and view your data directly on the Cloud.

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www.topview.it

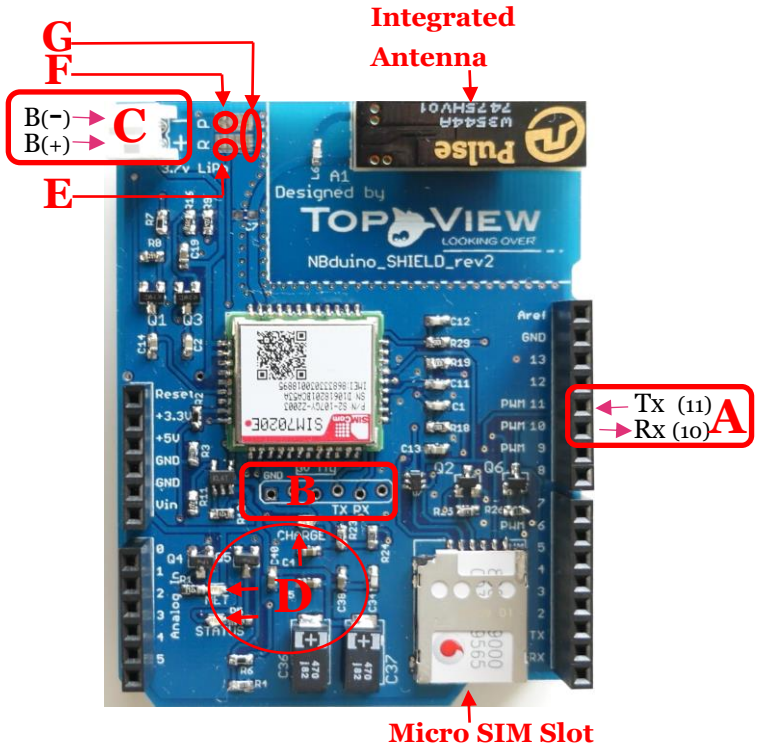
Ref. Mr. Mariano Iadaresta

TOPVIEW
LOOKING OVER

NBduino

NARROWBAND IOT SHIELD ARDUINO COMPLIANT

SHIELD PINOUT DIAGRAM

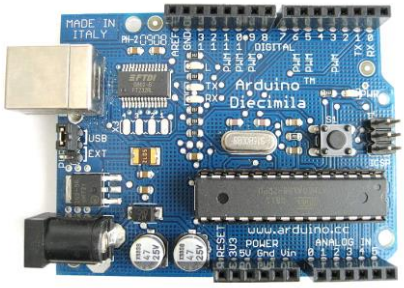


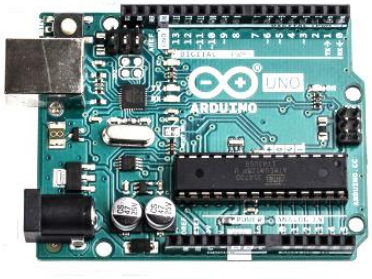
A. D10 and D11 are used, by Arduino library (github….), for RX/TX function;
B. Serial Port for standalone applications, even without Arduino CPU;
C. Battery Connection (LiPo 3,7V) for standalone applications (also used as Arduino supply);
D. Monitoring leds:
    a. NETWORK (fast blink = wait to connect, slow blink = connected);
    b. STATUS (fixed = module ON);
    c. CHARGE (ON = LiPo charging, OFF = LiPo charged)
E. Reset PAD **"R"** (resets the module if shorted to ground pad G)
F. PowerKey PAD **"P"** (wakes up the module if shorted to ground G in standalone applications)
G. Ground PADS

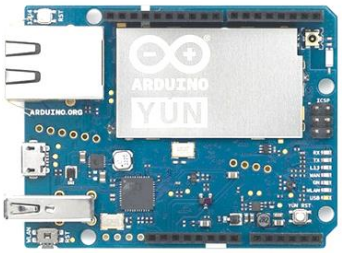
PLUG & PLAY

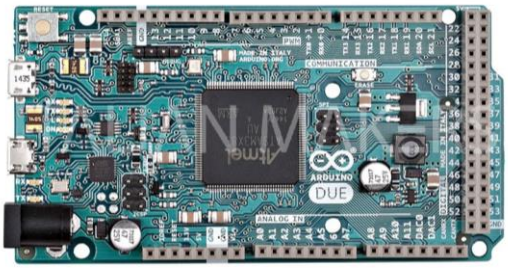
You can plug this SHIELD on the following Arduino boards:

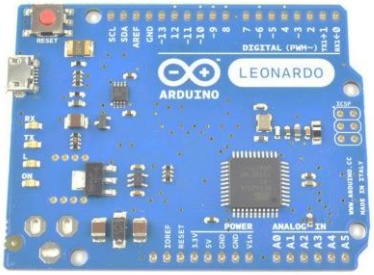
- **Diecimila, Due, Duemilanove, Uno, Leonardo, Mega2560, Yun**

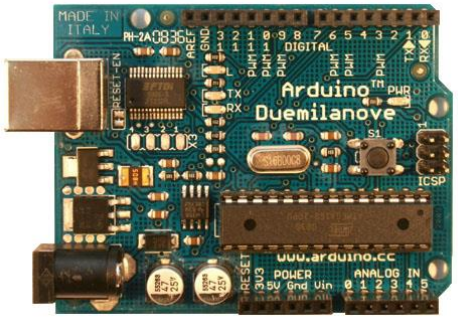


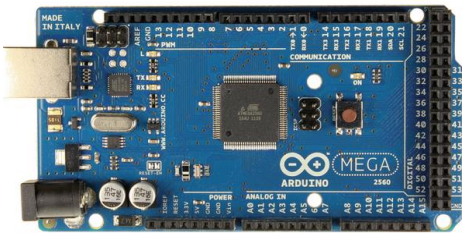












POWER MODES

WARNING!!! Don't use Arduino with 12V power supply

1. – USB power supply

Plug the SHIELD on the Arduino Board, connect USB cable and run the sketch

2. - STANDALONE power supply with Arduino (LiPo 3,7V plugged on "C")

Plug the SHIELD on the Arduino Board, connect 3.7V LiPo battery by "C" connector with respect to shown polarities, and run the sketch

(https://github.com/TopViewsrl/NBduinoShield)

3. – STANDALONE power supply without Arduino

Connect 3.7V LiPo battery, wake-up the SHIELD shorting **"P"** pad

and GND pad together for 500 ms (also used to sleep

the SHIELD). and run the sketch
(https://github.com/TopViewsrl/NBduinoShield)

You can directly control the module by a FTDI cable on "B" connector through your personal computer.

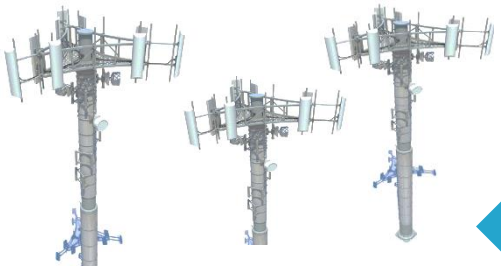
LOW POWER

The Narrow Band Communication chip on board is the "SIM7020E" by SIMCOM, characterized by an ultra low power consumption (5 µA in "Power Save Mode").

You can find every specification about SIMCOM product inside "SIM7020 Hardware Design_V1.00" and "SIM7020 Series MQTT Application Note".

LONG RANGE

The main characteristic of the new Communication Infrastrucuture NB-IoT is to reduce the available bandwidth to a few KB/s despite a consistent increase of Q-Factor, which enables to connect nodes up to 7 km., by using a reduced amount of energy.



7 Km

cellular LTE Towers

CLOUD

User application

NB-IOT

NB-IOT Test page

Payload: **Topic: 868333030018895/H%**
Payload: 48

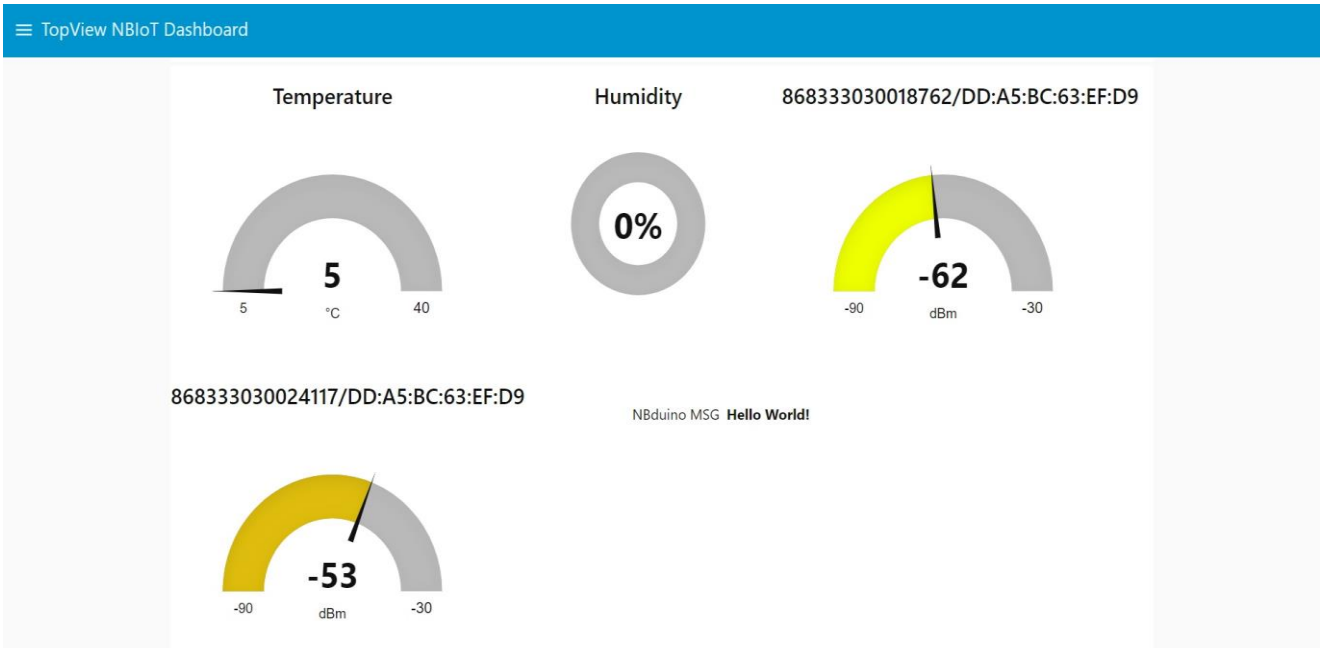
Index	Timestamp	Topic	Value
0	2018-11-08T17:35:26.000Z	868333030018895/T_2	
1	2018-11-08T17:35:23.000Z	868333030018895/T	22
2	2018-11-08T17:35:23.000Z	868333030018895/H_2%	
3	2018-11-08T17:35:22.000Z	868333030018895/H%	48
4	2018-11-08T17:35:04.000Z	868333030018895/T_2	
5	2018-11-08T17:35:03.000Z	868333030018895/T	22
6	2018-11-08T17:35:00.000Z	868333030018895/H_2%	
7	2018-11-08T17:35:00.000Z	868333030018895/H%	48
8	2018-11-08T17:34:42.000Z	868333030018895/T_2	
9	2018-11-08T17:34:42.000Z	868333030018895/T	22
10	2018-11-08T17:34:38.000Z	868333030018895/H_2%	
11	2018-11-08T17:34:38.000Z	868333030018895/H%	48
12	2018-11-08T17:33:36.000Z	868333030018895/T_2	
13	2018-11-08T17:33:35.000Z	868333030018895/T	22

Cloud Storage powered by

TOPVIEW LOOKING OVER

CLOUD and APIs

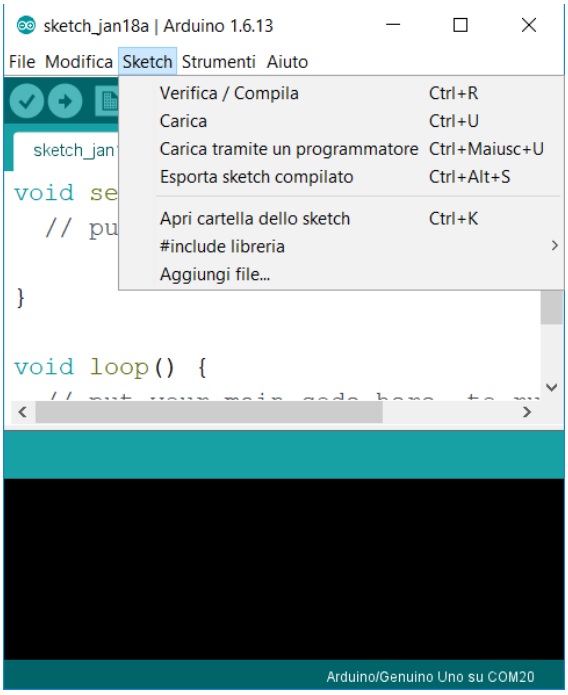
TopView provides APIs and Cloud service to store, manage and monitor your own data.



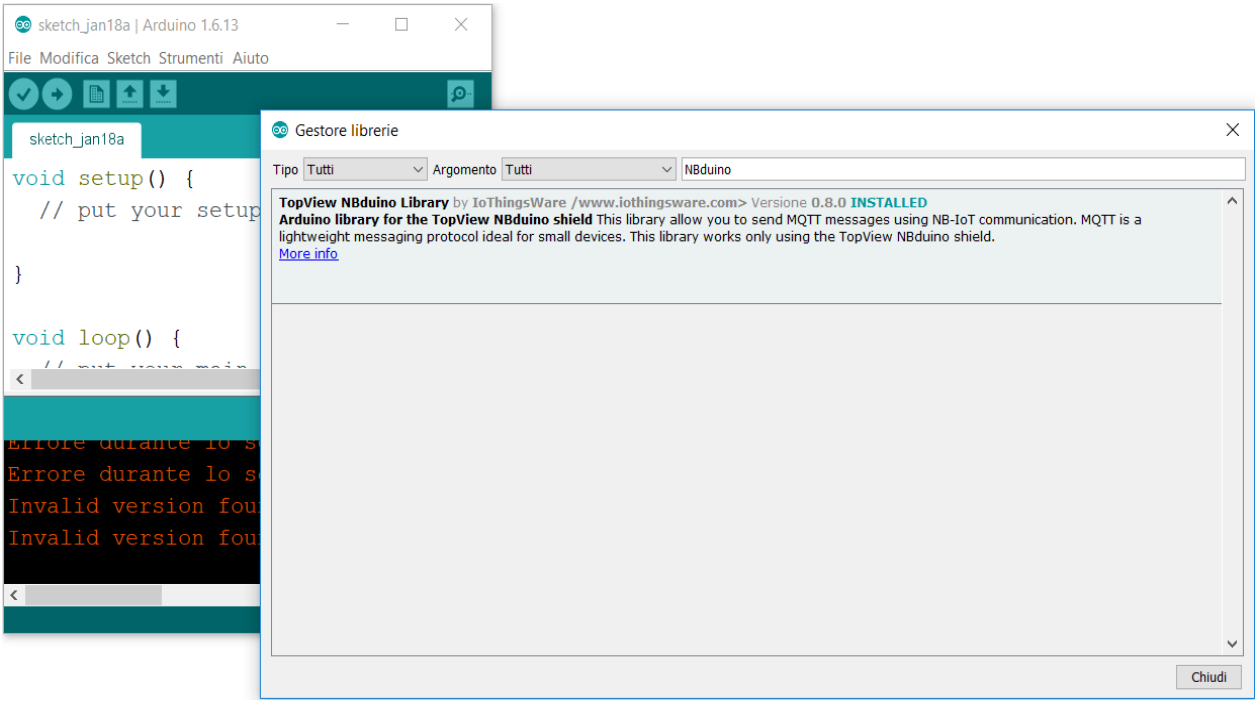
Reference

https://github.com/TopViewsrl/NBduinoShield

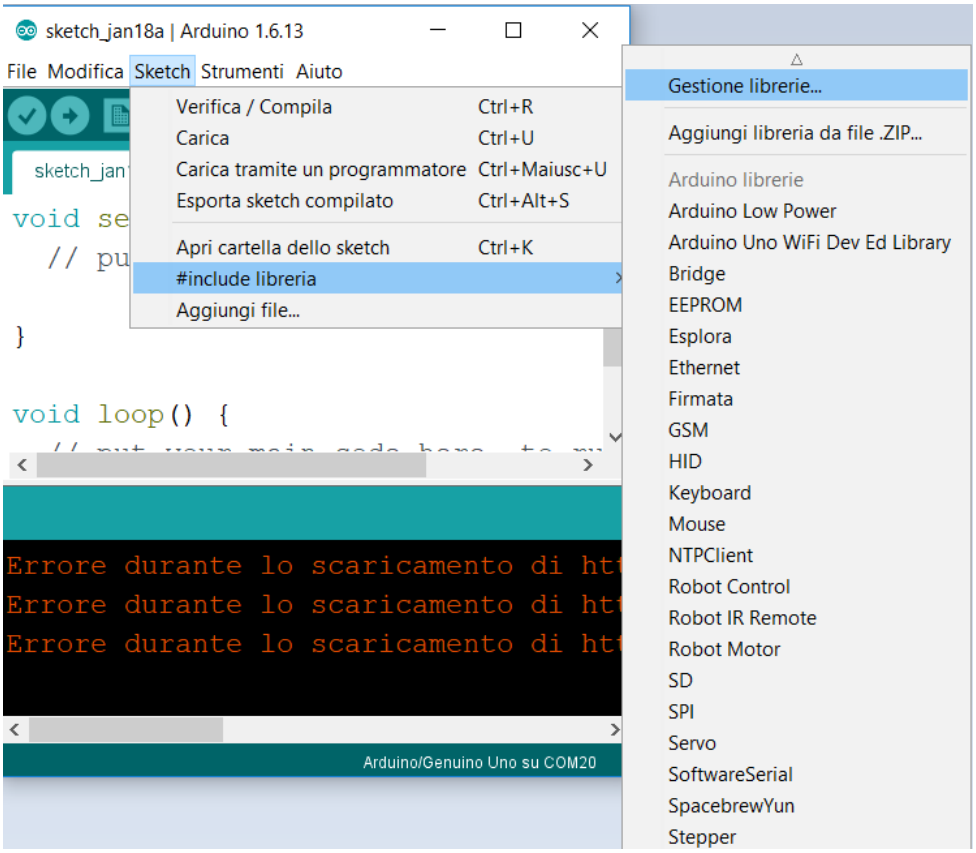
1.



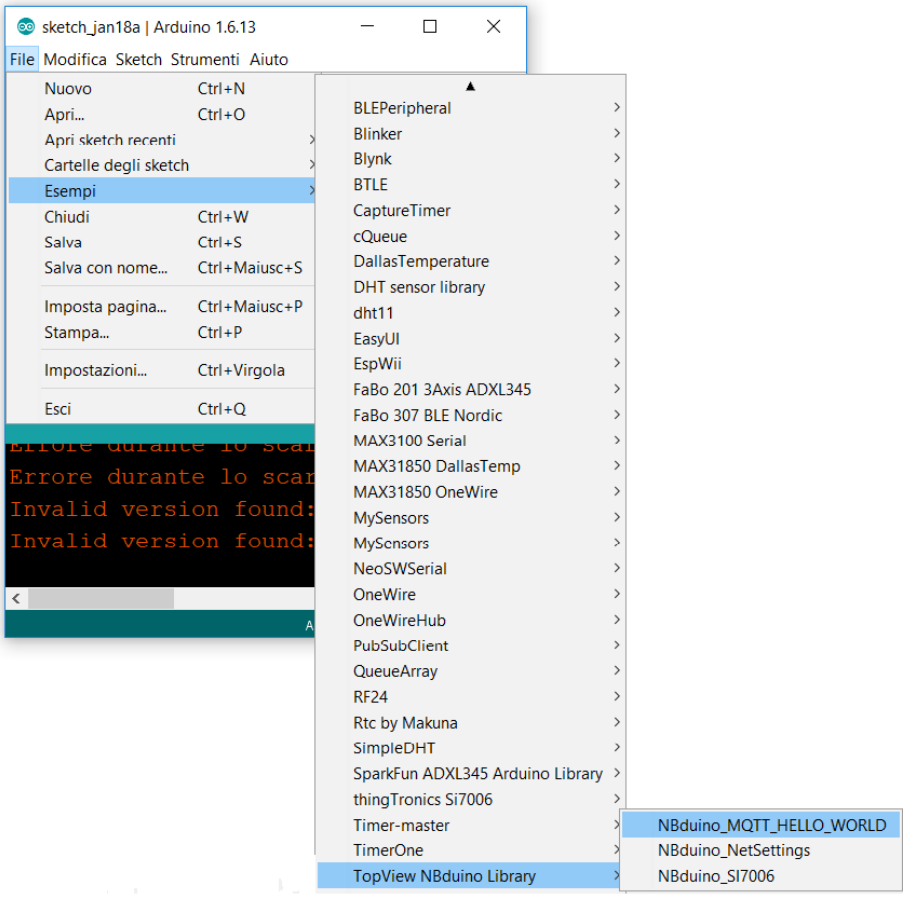
2.


sketch_jan18a | Arduino 1.6.13
File Modifica Sketch Strumenti Aiuto
sketch_jan18a
void setup() {
// put your setup
}
void loop() {
Errore durante lo s
Errore durante lo s
Invalid version fou
Invalid version fou
Gestore librerie
Tipo Tutti
Argomento Tutti
NBduino
TopView NBduino Library by IoThingsWare /www.iothingsware.com> Versione 0.8.0 INSTALLED
Arduino library for the TopView NBduino shield This library allow you to send MQTT messages using NB-IoT communication. MQTT is a lightweight messaging protocol ideal for small devices. This library works only using the TopView NBduino shield.
More info
Chiudi

3.


sketch_jan18a | Arduino 1.6.13
File Modifica Sketch Strumenti Aiuto
Verifica / Compila Ctrl+R
Carica Ctrl+U
Carica tramite un programmatore Ctrl+Maiusc+U
Esporta sketch compilato Ctrl+Alt+S
Apri cartella dello sketch Ctrl+K
#include libreria
Aggiungi file...
Gestione librerie...
Aggiungi libreria da file .ZIP...
Arduino librerie
Arduino Low Power
Arduino Uno WiFi Dev Ed Library
Bridge
EEPROM
Esplora
Ethernet
Firmata
GSM
HID
Keyboard
Mouse
NTPClient
Robot Control
Robot IR Remote
Robot Motor
SD
SPI
Servo
SoftwareSerial
SpacebrewYun
Stepper
void loop() {
Errore durante lo scaricamento di ht
Errore durante lo scaricamento di ht
Errore durante lo scaricamento di ht
Arduino/Genuino Uno su COM20

4.


sketch_jan18a | Arduino 1.6.13
File Modifica Sketch Strumenti Aiuto
Nuovo Ctrl+N
Apri... Ctrl+O
Apri sketch recenti
Cartelle degli sketch
Esempi
Chiudi Ctrl+W
Salva Ctrl+S
Salva con nome... Ctrl+Maiusc+S
Imposta pagina... Ctrl+Maiusc+P
Stampa... Ctrl+P
Impostazioni... Ctrl+Virgola
Esci Ctrl+Q
Errore durante lo scar
Invalid version found:
Invalid version found:
BLEPeripheral
Blinker
Blynk
BTLE
CaptureTimer
cQueue
DallasTemperature
DHT sensor library
dht11
EasyUI
EspWii
FaBo 201 3Axis ADXL345
FaBo 307 BLE Nordic
MAX3100 Serial
MAX31850 DallasTemp
MAX31850 OneWire
MySensors
MyScnsors
NeoSWSerial
OneWire
OneWireHub
PubSubClient
QueueArray
RF24
Rtc by Makuna
SimpleDHT
SparkFun ADXL345 Arduino Library
thingTronics Si7006
Timer-master
TimerOne
TopView NBduino Library
NBduino_MQTT_HELLO_WORLD
NBduino_NetSettings
NBduino_SI7006

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Codice SDI: M5UXCR1
Capitale sociale: 100.000 euro i.v.

NBduino

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