ESP8266

Moduli operanti a 3.3V che includono i SOC ESP8266 della cinese Espressi; Sono dotati di un discreto numero di pin a seconda della versione e, tutti dispongono dela connettività WiFi. Hanno ridottissime dimensioni e prezzo contenuto.

Il firmware di fabbrica permette di interfacciarsi tramite comandi AT su seriale, rendendolo un comodo **modem per Arduino**.

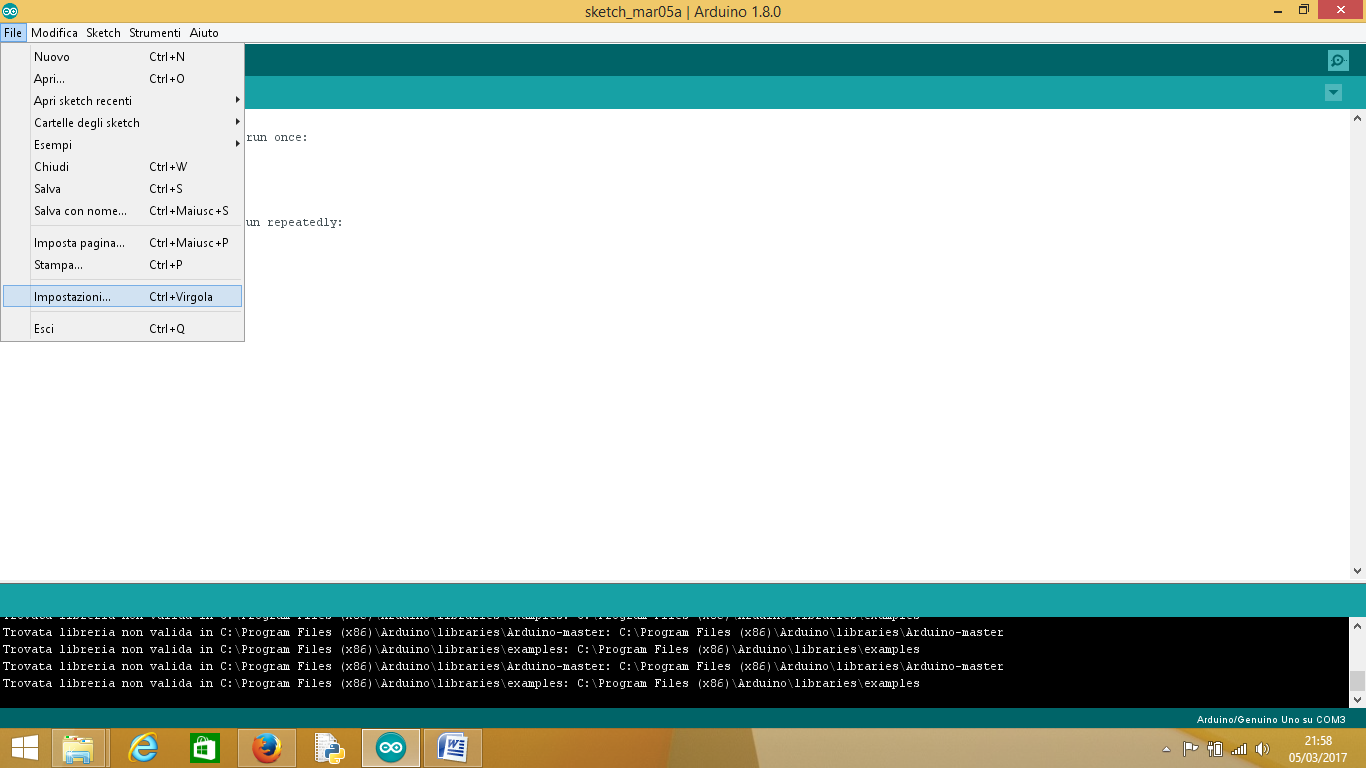
Si possono programmare anche tramite l’ide di Arduino. Per il collegamento alla seriale del pc si utilizza il modulo i cui collegamenti son illustrati nella figura seguente:

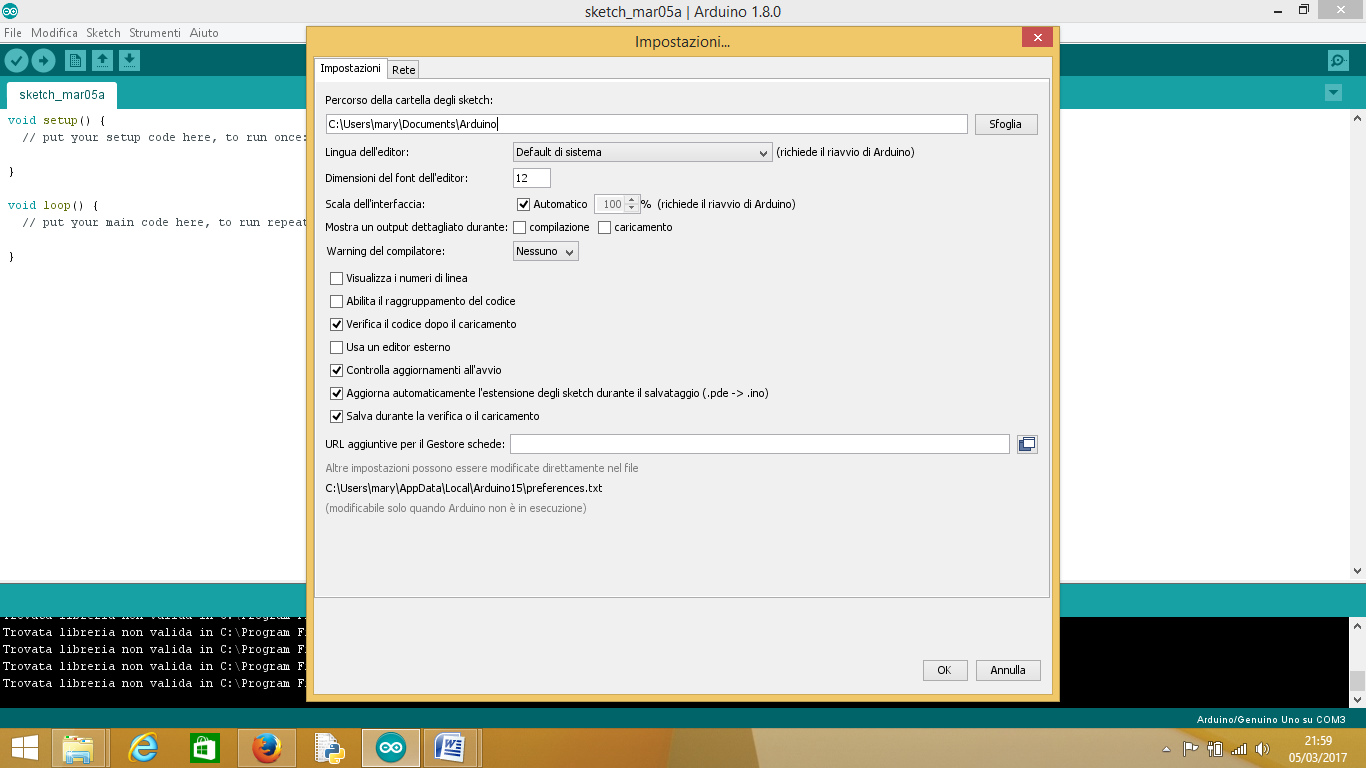


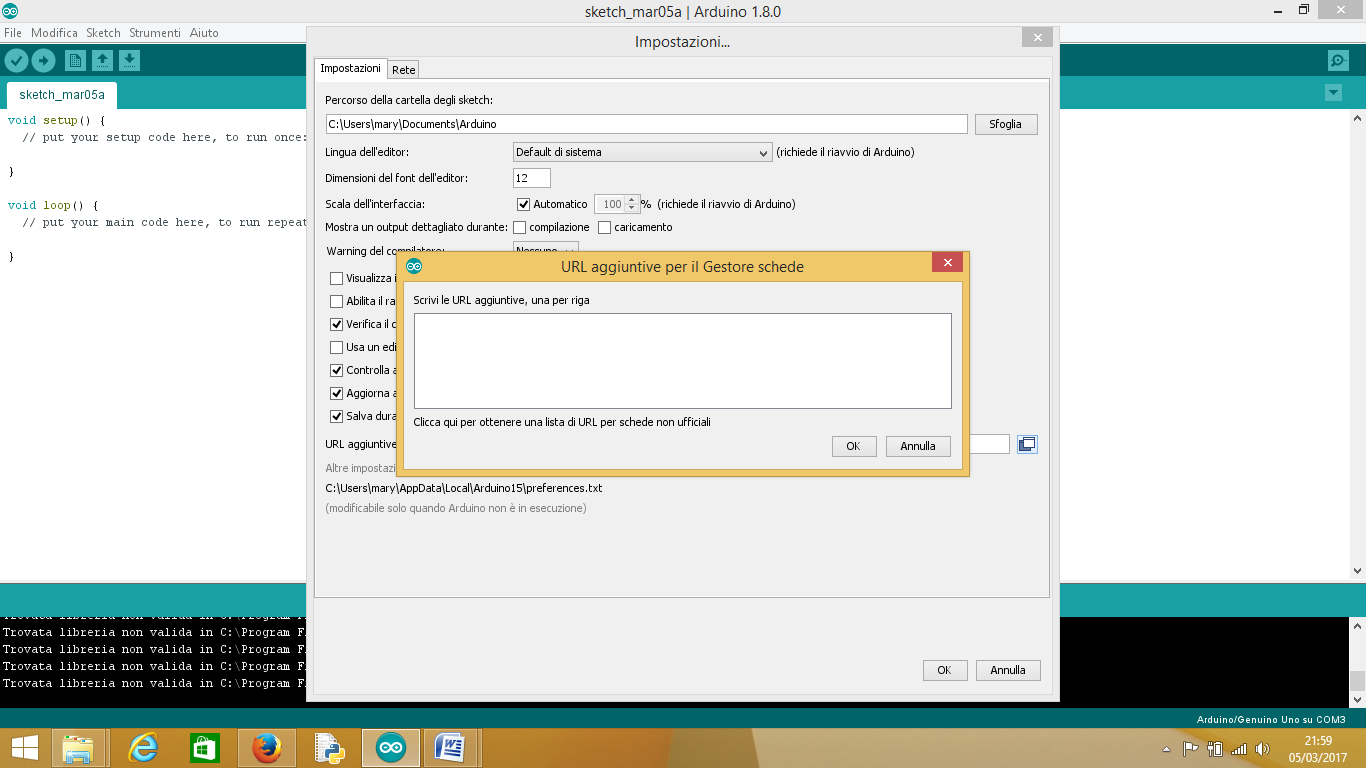
Tabella delle diferenti versioni di esp8266 

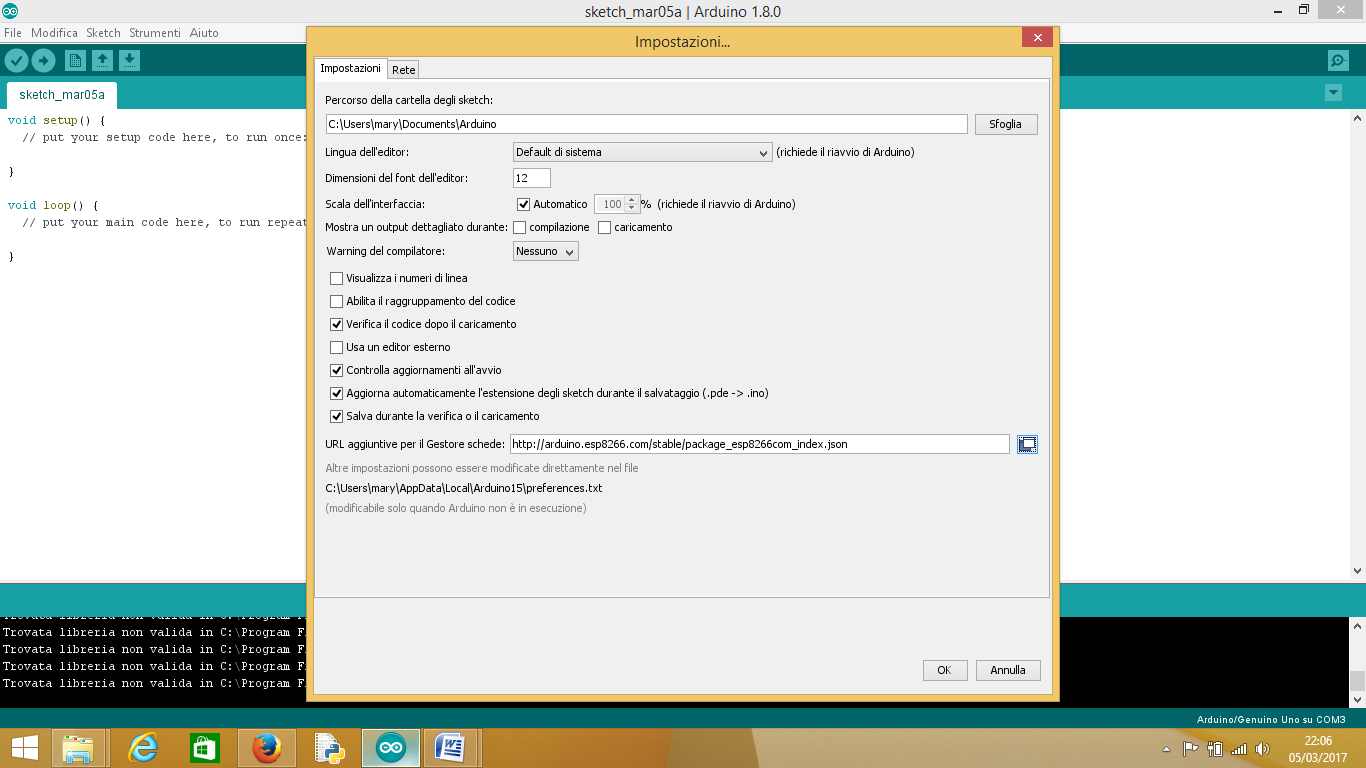


Come configurare l’ide di Arduino per programmare ESP8266

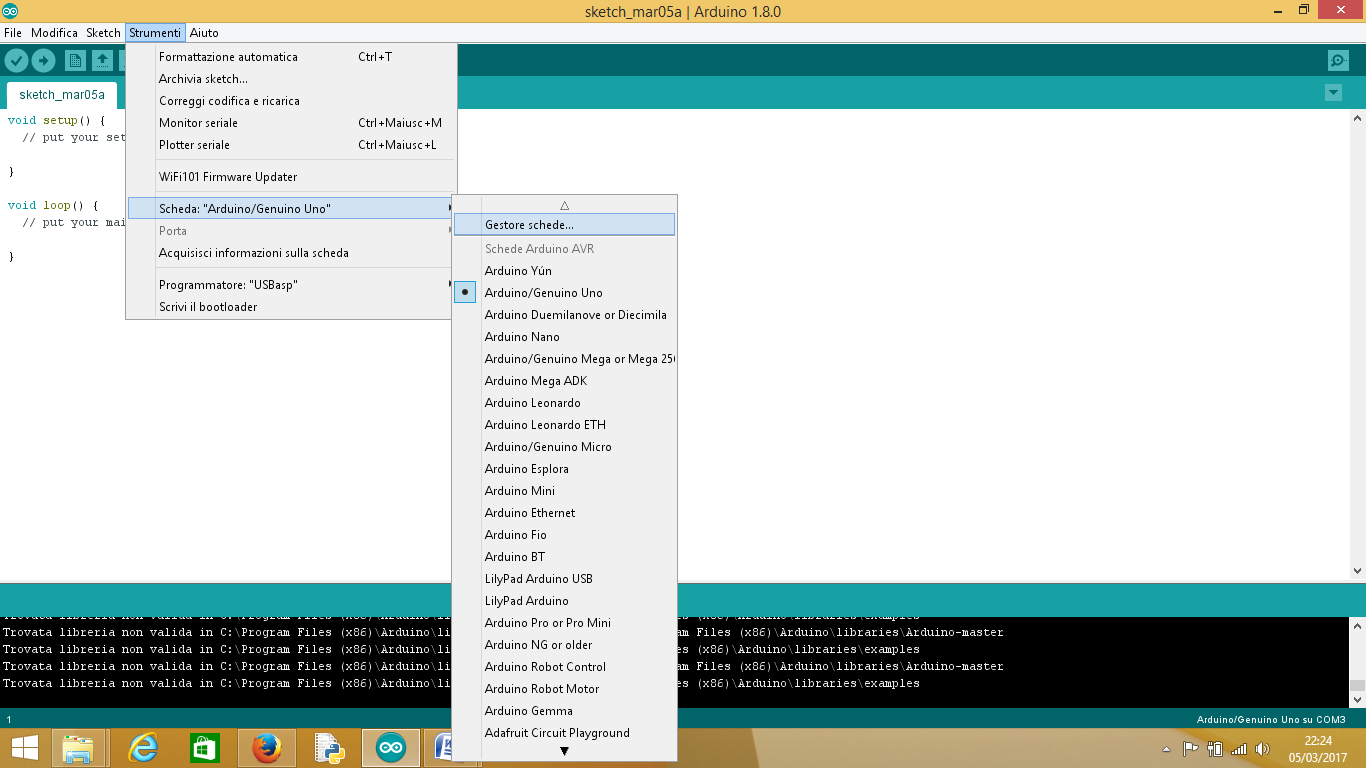


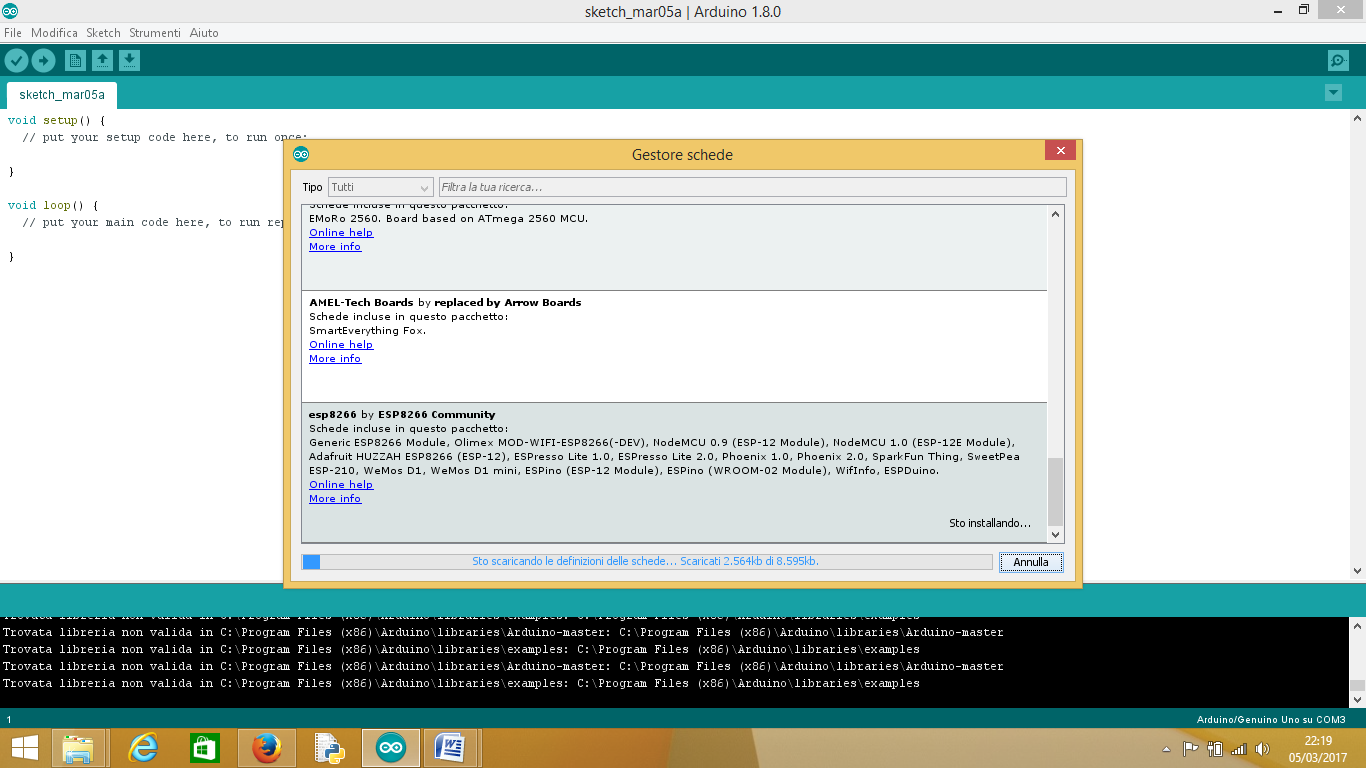


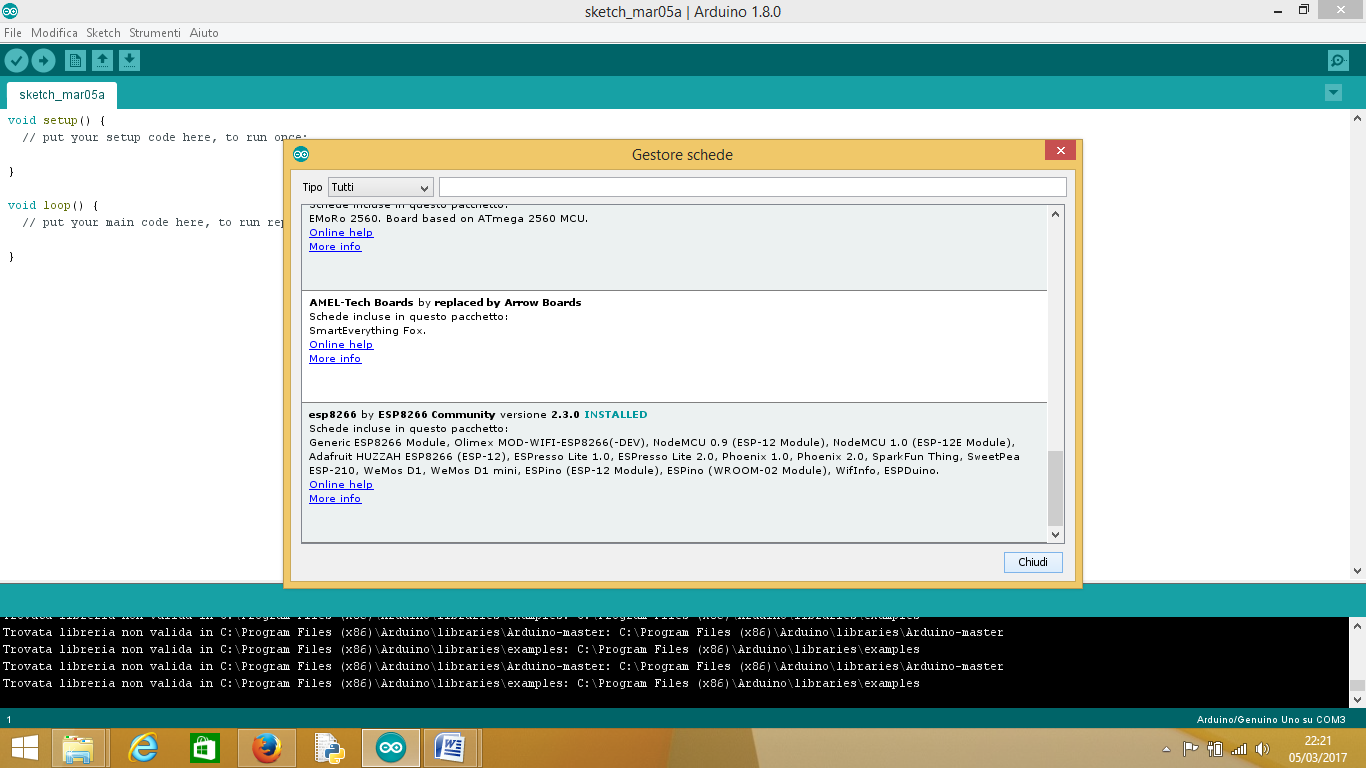


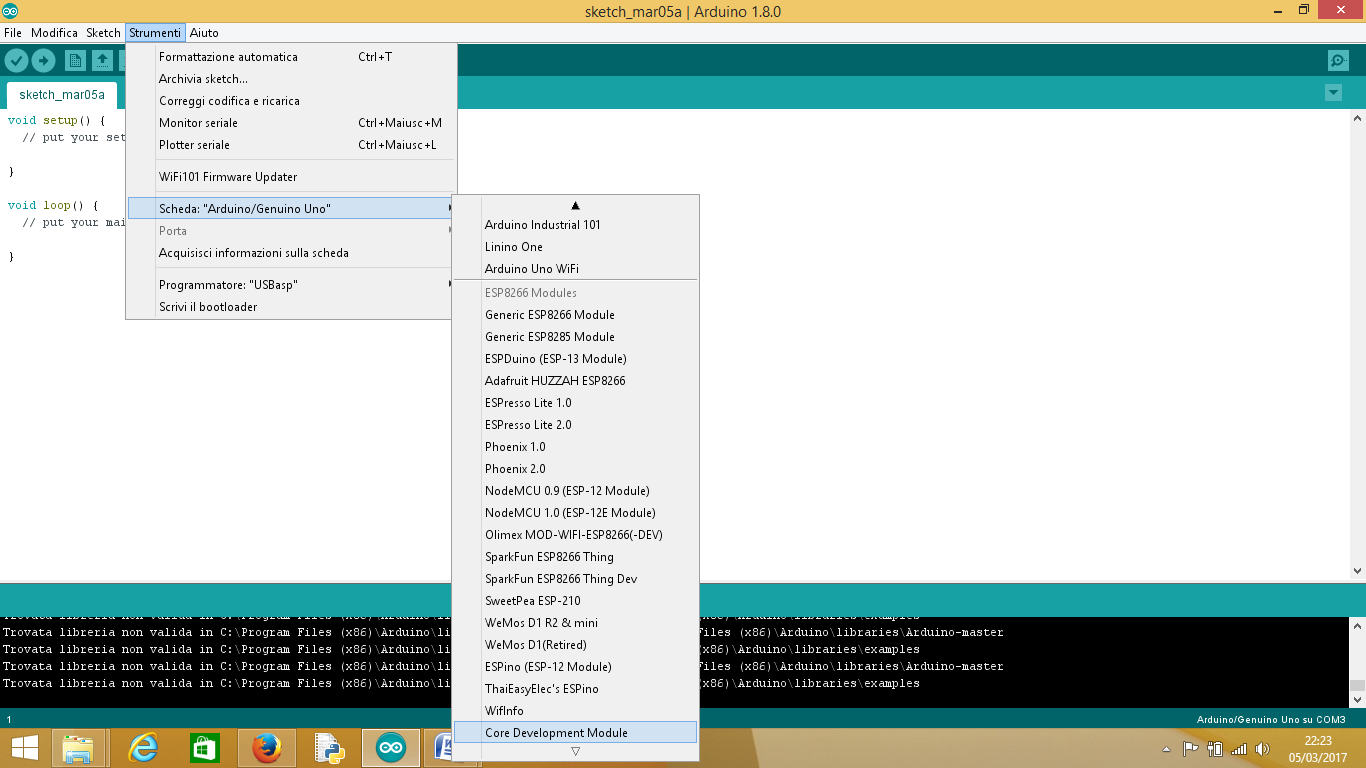


<http://arduino.esp8266.com/stable/package_esp8266com_index.json>









Es:

#include <ESP8266WiFi.h>

#include <WiFiClient.h>

#include <ESP8266WebServer.h>

#include <ESP8266mDNS.h>

MDNSResponder mdns;

const char\* ssid = "il tuo SSD";

const char\* password = "pw";

ESP8266WebServer server(80);

String webPage = "";

int gpio5\_pin = D5;

int gpio4\_pin = D6;

int gpio6\_pin=D2;

int t;

void setup(void){

webPage += "<h1>ESP8266 Web Server per il controllo di un led RGB da remoto</h1><p>Socket #1 <a href=\"socket1On\"><button>ON</button></a>&nbsp;<a href=\"socket1Off\"><button>OFF</button></a></p>";

webPage += "<p>Socket #2 <a href=\"socket2On\"><button>ON</button></a>&nbsp;<a href=\"socket2Off\"><button>OFF</button></a></p>";

webPage += "<p>Socket #3 <a href=\"socket3On\"><button>ON</button></a>&nbsp;<a href=\"socket3Off\"><button>OFF</button></a></p>";

webPage+="<img src=\"http://mariangelamone.altervista.org/Arduino/casa3.jpg\">";

// preparing GPIOs

pinMode(gpio5\_pin, OUTPUT);

digitalWrite(gpio5\_pin, LOW);

pinMode(gpio4\_pin, OUTPUT);

digitalWrite(gpio4\_pin, LOW);

pinMode(gpio6\_pin, OUTPUT);

digitalWrite(gpio6\_pin, LOW);

delay(1000);

Serial.begin(115200);

WiFi.begin(ssid, password);

Serial.println("");

// Wait for connection

while (WiFi.status() != WL\_CONNECTED) {

delay(500);

Serial.print(".");

}

Serial.println("");

Serial.print("Connected to ");

Serial.println(ssid);

Serial.print("IP address: ");

Serial.println(WiFi.localIP());

if (mdns.begin("esp8266", WiFi.localIP())) {

Serial.println("MDNS responder started");

}

server.on("/", [](){

server.send(200, "text/html", webPage);

});

server.on("/socket1On", [](){

server.send(200, "text/html", webPage);

digitalWrite(gpio5\_pin, HIGH);

delay(1000);

});

server.on("/socket1Off", [](){

server.send(200, "text/html", webPage);

digitalWrite(gpio5\_pin, LOW);

delay(1000);

});

server.on("/socket2On", [](){

server.send(200, "text/html", webPage);

digitalWrite(gpio4\_pin, HIGH);

delay(1000);

});

server.on("/socket2Off", [](){

server.send(200, "text/html", webPage);

digitalWrite(gpio4\_pin, LOW);

delay(1000);

});

server.on("/socket3On", [](){

server.send(200, "text/html", webPage);

digitalWrite(gpio6\_pin, HIGH);

delay(1000);

});

server.on("/socket3Off", [](){

server.send(200, "text/html", webPage);

digitalWrite(gpio6\_pin, LOW);

delay(1000);

});

server.begin();

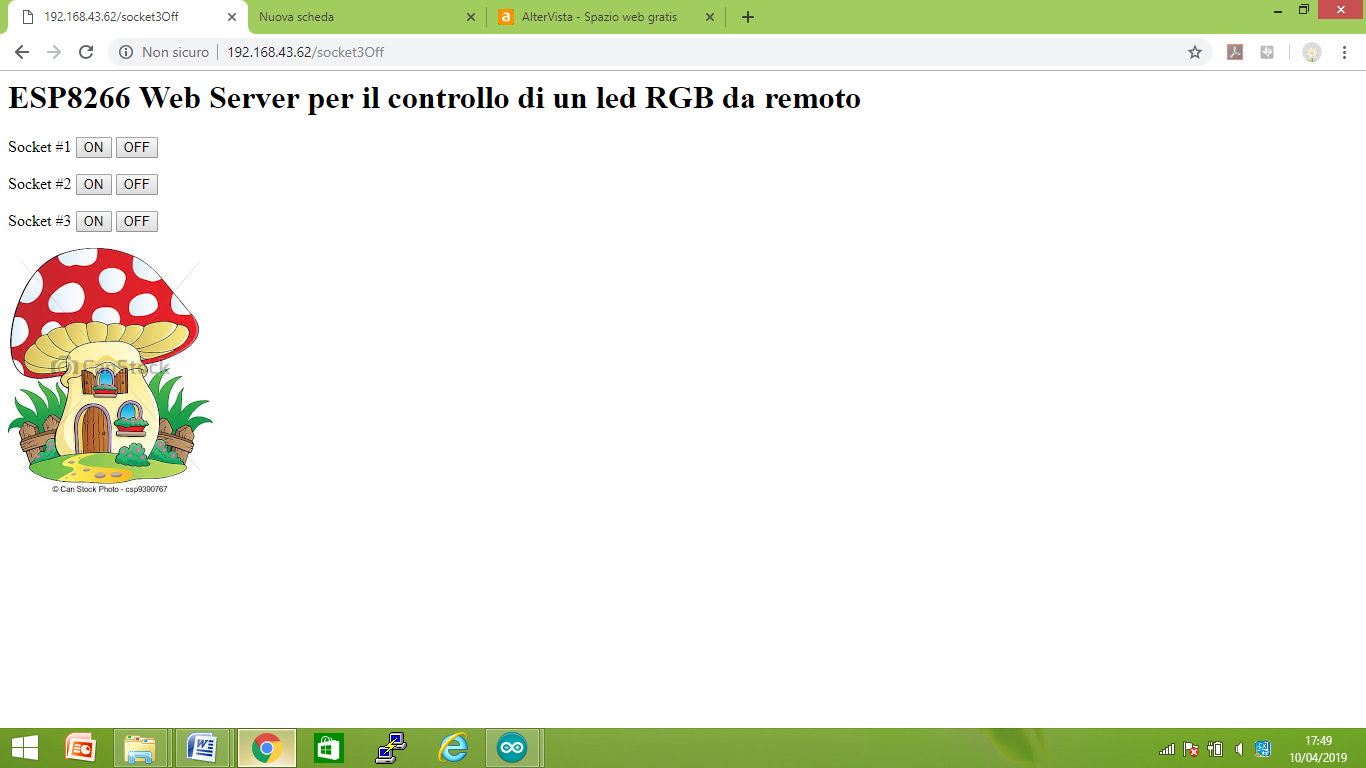
Serial.println("HTTP server started");

}

void loop(void){

server.handleClient();

}



Es: conversione A/D a 10 bit per LM35

#include <ESP8266WiFi.h>

const char ssid[] = "LG K4 (2017)\_3942";

const char pass[] = ""; // password della rete

WiFiServer server(80);

int ventola = D0;

int led=2;

int t,l;

void setup() {

Serial.begin(115200);

delay(10);

pinMode(led, OUTPUT);

pinMode(ventola, OUTPUT);

digitalWrite(led, LOW);

Serial.println();

Serial.println();

Serial.println("------------- Avvio connessione ------------");

Serial.print("Tentativo di connessione alla rete: ");

Serial.println(ssid);

WiFi.mode(WIFI\_STA);

WiFi.begin(ssid,pass);

while (WiFi.status() != WL\_CONNECTED) {

delay(250);

Serial.print(".");

}

Serial.println("");

Serial.print("Sei connesso ora alla rete: ");

Serial.println(ssid);

Serial.println("WiFi connessa");

server.begin();

Serial.println("Server avviato");

Serial.print("Usa questo URL : ");

Serial.print("http://");

Serial.print(WiFi.localIP());

Serial.println("/");

}

void loop() {

WiFiClient client = server.available();

if (!client) {

return;

}

Serial.println("Nuovo client");

while (!client.available()) {

delay(1); }

String request = client.readStringUntil('\r');

Serial.println(request);

client.flush();

int valore = LOW;

int valore1=LOW;

if (request.indexOf("/LED=ON") != -1) {

digitalWrite(led, LOW);

valore = LOW;

}

if (request.indexOf("/LED=OFF") !=1) {

digitalWrite(led, HIGH);

valore = HIGH;

}

if (request.indexOf("/V=ON") != -1) {

digitalWrite(ventola, HIGH);

valore1 = HIGH;

}

if (request.indexOf("/V=OFF") != 1) {

digitalWrite(ventola, LOW);

valore1 = LOW;

}

client.println("HTTP/1.1 200 OK");

client.println("Content-Type: text/html");

client.println("Refresh: 5");

client.println(""); // non dimenticare questa linea

client.println("<!DOCTYPE HTML>");

client.println("<html>");

client.println("<h2>Intefaccia di controllo LED mediante ESP8266</h2>");

client.print("<div style=\"font-size: 20px;\">");

client.print("Il led e': ");

if (valore == HIGH) {

// stampa ON di colore verde

client.print("<strong style=\"color:green;\">ON</strong>");

} else if(valore==LOW){

// stampa OFF di colore rosso

client.print("<strong style=\"color:red;\">OFF</strong>");

}

client.print("<br>");

client.print("La ventola e': ");

if (valore1 == HIGH) {

// stampa ON di colore blu

client.print("<strong style=\"color:blue;\">ON</strong>");

} else if(valore1==LOW){

// stampa OFF di colore rosso

client.print("<strong style=\"color:red;\">OFF</strong>");

}

// stampa una riga separatrice

client.println("<hr>");

// lista puntata

client.println("<ul>");

client.println("<li>Fai click <a href=\"/LED=ON\">QUI</a> per portare ad ON il led sul pin 2</li>");

client.println("<li>Fai click <a href=\"/LED=OFF\">QUI</a> per portare ad OFF il led sul pin 2</li>");

client.println("<li>Fai click <a href=\"/V=ON\">QUI</a> per portare ad ON la ventola sul pin D0</li>");

client.println("<li>Fai click <a href=\"/V=OFF\">QUI</a> per portare ad OFF la ventola sul pin D0</li>");

client.println("</ul>");

client.print("</div>");

client.print("Temperatura in gradi Celsius:");

client.print(l);

client.println("</html>");

// chiusura connessione

delay(1);

Serial.println("Client disconnesso");

Serial.println("");

t=analogRead(A0);

l=t\*330/1024;

}

Es:

#include <ESP8266WiFi.h>

const char ssid[] = ""; // inserire l'ssid della rete

const char pass[] = ""; // password della rete

WiFiServer server(80);

int pinLed = 2;

void setup() {

Serial.begin(115200);

delay(10);

pinMode(pinLed, OUTPUT);

digitalWrite(pinLed, LOW);

Serial.println();

Serial.println();

Serial.println("------------- Avvio connessione ------------");

Serial.print("Tentativo di connessione alla rete: ");

Serial.println(ssid);

WiFi.mode(WIFI\_STA);

WiFi.begin(ssid,pass);

while (WiFi.status() != WL\_CONNECTED) {

delay(250);

Serial.print(".");

}

Serial.println("");

Serial.print("Sei connesso ora alla rete: ");

Serial.println(ssid);

Serial.println("WiFi connessa");

server.begin();

Serial.println("Server avviato");

Serial.print("Usa questo URL : ");

Serial.print("http://");

Serial.print(WiFi.localIP()); // Restituisce i'IP della scheda

Serial.println("/");

}

void loop() {

WiFiClient client = server.available();

if (!client) {

return;

}

Serial.println("Nuovo client");

while (!client.available()) {

delay(1);

}

String request = client.readStringUntil('\r');

Serial.println(request);

client.flush();

int valore = LOW;

if (request.indexOf("/LED=ON") != -1) {

digitalWrite(pinLed, HIGH);

valore = HIGH;

}

if (request.indexOf("/LED=OFF") != -1) {

digitalWrite(pinLed, LOW);

valore = LOW;

}

client.println("HTTP/1.1 200 OK");

client.println("Content-Type: text/html");

client.println("");

client.println("<!DOCTYPE HTML>");

client.println("<html>");

client.println("<h2>Intefaccia di controllo LED mediante ESP8266</h2>");

client.print("<div style=\"font-size: 20px;\">");

client.print("Il LED e': ");

if (valore == HIGH) {

client.print("<strong style=\"color:green;\">ON</strong>");

} else {

client.print("<strong style=\"color:red;\">OFF</strong>");

}

client.println("<hr>");

client.println("<ul>");

client.println("<li>Fai click <a href=\"/LED=ON\">QUI</a> per portare ad ON il LED sul pin 2</li>");

client.println("<li>Fai click <a href=\"/LED=OFF\">QUI</a> per portare ad OFF il LED sul pin 2</li>");

client.println("</ul>");

client.print("</div>");

client.println("</html>");

delay(1);

Serial.println("Client disconnesso");

Serial.println("");

}

NodeMCU

Scheda basata su esp8266. Ha un numero di pin elevato ed è semplice da programmare. Quando si predispone l’ide di arduino per esp8266, viene automaticamente presisposto anche NodeMCU

