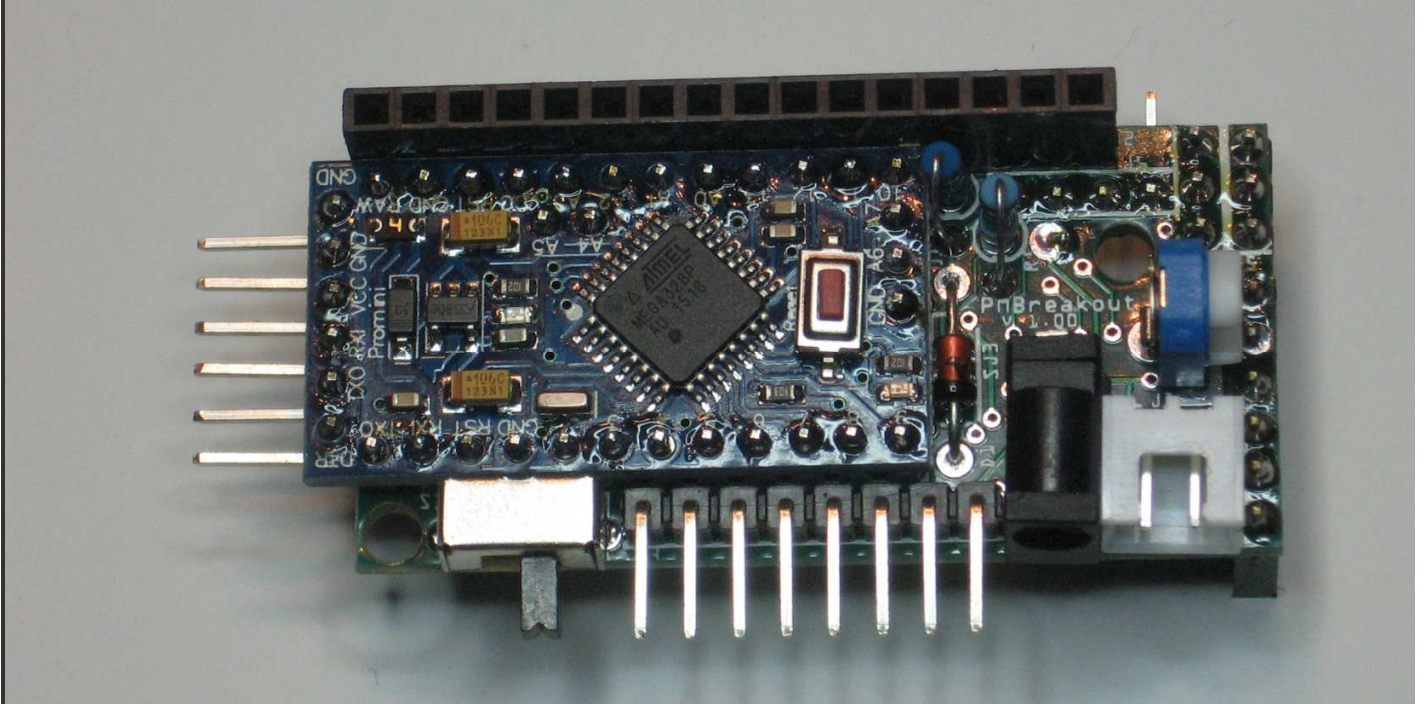


Datasheet

Pro Mini Breakout

Rev. 1.00 and 1.01

Last update : 2016-02-13



The Pro Mini Breakout let you make your Arduino project looks like professional design. The PCB includes wireless cards like the popular NRF24L01 or WIFI (ESP8266*) or Bluetooth HC06. In addition, your project can have 2x16 LCD, 4x4 keypad, two servos, a temperature sensor (1-wire) and an internal 3.7v li-po battery. All in one with this customizable PCB. Assembles in 15 minutes, no debugging time that leaving you more time to develop your sketch.

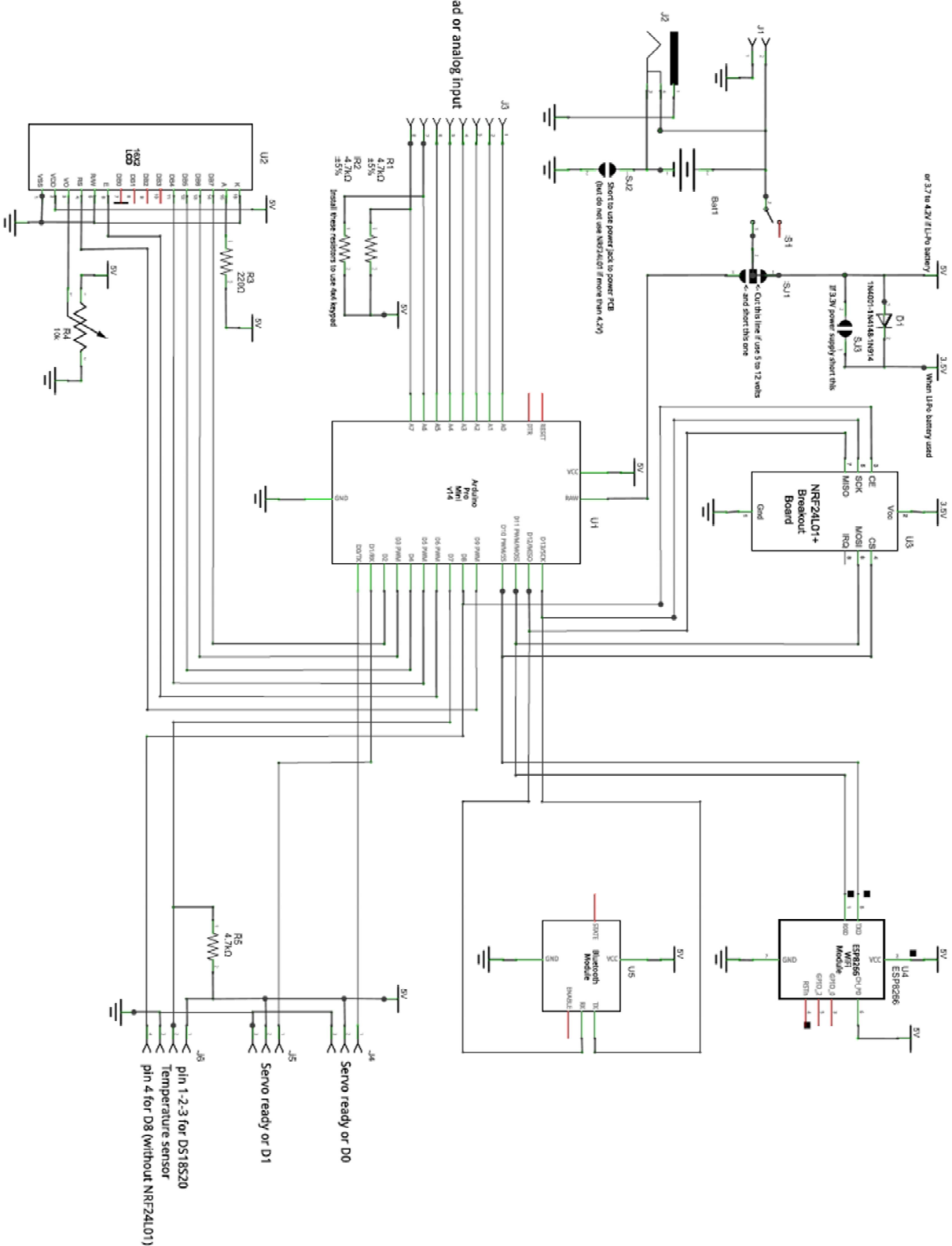
Specifications

With this PCB you can use:

- Wireless cards NRF24L01 or WiFi ESP8266* or Bluetooth HC06 (one at a time)
- Supply voltage from 3.3 volts to 12 volts via 1.35mm power jack.
- Power source: Internal or external LiPo battery or power supply.
- Popular 2x16 LCD display (HD44780) with backlight and brightness trim .
- 1x4 or 4x4 keypad matrix.
- 2 servos direct pinout connectors.
- Temperature sensor (DS18S20) or other 1-wire device.

Plus:

- Pull-up resistors for A6 and A7 (if 4x4 keypad used).
- Configurable voltage jumper (RAW or direct power).
- 1.35mm power jack for supply or charging internal battery.
- 4 analog pins if 1x4 keypad used.
- 8 analog pins if no keypad used.
- 3 digital pins if servos and 1-wire device is not used.
- Additional digital pin if NRF24L01 is not used.
- 6 digital pins if no LCD is used.



Keyed or analog input

Short to use power jack to power PCB
(but do not use NRF24L01 if more than 4.2V)

Cut this line if use 5 to 12 volts
< and short this one

or 3.7 to 4.2V 8.4V-9V battery
When LiPo battery used

If 3.3V power supply short this

Install three resistors to use that supplied

pin 1-2-3 for DS18B20
Temperature sensor
pin 4 for D8 (without NRF24L01)

Servo ready or D0

Servo ready or D0

Pro Mini Breakout

Project PMBreakout

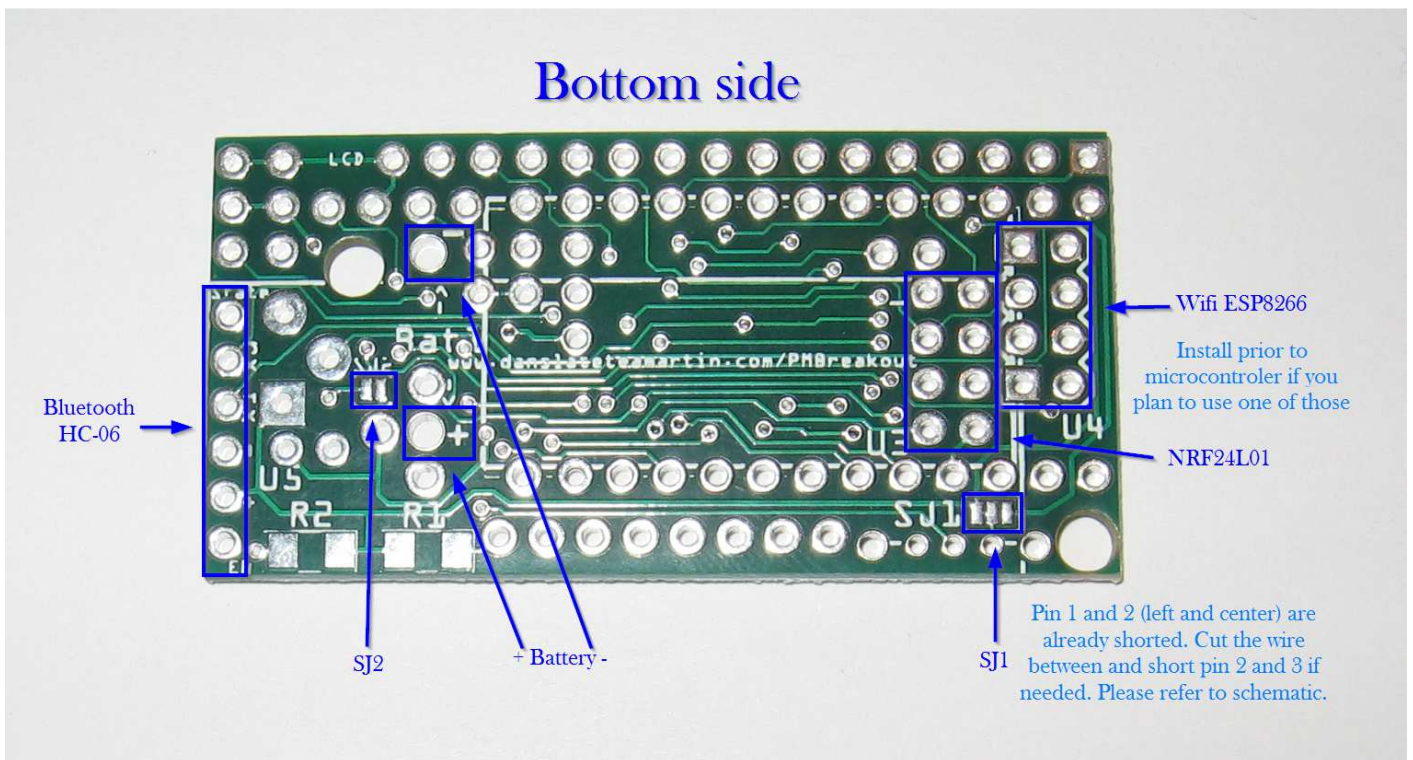
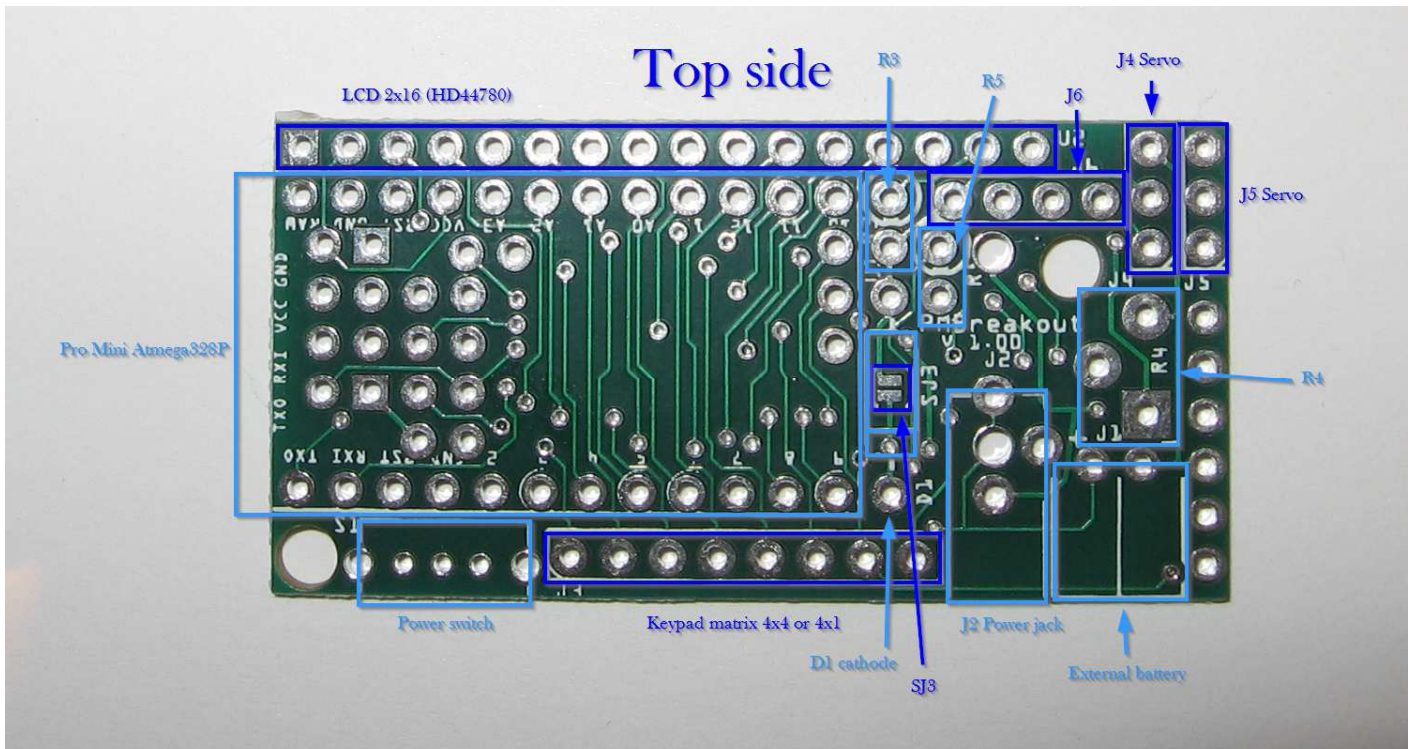
Norm du fichier ProMiniBreakout.rtf

Date 31 mai 2015 18:24:00

Révis 1.00

Feuille 1/1

Details of the board



Voltage costumization jumpers

There are three jumpers to configure PCB voltage. SJ1 and SJ2 are on bottom side and SJ3 is on top side (see pictures above).

SJ1

SJ1 determines if the input voltage goes to the Vcc or to the Arduino Pro Mini's RAW pin. By default, pin 1 and 2 are shorted to send voltage to Vcc. If you want to use the RAW pin, cut the wire between pin 1 and pin 2 (pin 1 is toward the « SJ1 » silkscreen), and short the pin 2 and pin 3 with soldering.

SJ2

SJ2 determines if the voltage from the 1.35mm power jack goes Vcc (shorted) or to charge the internal battery (open). By default, the jumper is open.

NOTE : When SJ2 is open, Inserting power connector in power jack will cut the power to the whole PCB except for the battery. This is to protect the NRF24L01 module to higher voltage than it can support.

SJ3

SJ3 is for these scenarios :

Scenario 1

Your project include the NRF24L01 module and you plan to use a 5 volts Pro Mini board with internal or external 3.7 volts Li-Po battery. Leave the SJ3 open and install the D1 diode. A 3.7 volts Li-Po battery give 4.2 volts maximum at full charge. $4.2 \text{ volts} - 0.7 \text{ volt of the diode} = 3.5 \text{ volts}$ for the NRF24L01 module and 3.7 volts to 4.2 volts is ok to make 5 volts Pro Mini board working. Let the SJ2 open to use power jack to charge the battery via USB or other 5 volts supply.

Scenario 2

Your project include the NRF24L01 module and you plan to use a 3.3 volts Pro Mini board with 3.3 volts external power source. Short SJ3 jumper, do not install D1 diode and leave the SJ1 jumper as original state (I.E. pin 1 and pin 2 short).

Scenario 3

Your project include the NRF24L01 module and you plan to use a 3.3 volts Pro Mini board with 5 volts to 12 volts power source (please confirm with Pro Mini board for maximum voltage). Short SJ3 jumper, do not install D1 diode. Cut the wire between the pin 1 and pin 2 and solder the pin 2 and pin 3 of the SJ1 jumper.

Scenario 4

Your project does not include the NRF24L01, the SJ3 and D1 diode does not care.

Connector's pin 1 localisation

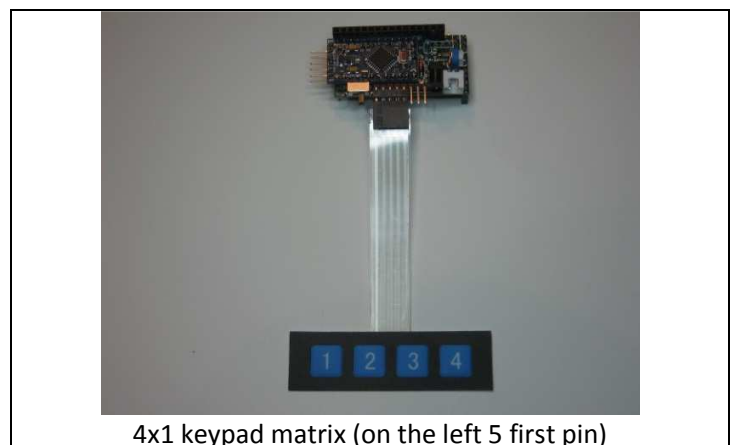
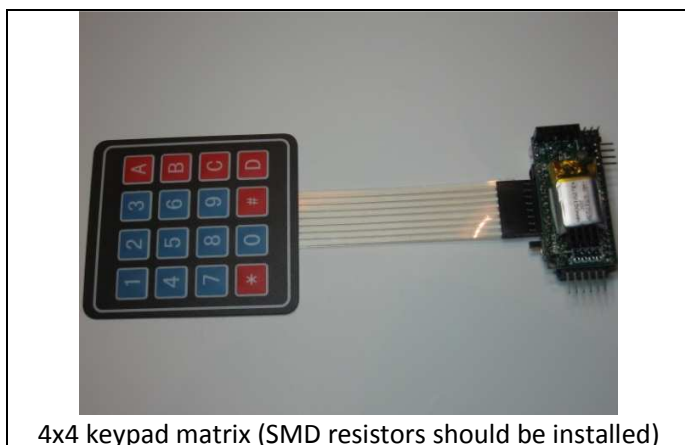
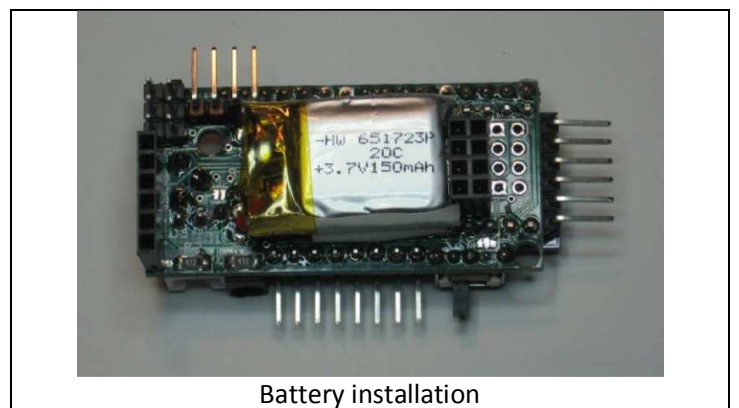
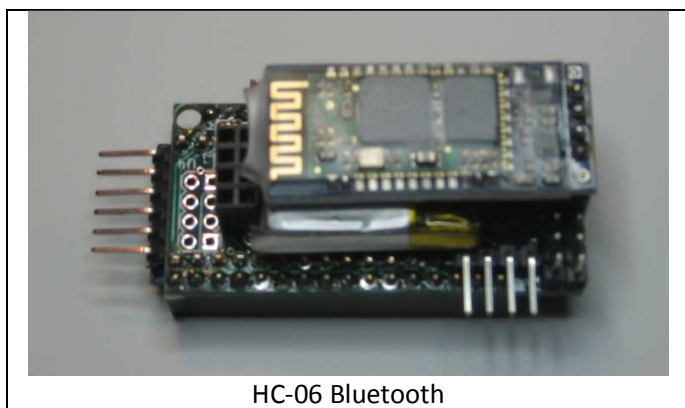
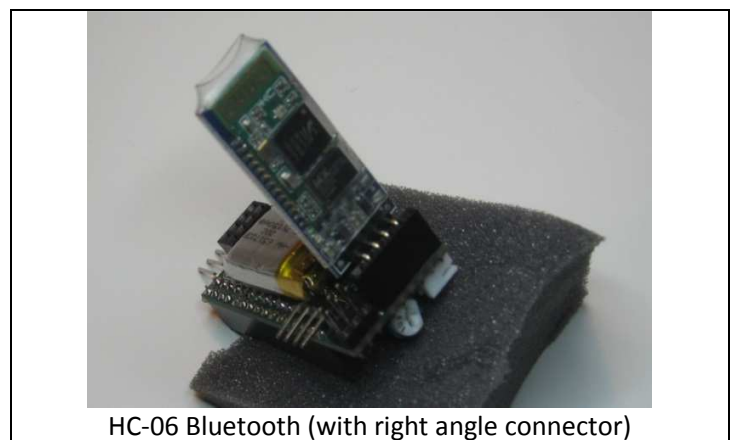
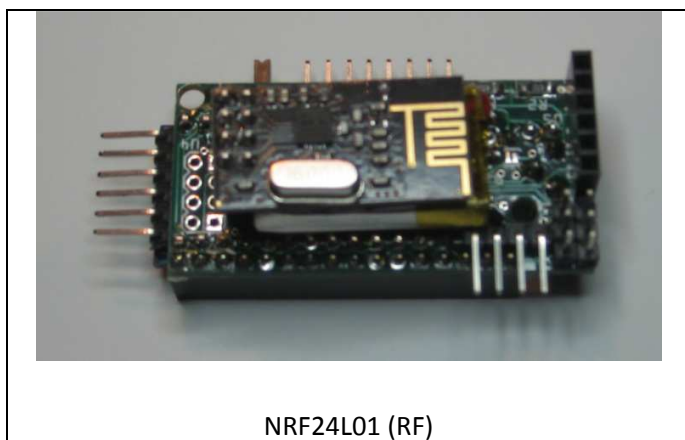
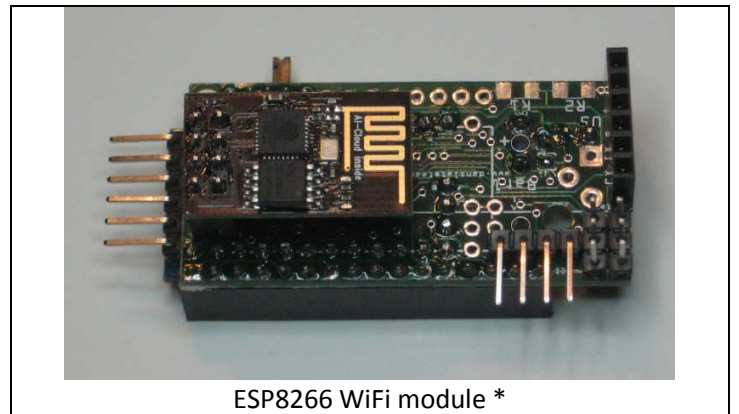
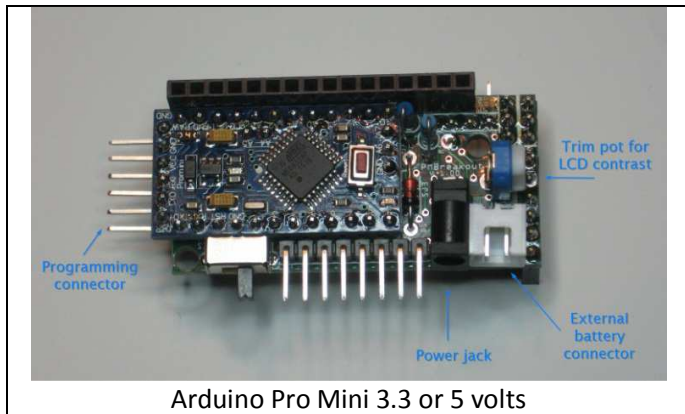
Single row connector's pin one is defined by a notch



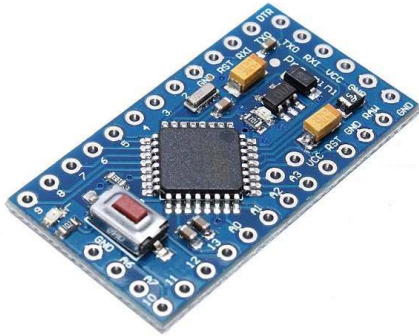
or a square pad



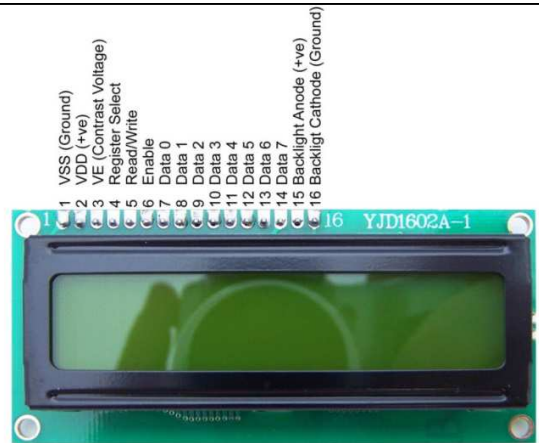
Physical installation of accessories



Pinouts references



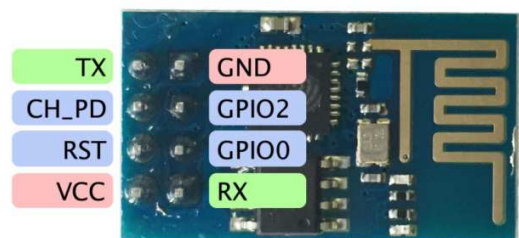
Arduino Pro Mini 3.3 or 5 volts



HD44780 LCD



NRF24L01 (RF)



ESP8266 (WiFi) *see note below



HC06 (Bluetooth)

*Note for ESP8266

If you plan to use the ESP8266 Wifi card, you should use the **Arduino Pro Mini version at 3.3 volts** and **supply it with 3.3 volts external source** via the white connector. The voltage regulator onboard of Arduino cannot drive enough current.

Lipo battery charge warning

As you may have seen in the schematic, there is no electronic management of the battery charge (current, voltage or time limitation). Therefore the user must be very careful when charging the battery. Always charge the battery from a standard USB port and for a maximum of 45 minutes. Charging LiPo batteries can be dangerous if not done carefully. You should always have an eye on the battery when charging. You should know what you do, so be careful.