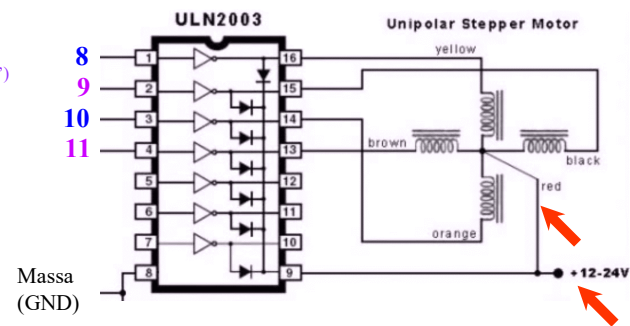


**Controllo di un motore passo-passo**

(3)



This program drives a unipolar or bipolar stepper motor. The motor is attached to digital pins 8 - 11 of the Arduino.

The motor should revolve one revolution in one direction, then one revolution in the other direction.

```
#include <Stepper.h>

const int stepsPerRevolution = 800; // change this to fit the
// for your motor                    number of steps per revolution

// initialize the stepper library on pins 8 through 11:
Stepper myStepper(stepsPerRevolution, 8, 10, 9, 11);

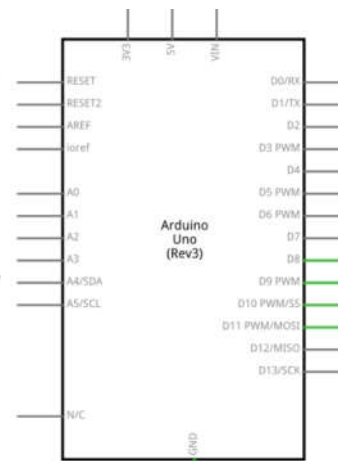
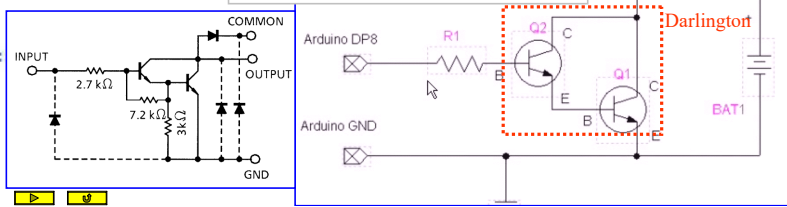
void setup() {
  // set the speed at 60 rpm:
  myStepper.setSpeed(20);
  // initialize the serial port:
  Serial.begin(9600);
}

void loop() {
  // step one revolution in one direction:
  Serial.println("clockwise");
  myStepper.step(stepsPerRevolution);
  delay(500);

  // step one revolution in the other direction:
  Serial.println("counterclockwise");
  myStepper.step(-stepsPerRevolution);
  delay(500);
}
```

- Stepper motor 28BYJ-48 Parameters**
- Model: 28BYJ-48
  - Rated voltage: 5VDC
  - Number of Phase: 4
  - Speed Variation Ratio: 1/64
  - Stride Angle: 5.625°/64
  - Frequency: 100Hz
  - DC resistance: 50Ω±7%(25°C)
  - Idle In-traction Frequency: > 600Hz
  - Idle Out-traction Frequency: > 1000Hz
  - In-traction Torque >34.3mN.m(120Hz)
  - Self-positioning Torque >34.3mN.m
  - Friction torque: 600-1200 gf.cm
  - Pull in torque: 300 gf.cm
  - Insulated resistance >10MΩ(500V)
  - Insulated electricity power: 600VAC/1mA/1s
  - Insulation grade: A
  - Rise in Temperature <40K(120Hz)
  - Noise <35dB(120Hz, No load, 10cm)

Uscita a collettore aperto collegata al + attraverso il motore



**ULN2003**

**7-ch Darlington Sink Driver**

The ULN2003APG/AFWG Series are high-voltage, high-current darlington drivers comprised of seven NPN darlington pairs. All units feature integral clamp diodes for switching inductive loads. Applications include relay, hammer, lamp and display (LED) drivers.

**Features**

- Output current (single output): 500 mA max
- High sustaining voltage output: 50 V min
- Output clamp diodes
- Inputs compatible with various types of logic
- Package Type-APG: DIP-16pin
- Package Type-AFWG: SOL-16pin

Type	Input Base Resistor	Designation
ULN2003APG/AFWG	2.7 kΩ	TTL, 5 V CMOS
ULN2004APG/AFWG	10.5 kΩ	6 to 15 V PMOS, CMOS

**Pin Connection (top view)**

