

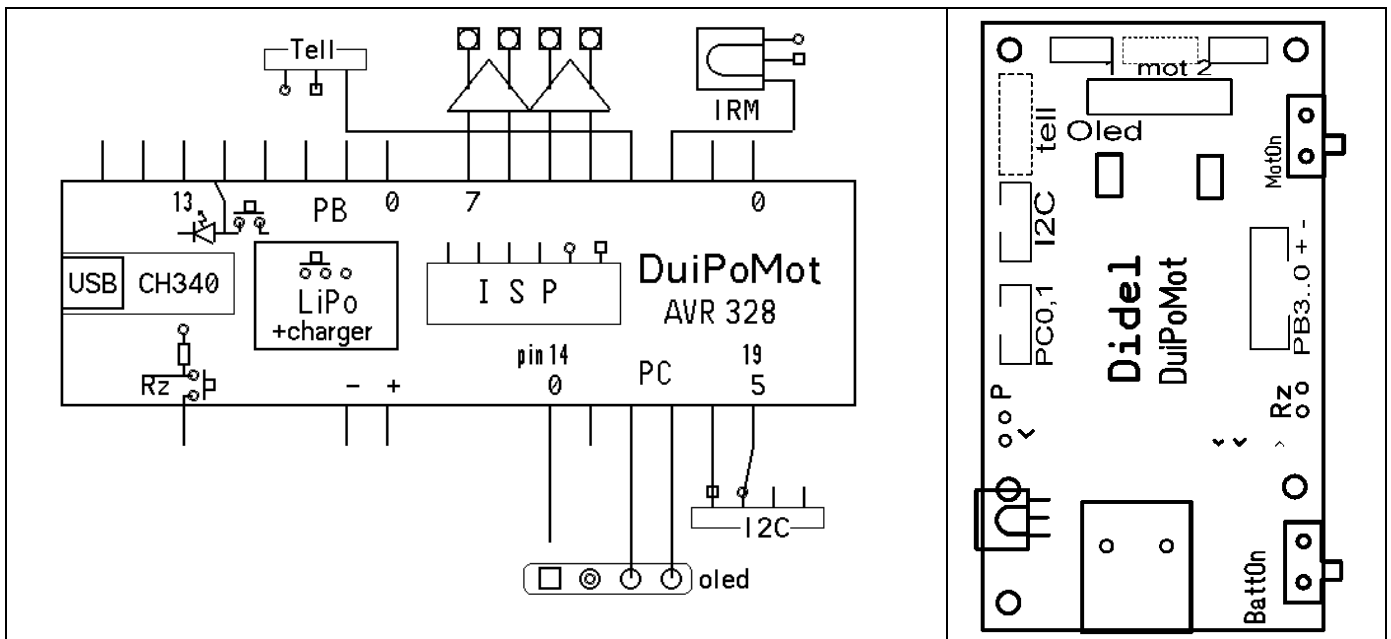
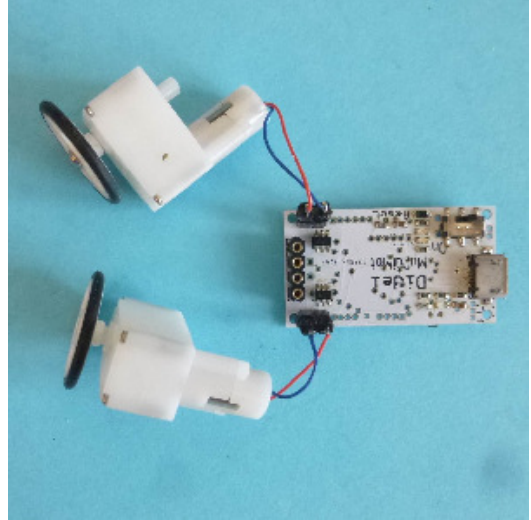


Leto DiduiPoMot

Leto was a goddess protectress of the young – they like robots

That small board is indeed an Arduino compatible board with a built-in motor shield. Not for your 3D printer, but for a small robot or any application that need 2 motors, servos, sensors. The connector for an Oled is here! As a big plus, there is a 150mAh LiPo below the board, recharged when the board is USB powered.

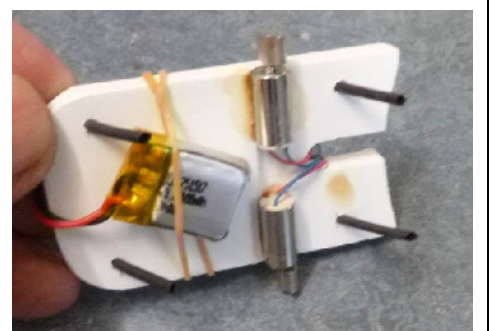
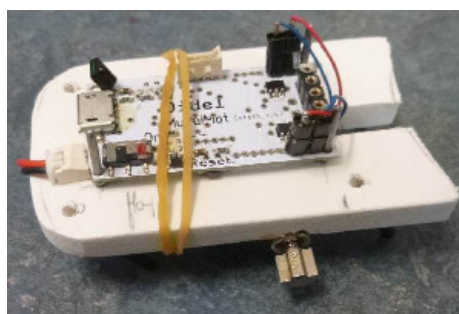
Board size is 20x36mm size, motor connectors are 2.54mm pitch, max 500 mA peak. Extension connectors use 1.27mm Molex connectors with easy harness; you never need to do small solders.



The DuiPoMot includes a AVR328, a CH340 USB controller (miniUSB plug), two CS7721 bidirectionnal motor drivers (max 0.4A) The 328 is loaded with the Duemilanove driver. There is an IR module. See the definition file and start programming, it is just an Arduino.

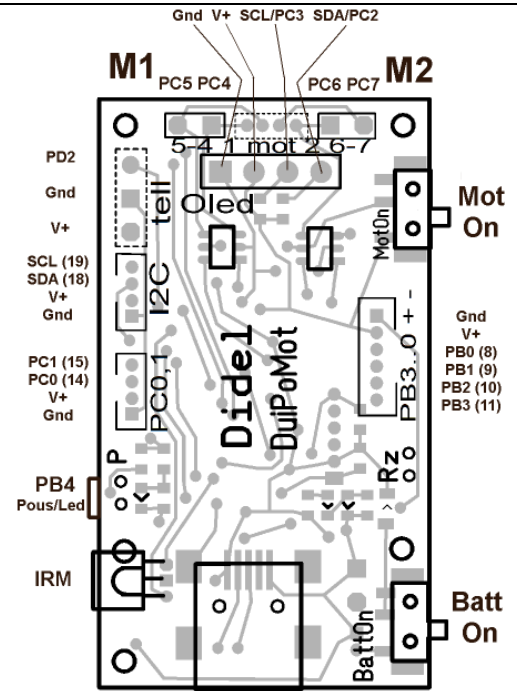
The Avr328 is programmed with a Duemila Arduino loader.

As a funny demonstrator, control 2 pager motors and find the best way to make the robot move, and be controlled.



Affectation of the AVR328 signals

Pin	Port		Pin	Port	
0	PD0	Rx PdConn	10	PB2	PbConn
1	PD1	Tx id	11	PB3	PbConn
2	PD2	IrModule	12	PB4	Pous/Led
3	PD3	Tell	13	PB5	(pr pin3)
4	PD4	Mot 1Av	14	PC0	PcConn
5	PD5	Mot1Rec	15	PC1	PcConn
6	PD6	Mot2Av	16	PC2	Oled SCL
7	PD7	Mot2Rec	17	PC3	Oled SDA
8	PB0	PbConn	18	PC4	SCL
9	PB1	PbConn	19	PC5	SDA



Definition file

The files below and demo programs are available on www.didel.com/DuiPoMot.zip

Main definition file is DuiPoMot.h. We provide also on the .zip the Arduino way you may be more familiar with.

Led and Pushbutton

AVR PORTD bit 4 or Arduino Pin 4

By default, the pin is in Blink mode (output). Depressing the switch in this mode light the Led (with a different intensity due to the protecting resistor).

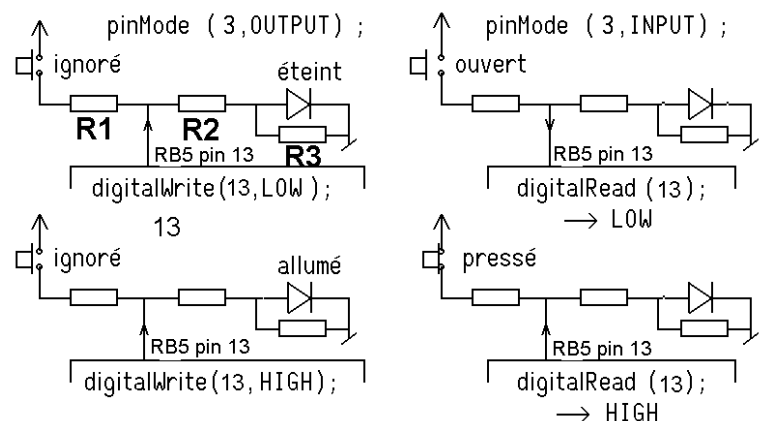
In order to read the switch, one need to set the Input mode. A macro is doing the job.

C	<pre>#define bLP 4 // LED/Push bit on PORTB #define PushMode bitSet (DDRB,bLP) #define LedMode bitClear (DDRB,bLP) #define LEDOn LedMode; bitSet (PORTB,bLP) #define LEDOff LedMode; bitClear(PORTB,bLP) #define PushOn PushMode; PINB & (1<<bLP) void SetupLed { bitSet (DDRB,bLed); }</pre>
Arduino	<pre>#define LP 12 // LED/Push pin #define PushMode pinMode (LP,INPUT) #define LedMode pinMode (LP,OUTPUT) #define PushOn PushMode; digitalRead(LP); LedMode; #define LedOn LedMode; digitalWrite (LP,HIGH) #define LedOff LedMode; digitalWrite (LP,LOW) void SetupLed { pinMode (Led,OUTPUT); }</pre>

Pin 12 set as output controls the LED, switch is ignored.
 Pin 12 set as input allows to read the switch state.
 R1 limit the current if the switch is pressed when pin12 is LOW
 R2 set the current in light
 R3 is a high value resistor that improves the zero level in input mode.

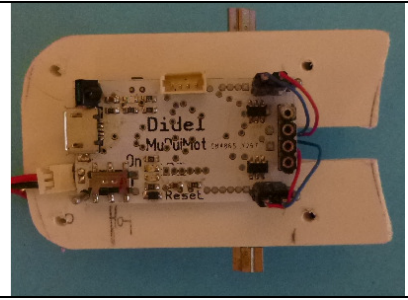
More on www.didel.com/diduino/PushButton.pdf

Drawing explain with pin13



Motors

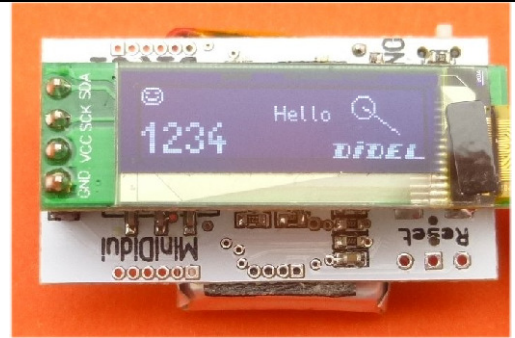
As most motor shields, pins 4,5,6,7 control the motor, with PWM on pin 5 and 6. The drivers are CS7721 well suited for 200mA small and "solar" motors (10-30 Ohm coils). Doing bidirectional PWM on these pins is explained on https://playground.boxtec.ch/doku.php/motor/bidirectional_motorcontrol_arduino Remember PFM allows for a better speed control: <https://www.didel.com/PFMversusPWMforRobots.pdf>



I2C connector for SSD1306

The Oled SSD 1306, 32x128 or 64x128 are so cheap and so easy to use, why do without it ? The Sda Scl lines are on PC2, PC3 and acces is made wit Didel bitbang lib, making the Arduino I2C lines free for I2C sensors or displays.

Our docs are easy to click on if you load <https://www.didel.com/Oled.html>



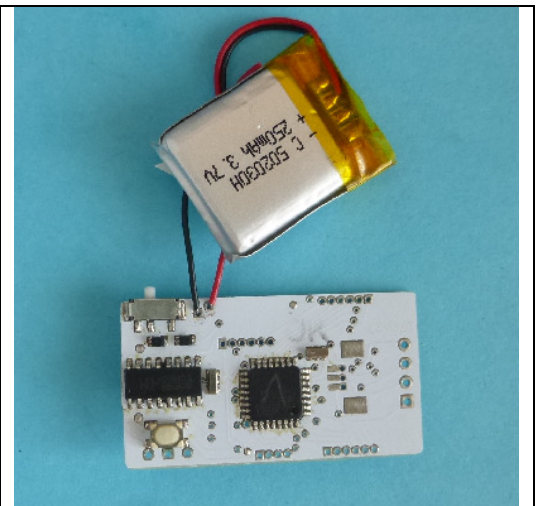
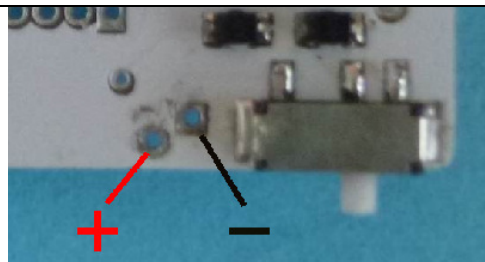
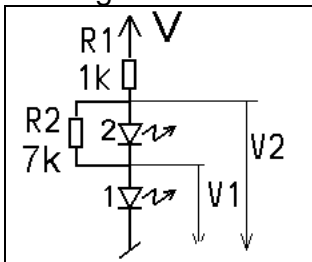
I2C connector (Molex 4 pins)

Arduino Pins 18/A4/SDA and 19/A5/SCL are available on a Molex Picoblade 1.27mm pitch connector.

Removing the 4k I2C pull-ups permits to read 2 analogue signals on these pins.

Lipo connection

The connection point are close to the switch. Square pads are always Gnd. Charge current is set at ~150mA, automatic cut-off when the Lipo voltage exceed 4.2V; trickle charge follows. One of the two LED is **Off** at 3V and **On** at 3.7V. It is not precise, but at a glance, you know if you need to recharge.



Warning : Molex cable harness

Pin 1 in most designs is Gnd and we apply that rule with inevitable exceptions. Molex has a red wire on pin 1 and black on pin 2. This is not what we would have liked.

The worse is Lipos refer to the color, pin1 is +, pin2 is -. We have to follow that anomaly. Be carefulll.

Our other exception is the Tell connector.

