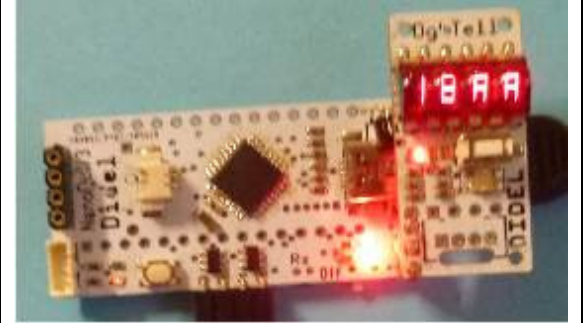




Plutos DuiPoNano

On Greek ceramics [Plutus](#) can be identified as the one bearing the horn of plenty

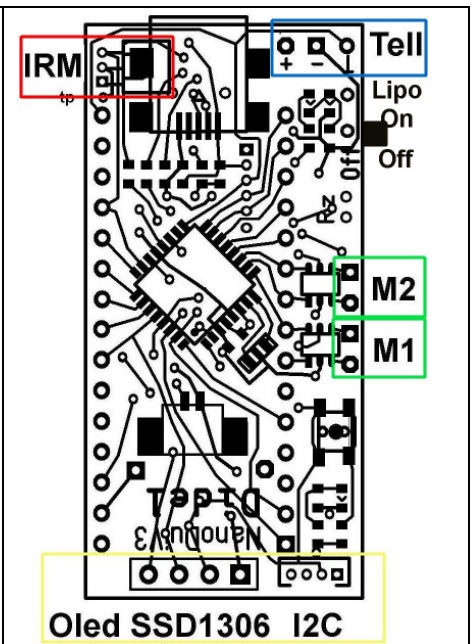
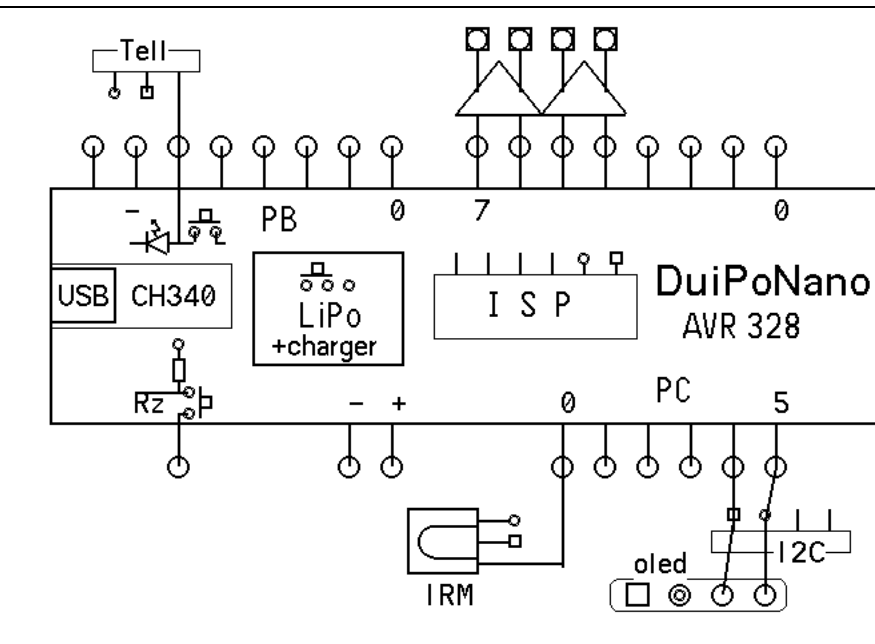
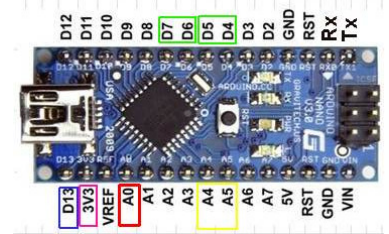
The Plutos is pin compatible with an Arduino Nano, but it has additional on-board connectors that facilitates your applications; hence it is 4mm wider. It sports 2 motors, one Oled, I2C sensors and an IRmodule. Add a Lipo and you have a compact 3.7V/5V autonomous system including the lipo charger. Charge occurs when USB is connected



Connectors on DuiPoNano

Pin	Port		Connector
4	PD4	Mot 1Av	M1
5	PD5	Mot1Rec	M1
6	PD6	Mot2Av	M2
7	PD7	Mot2Rec	M2
13	PB5	Led/Pous	Tell
14/A0	PC0	IRM	-
18/A4	PC4	SDA	I2C + SSD
19/A5	PC5	SCL	I2C + SSD

Differences with Arduino Nano is 3V3 is not provided. D13 is shared with push button and LED, D4-D7 are connected to passive. D7 motor driver inputs



Definition file

```

Arduino
#define LP 12 // LED/Push pin
#define PushMode pinMode (LP,INPUT)
#define LEDMode pinMode (LP,OUTPUT)
#define PushOn (digitalRead(LP))
#define LEDOn digitalWrite (LP,1)
#define LEDOff digitalWrite (LP,0)
#define Forw digitalWrite (Mot1Av,1);
digitalWrite (Mot1Rec,0);
#define Av1 4
... continue

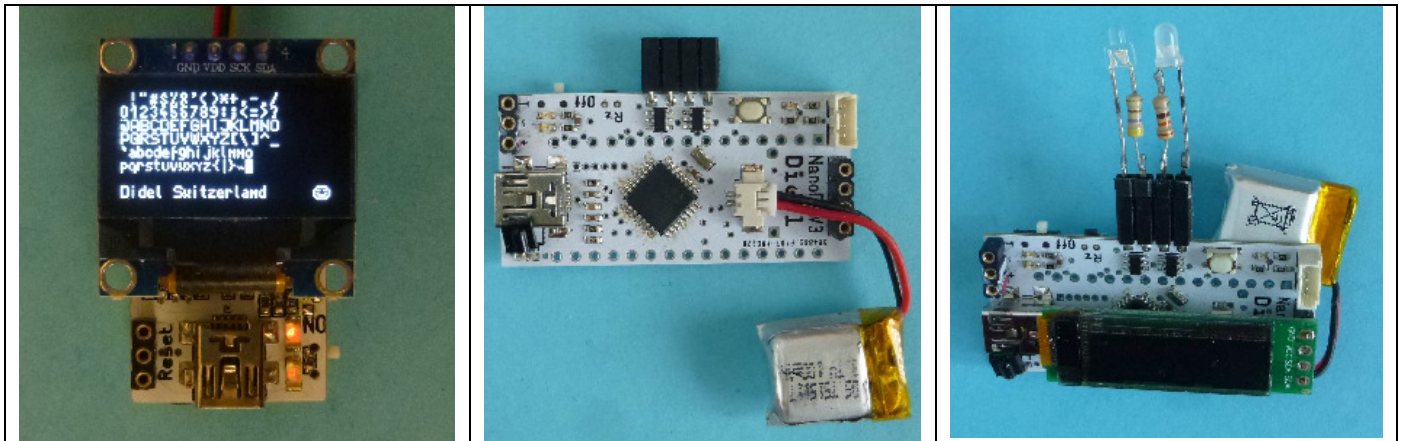
pinMode (Mot1Av 4,OUT);
... continue

```

```

C
#define bLP 4 // LED/Push bit on PORTE
#define PushMode clearBit (DDRB,bLP)
#define LEDMode setBit (DDRB,bLP)
#define PushOn (PORTB & (1<<bLP))
#define LEDOn setBit (PORTB,bLP)
#define LEDOff clearBit (PORTB,bLP)
#define Forw PORTD&=0b01100000; PORTD|=0b01100000
#define Back PORTD&=0b10010000; PORTD|=0b10010000
#define TurnR PORTD&=0b01010000; PORTD|=0b01010000
#define TurnL PORTD&=0b10100000; PORTD|=0b10100000
#define Stop PORTD &= 0b00000000
void SetupMot() { DDRD = 0xF0; }
void SetupDuiMot () {
  DDRB = 0x00; // according to connector
  DDRC = 0x00;
  DDRD = 0xF0;
}

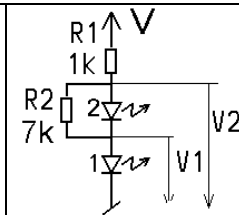
```



Interesting features

Two LEDs for voltage indication

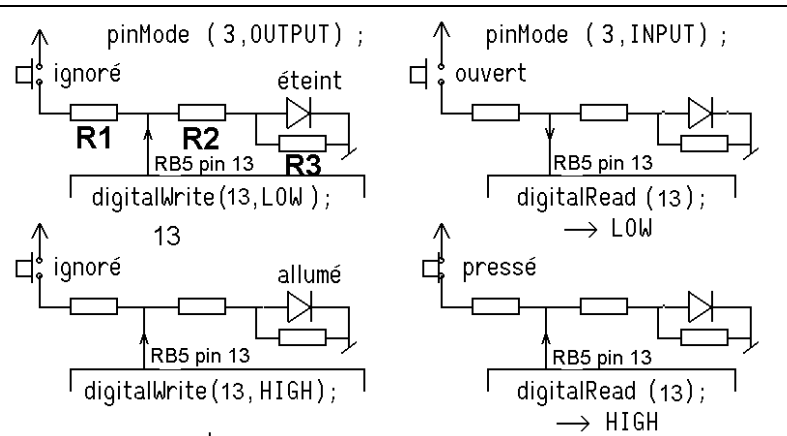
One of the two LED is **Off** at 3V and **On** at 3.7V. It is not precise, but in a glance, you know if you need to recharge.



Pushbutton on pin 13

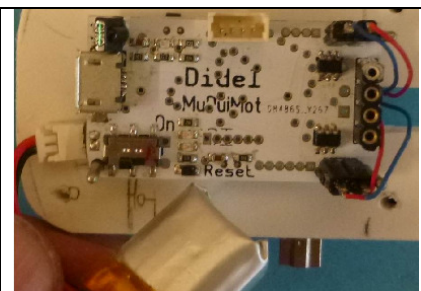
Pin 13 sets as output controls the LED, the switch is ignored.
 Pin 13 sets as input allows to read the switch state.
 R1 limit the current if the switch is pressed when pin13 is LOW
 R2 sets the LED light intensity
 R3 is a high value resistor that improves the zero level in input mode.

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

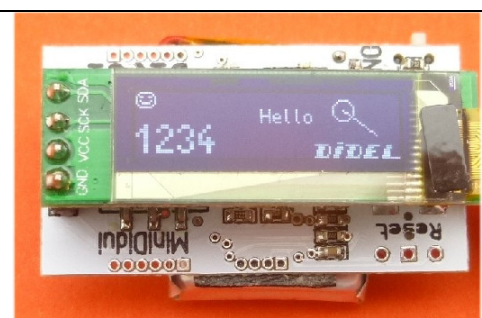


Motors drivers

As most motor shields, they use pins 4,5,6,7.
 The drivers are CS7721 well suited for 200mA small motors 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>



The Oled SSD 1306, 32x128 or 64x128 are so cheap and so easy to use, why do without it ? See our doc on <https://www.didel.com/Oled.html>
 Wire lib can be used to add sensors.

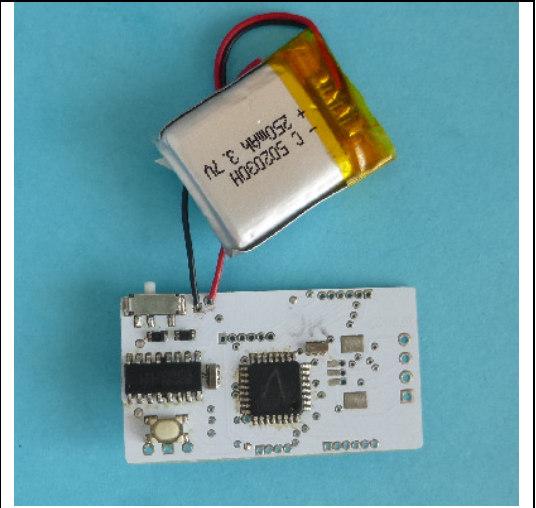
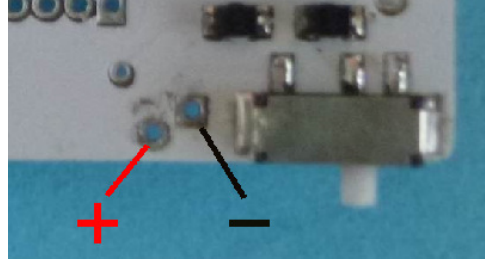
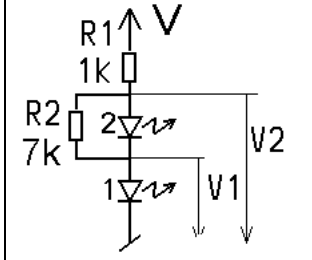


Lipo connection

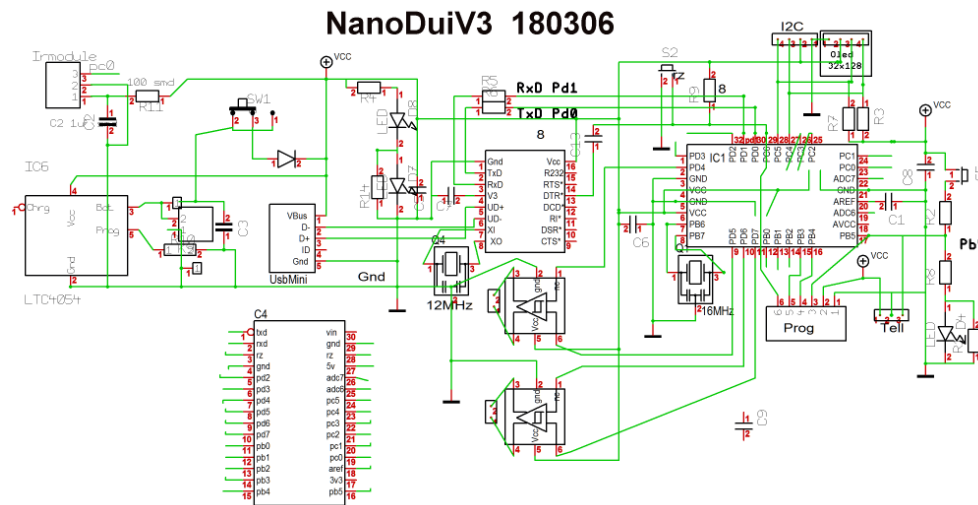
The connection point are close to the switch. Square pads are always Gnd.

Charge current is set at ~30mA, automatic cut-off when The Lipo voltage exceed 4.2V followed by trickle.

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.



Schematic



The Avr328 is programmed with a Duemila Arduino loader. A SIL 1.27mm pitch ISP connector allows to reprogram according your needs, see <https://www.didel.com/AdaProg.pdf>