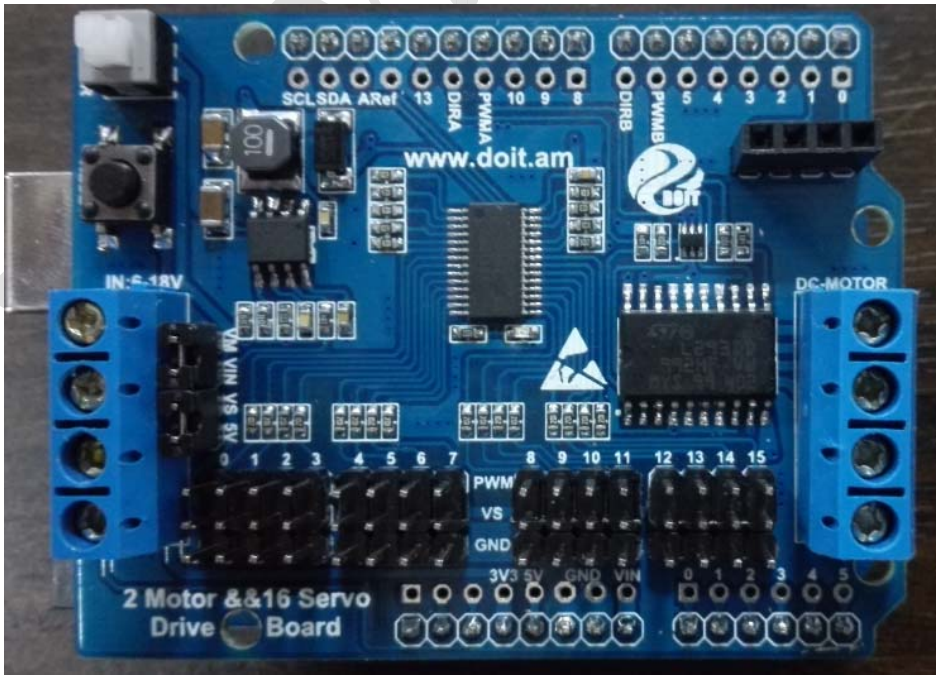
Doctors of Intelligence & Technology(DOIT)

User Manual for 2-way Motor & 16-way Servos Shield



25 April 2016

Catalogue

1. Introduction

2-way Motor && 16-way Servo Drive Shield is a compatible with Arduino UNO R3 and ESPduino development board. This module can be inserted directly into the Arduino UNO and/or ESPduino. But if using ESPduino, you can develop quickly and conveniently a tank/car chassis controlled by WiFi. More details, please see the following link: http://www.smartarduino.com/view.php?id=94895 .

This driver shield can control **2-way DC motor (4.5~18v) and 16-way servo (5-18V)**, which is very suitable for the control of mobile robot with robotic arm. This board is designed by using L293DD, which can drive directly 2-way DC motor or 1-way stepping motor. Its max current can be **1.2A**.

16-way servo is controlled by IIC interface on the board.

The IO interfaces is used as the control interface for Arduino UNO and ESPduino. Thus, just the four ports **D6, D7, D11, and D12(as for ESPduino, it is D12, D13, D3, D1)** is defined as **PWMB (speed for motor B), DIRB (the turn direction for motor B)PWMA(speed for motor A), andDIRA (the turn direction for motor B)**. The humanized design is used the power switch, which can make one on/off the power conveniently.

The board can directly be used to control the intelligent robot by Bluetooth (pre-server) and/or WiFi. More details, please visit:

http://www.doit.am; www.smartarduino.com, www.vvdoit.com

2. Specifications

- POWER:
  - Power for motor(VM): 4.5V～36V, can power separately;
  - Power for servo(VIN): 5～18V, can power separately;
  - How to use power connection: very important!

If short VM and VIN, only can control the motor with 6-18V;

If short VS and VIN, only can control the servo with 6-18V;

If short VM and VIN, and short VS and 5V, then CAN control the 2-way motor (with 6-18V) and 16-way 5V servo at the same time.

- Working Current Io：≤1.2A;
- Max power consumption:4W（T=90℃）;
- Input for control signal: High level: 2.3V≤V_{IH}≤VIN; low level: -0.3V≤V_{IL}≤1.5V
- Working temperature: -25℃～＋125℃;
- Driven mode: double big power H bridge driver;
- Weight: about 46g

3. Size

PCB view is shown in Figure 1, and Figure 2 is the real product.To get it, from the following: http://www.smartarduino.com/view.php?id=94895

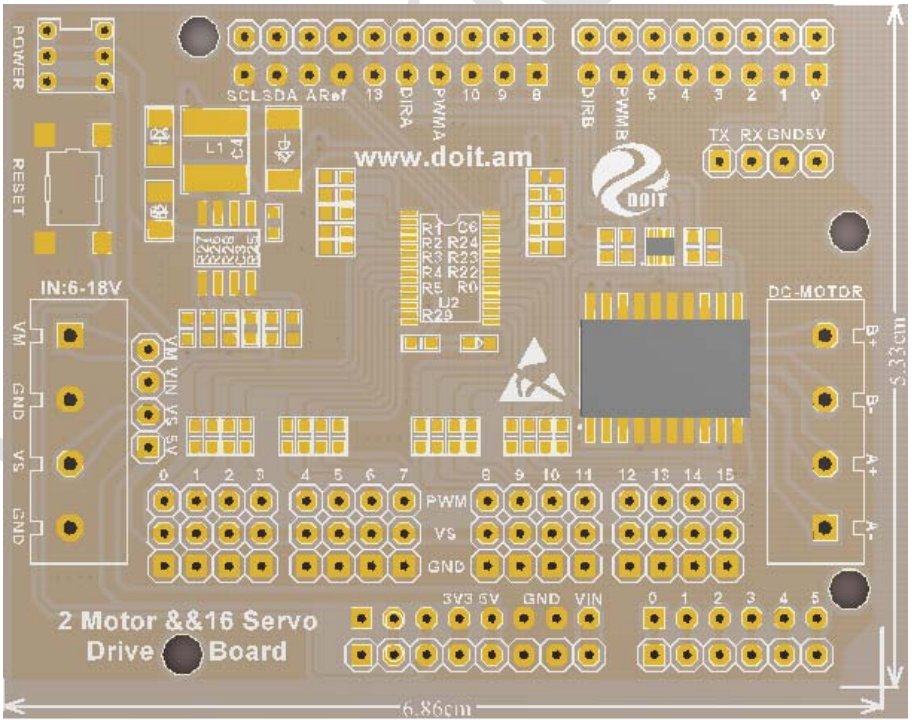


Figure 1 PCB view for 2Motor & 16 Servo Drive Board

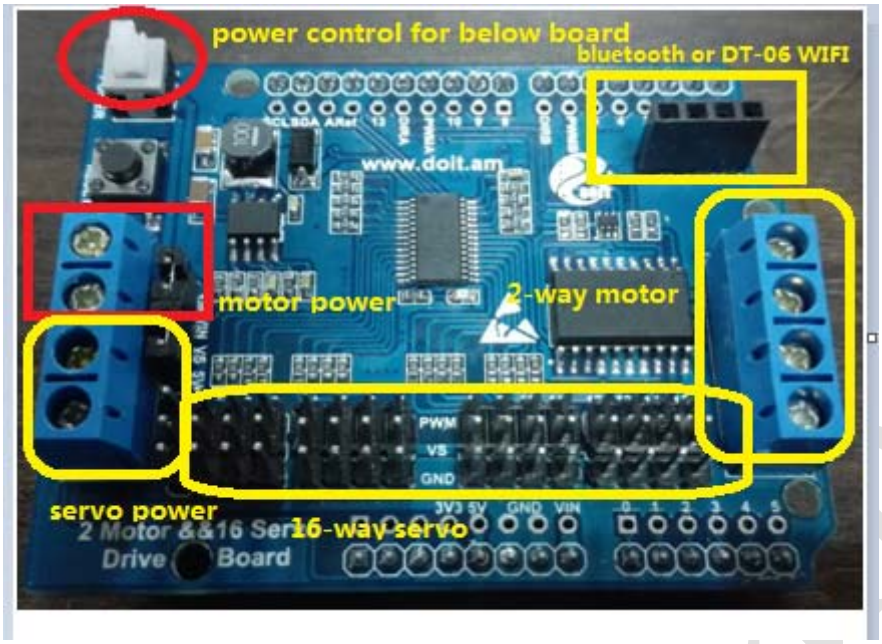


Figure 2 Real product for 2Motor &16 Servo Drive Board

Bluetooth: http://vvdoit.com/s-bluetooth

DT-06 WIFI module: http://vvdoit.com/s-dt-06

4. Interface for the Shield Board

Table 1 provides the definitions of the pins, which are also printed on the board.

Table 1 Definition for each pin

Item	Name	Function	Input/output	Notation
servo	PWM	Input for servo	input	-
	VS	Power for servo	input	-
	GND	Grand for servo	-	-
	0-15	Code for servo	-	0-15 denote the 16 servo
	SCL	Control for servo	-	**IIC interface, address:0X40**
	SDA	Control for servo	-	**IIC, address: 0X40**
motor	A	A+,A-	output	**A+, A- for the motor A**
	B	B+,B-	output	**B+, B- for the motor B**
	DIRA	output	-	Direction control for motor A
	PWMA	output	-	Speed control for motor A
	DIRB	output	-	Direction control for motor B
	PWMB	output	-	Speed control for motor B
power	VM	Power for motor	-	4.5V-36V, see the specification
	VS	Power for servo	-	6-18V,see the specification
	POWER	switch	-	**Control the power**
	RESET	reset		Connect the board
other	6P, 8P, 8P, 10P can be used to test; **TX, RX, GND, 5V can be inserted Bluetooth module**			

After insert into the Arduino UNO R3, to get it from the following:

http://www.smartarduino.com/view.php?id=94896

more applications can be visit the following.

http://www.smartarduino.com/doarm-s7-robot-arm-t900-controlled-by-espduino-wifi_p95024.html

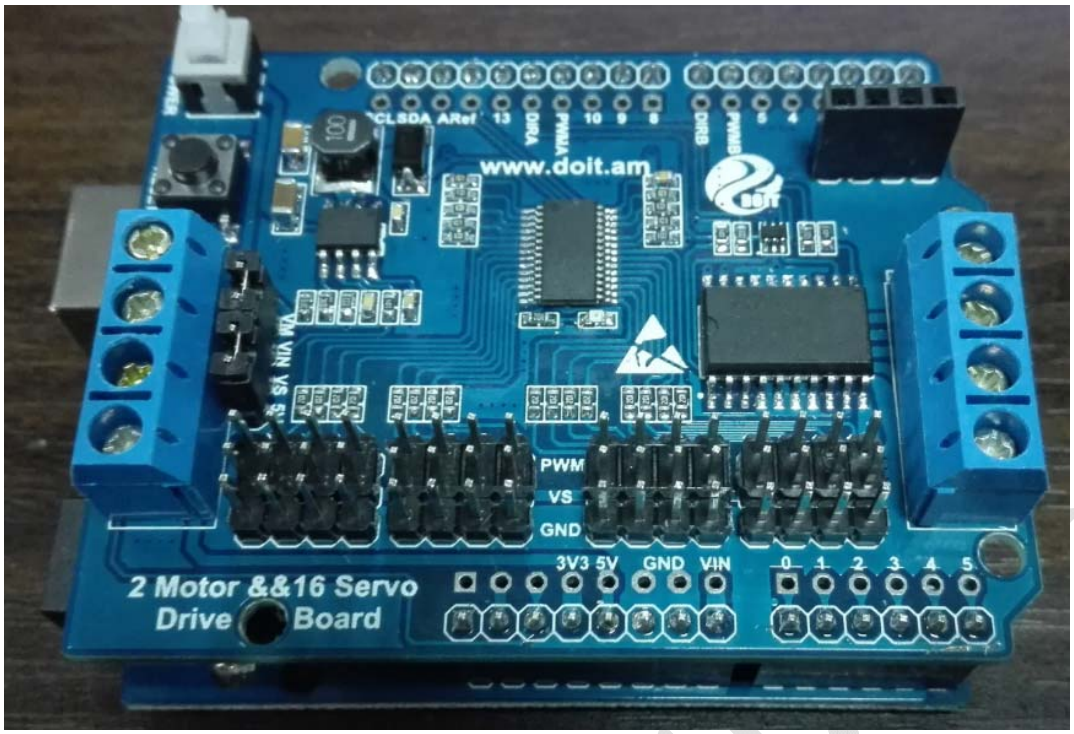


Figure 3 After inserted into the Arduino UNO R3

5. Revised Record

Table2 revised history

Version	scope	date
1.00	DrALt Version	2015-12-02

6. Support and Service

When you get the board, you can visit the following website to get the more details.Our professional sites:

http://bbs.smartarduino.com/

https://github.com/SmartArduino/szDOITWiKi/wiki

www.doit.am

www.vvdoit.com

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