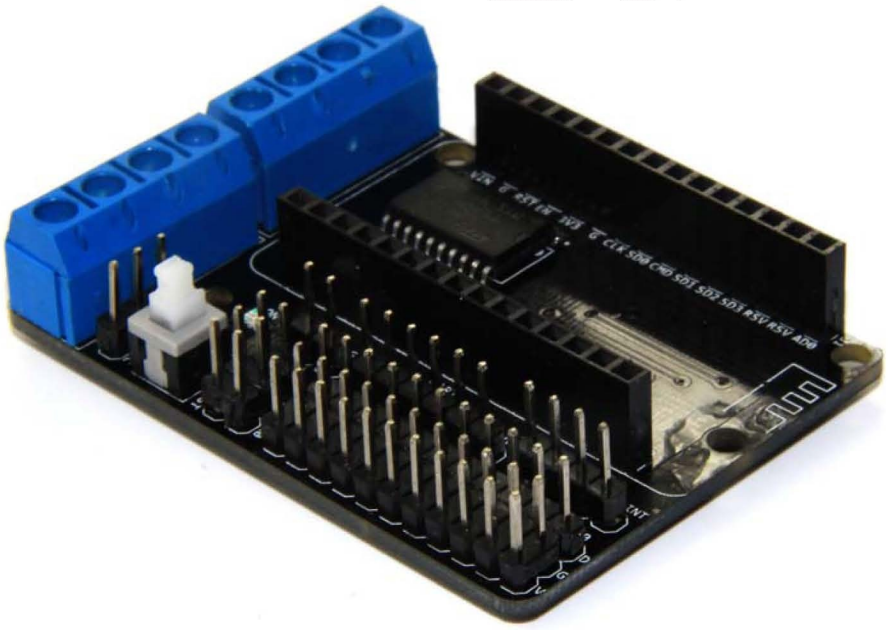
Shenzhen Doctors of Intelligence & Technology (SZDOIT)

User Manual for ESP12E Motor Shield

DC motor driven mdule



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Introduction

ESP-12E Motor Shield is designed and developed by Shenzhen Doctors of Intelligence & Technology (SZDOIT). This large current motor driven module can compatible with ESP12E Dev Kit and NodeMCU.By using the overlap-plug design, the motor shield can be directly plugged by ESP-12E Dev Kit and NodeMCU Lua module.

This shield board is driven by the special excent large power full-bridge chip **L293DD** from the famous Stmicroelectronics company, which can directly drive 2-channels DC motors or one-channel stepper motor. The driven current can be arrived at 1.2A. This board is generated with national layout, SMT ensuption, and convenient installation.

In this motor shield board, the IO port of ESP-12E Dev Kit is used as the control port. The logic chip configured inside can finish IC driven. Thus, the shield board has four ports: D1, D2, D3, and D3, which are used as PWMA(motor A), PWMB (motor B), DA (direction of motor A), and DB (direction of motor B), respectively.

In addition, this shield board has many pins, such as VIN, 3.3V, DIO, AIO, SDIO, UART, SPI, RST, and EN, thus can conveniently connect all kinds of sensors (e.g., temperature and humidy, buzzer, light, relay sensor, etc.).

The board is developed by the humanized design with a power switch, and thus user can control the on-off of power conveniently.

This motor shield board can be used to control directly the smart car. More details, please visit http://www.doit.am; http://www.smartarduino.com.

Technique Specifications

- **Input Power:**

  ~motor power (VM): 4.5~36V, can be powered seperately;

  ~control power (VIN): 4.5V~9V(10V MAX), can be powered seperately;

  ~provide the shorcut connector (short by VM and VIM), thus can use one power source (must be 4.5V~9V) to complete the drive and control for motor at a time.

- **Logic working current Iss:**<=60mA (Vi=L), <=(Vi=H);
- **Driven working current Io:** <=1.2A;
- **Max of dissipation power:** 4W(T=90℃)；
- **Control signal input voltage:** 2.3V<=VIH<=VIN (high), -0.3V<=VIL<=1.5V (low);
- **Woring temperature:*** -25℃-+125℃
- **Driven model:** double ways large power H bridge driven;
- ESP-12E Dev Kit control port: D1, D3 (motor A); D2, D4 (motor B);
- Weight: about 20g.

Mechanical Size

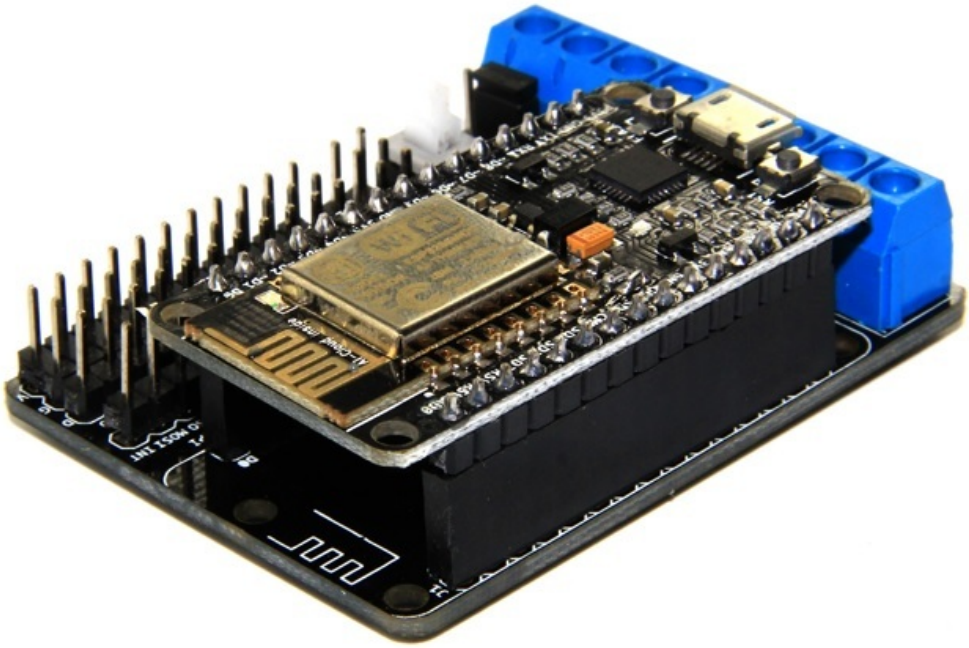
Interface and Function

The pins from the the above PCB are sreen printed on the shield board, and defined as the following table.

Table Definitions of pins for motor shield board

Item	Name	ESP12E Dev Kit pins	Function	Input/Output	Note
ESP12E Overlap insert	AD0	AD0	Analog sample	input	Connect to 12E Dev Kit
	RSV	RSV	-	-	preserve
	SD2	SD2	DIO	Input/output	Connect to 12E Dev Kit
	SD3	SD3	DIO	Input/output	Connect to 12E Dev Kit
	SD1	SD1	SPI INT	-	SPI interrupt signal
	CMD	CMD	SPI MOSI	-	SPI data signal
	SD0	SD0	SPI MISO	-	SPI data signal
	CLK	CLK	SPI CLK	-	SPI clock signal
	EN	EN	Chip enable	input	Chip enable
	RST	RST	ESP12E reset	input	-
	D0	D0	Digital IO	Input/output	Connect to 12E Dev Kit
	PWMA	D1	Motor A pins	input	Adjust speed by PWM
	PWMB	D2	Motor B pins	input	Adjust speed by PWM
	DA	D3	Motor A pin	input	Adjust direction
	DB	D4	Motor B pin	input	Adjust direction
	D5~8	D5~8	Digital IO	Input/output	Connect to 12E Dev Kit
public	V, 3V3	-	3.3V	-	-
	G, GND	-	GND	-	-
	D	-	Digital IO		-
power	VM	-	Power for motor	-	4.5V-36V, see the manual
	VIN	-	Power for control	-	4.5V-9V, see the manual
output	A	-	A+, A-	output	A+, A- connecting motor
	B	-	B+, B-	output	B+, B-connecting motor
	POWER	-	switch	-	Enable when press
	ON	-	Power indicator	output	Indicator for VIN
others	A0	AD0	Input of outside sample	input	
	AD	-	Output for sample voltage of distribution	output	=AD0/330*100

The diagram is shown in the following when NodeMCU is inserted into the motor shield board.



Revision History

Version	Content	Date
1.0	DrALt Version	05-18-2015

Technique Support

For more information about our products, please visit http://www.doit.am.

Contact Information:

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Source Code

File1：init.lua

--Doit WiFi Robo Car Ctronl Demo --ap mode --Created @ 2015-05-13 by Doit Studio --Modified: null --Global Site: http://doit.am/ --China Site: http://cn.doit.am/ --Global Shop: http://www.smartarduino.com/ --China Shop: http://szdoit.taobao.com/ --Chinese BBS: bbs.iot.fm

print("\n") print("ESP8266 Started")

local exefile="webserver" local luaFile = {exefile..".lua"} for i, f in ipairs(luaFile) do if file.open(f) then file.close() print("Compile File:"..f) node.compile(f) print("Remove File:"..f) file.remove(f) end end

if file.open(exefile..".lc") then dofile(exefile..".lc") else print(exefile..".lc not exist") end exefile=nil;luaFile = nil collectgarbage()

How to Get it

The NodeMCU motor-driven shield is at: http://www.smartarduino.com/nodemcu-motor-l293d-shield-board-for-esp-12e_p94570.html