Arduino guides and tutorials

On this Blog you will find all the information about basic electronics, arduino guides and projects. Connecting arduino to internet and interfacing it with simple TV remote using the tsop 1738 and tsop 1740. arduino can also be connected to internet and controlled through internet using the Ethernet shield. The Ethernet shield guide here is very useful and will be surely liked.

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Using the L239D motor driver IC

From microcontroller we can not connect a motor directly because microcontroller can not give sufficient current to drive the DC motors. *Motor driver is a current enhancing device, it can also be act as Switching Device.* Thus we insert motor driver in between motor and microcontroller. Motor driver take the input signals from microcontroller and generate corresponding output for motor.
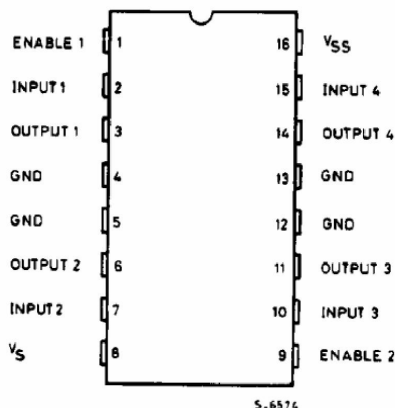
Motor Driver IC L293D

This is a motor driver IC that can drive two motor simultaneously. L293D IC is a dual H-bridge motor driver IC. One H-bridge is capable to drive a dc motor in bidirectional. L293D IC is a current enhancing IC as the output from the sensor is not able to drive motors itself so L293D is used for this purpose. L293D is a 16 pin IC having two enables pins which should always be remain high to enable both the H-bridges. L293B is another IC of L293 series having

1. L293D can run a motor up to 600 mA whereas L293B can run up to 1 A.

2. L293D has protection diode whereas L293B doesn't have any such protection diode. Need to add the protection diode manually.

Connecting L239D to motors

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Labels

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Guide to TSOP IR receiver

Using the L239D motor driver IC to control two DC motors

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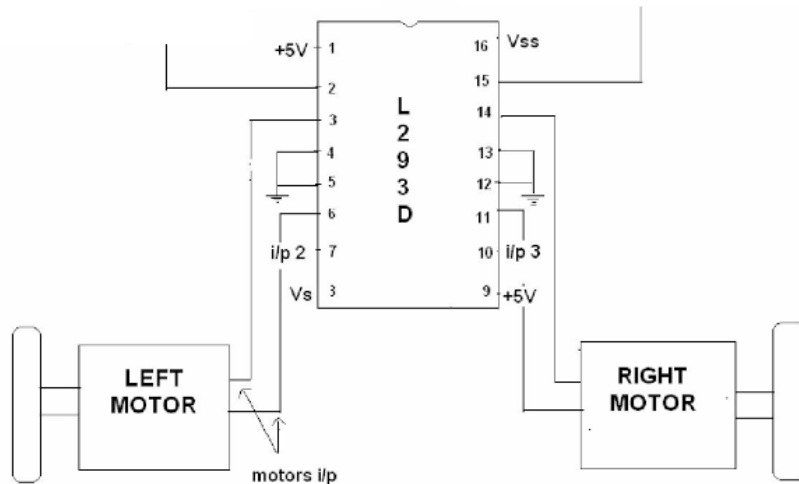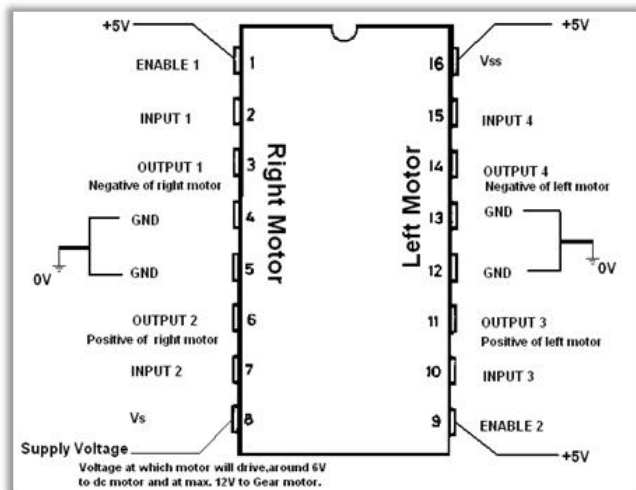
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Diagram 2

Points regarding L293D

Supply voltage (Vss) is the Voltage at which we wish to drive the motor.
Generally we prefer 6V for dc motor and 6 to 12V for gear motor, depending upon the rating of the motor.

Logical Supply Voltage will decide what value of input voltage should be considered as high or low .So if we set Logical Supply Voltage equals to +5V, then -0.3V to 1.5V will be considered as Input Low Voltage and 2.3 V to 5V will be considered as Input High Voltage.

L293D has 2 Channels .*One channel is used for one motor*.

- Channel 1 - Pin 1to 8
- Channel 2 - Pin 9 to 16

Enable Pin is use to enable or to make a channel active .Enable pin is also called as Chip Inhibit Pin.

All Input (Pin No. 2, 7,10and 15) of L293D IC is the output from microcontroller (*ATmega8*).

E.g.-*We connected (Pin No. 2, 7, 10 and 15) of L293D IC to (Pin No. 14, 15,16and 17) of ATmega8 respectively in our robots*, because on pin 15 and 16 of ATmega8 we can generate PWM.

All Output (Pin No. 3, 6,11and 14) of L293D IC goes to the input of Right and Leftmotor.

if Enable pin low, the output will be at 0 always. If its high output depend on input

Output Connections
- OUTPUT 1 (Pin No 3) --- Negative Terminal of Right Motor
- OUTPUT 2 (Pin No 6) --- Positive Terminal of Right Motor
- OUTPUT 3 (Pin No 10) --- Positive Terminal of Left Motor
- OUTPUT 4 (Pin No 14) --- Negative Terminal of Left Motor

Input 1	Input 2	Input 3	Input 4	Output 1	Output 2	Output 3	Output 4	Motors Output		Movement
								Right	Left	
Low	High	High	Low	0	Vss	Vss	0	Straight	Straight	Straight
Low	High	Low	Low	0	Vss	0	0	Straight	No move	Left Turn
Low	Low	High	Low	0	0	Vss	0	No move	Straight	Right Turn
Low	High	Low	High	0	Vss	0	Vss	Straight	Reverse	Sharp Left
High	Low	High	Low	Vss	0	Vss	0	Reverse	Straight	Sharp Right
High	Low	Low	High	Vss	0	0	Vss	Reverse	Reverse	Backward

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Labels: Using the L239D motor driver IC to control two DC motors

23 comments:

Vedavyas July 28, 2012 at 1:34 AM

where can i buy this Motor Driver IC L293D ... pls provide the link [preferaably INDIA]

Reply

     Replies

       Anonymous May 4, 2013 at 10:17 PM

       you can fin dit in DHOLAI KHAL!

       Kranthi kumar June 13, 2013 at 4:56 AM

       Here is the list of robotics online stores in India
       http://startrobotics.blogspot.com/2013/05/normal-0-false-false-false-en-us-x-none.html

     Reply

sachin July 28, 2012 at 8:08 PM

http://mgsuperlabs.co.in/estore/

Reply

gvs June 2, 2013 at 2:19 AM

Does the output from L239D control the speed of the motor ?? Or does it only decide id the motor runs in clockwise or anticlockwise direction ??

Reply

     Replies

       Kranthi kumar June 13, 2013 at 4:50 AM

       L239D can control the speed if you use PWM(Pulsw Width Modulation) as input

     Reply

Rahul Singa June 30, 2014 at 1:37 AM

nice article for beginers

Reply

samir pokhrel December 22, 2014 at 6:01 PM

thank u soo much...

Reply

Kenny Pragash December 27, 2014 at 11:59 PM

Hi sir. Im doing a mini project on controlling the DC motor speed by SMS. im using GSM, arduino and h-bridge driver. I'm new with all this thing. can u help me sir?

Reply

Abhishek Mundrawale January 23, 2015 at 12:52 AM

for quadcopter this IC can be used for control the BLDC motors

Reply

jo May 11, 2015 at 1:12 AM

nice tutorial

Reply

hely fely May 11, 2015 at 4:44 AM

Hi, I really consider this is an admirable blog. I truly love the way of posting. Three Phase Motors

Reply

lang August 18, 2015 at 2:48 PM

nice tutorial and easy to follow

Reply

Unknown April 10, 2016 at 7:15 PM

what happens if 12V is supplied to an output pin?

Reply

Joy Biswas April 12, 2016 at 1:17 AM

here you can see more about l293d
http://www.engineersskull.com/l293d-motor-driver/

Reply

jhashank June 29, 2016 at 2:46 AM

What is the significance of l,2,9,3,d in naming of l293d ic?

Reply

jhashank June 29, 2016 at 2:47 AM

What is the significance of l,2,9,3,d in naming of l293d ic?

Reply

jhashank June 29, 2016 at 2:47 AM

What is the significance of l,2,9,3,d in naming of l293d ic?

Reply

Quadcopter in India July 24, 2016 at 4:48 AM

Wow, really fantastic post. I never seen this type of post. This post are really helpful for those who have big fan of Plane.

Reply

sagar ganji September 7, 2016 at 6:02 AM

Actually if we give 0 logic to pin2 or any other input pins then motor starts rotating without any logic on respective channel , it shows that all input pins need only 0logic for their rotation in respective direction , then why in truth table you have given logic 1, &logic0 , and so on,, plz tell me , i m right or wrong , and what pulse actually input pins need

Reply

Quadcopter In India September 11, 2016 at 9:39 PM

Very glad to read your blog.Thank you for sharing this article.It is great! I will keep your article in my idea. Very happy reading.

Reply

Miracle Electronics October 27, 2016 at 3:51 AM

A motor driver IC is an integrated circuit chip which is usually used to control motors in autonomous robots. Motor driver ICs act as an interface between microprocessors in robots and the motors in the robot.
Power transformers in India | SMPS Transformer Manufacturer in India

Reply

Karthi Keyan March 2, 2017 at 3:02 AM

Can we give 12V 1.3Ah power supply as input in pin:8 of L293D ic

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