

Low-Cost DC Motor Direction Controller with Fast Brake using 2 Relays

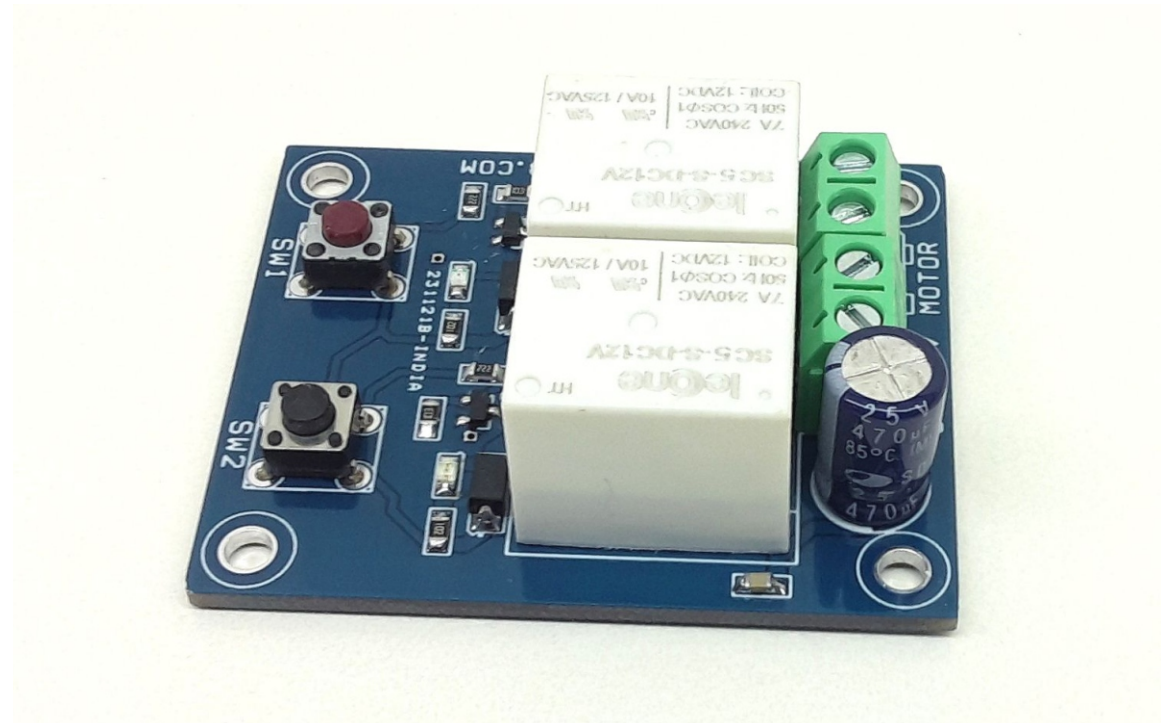
The project presented here is a low-cost easy to use DC brushed motor direction controller with fast-brake, the project was built using two 12V Relays, 2 x BJT transistors, and 2 x tactile switches. The two LEDs are provided to display the motor direction, 2 tactile switch controls the direction of the motor.

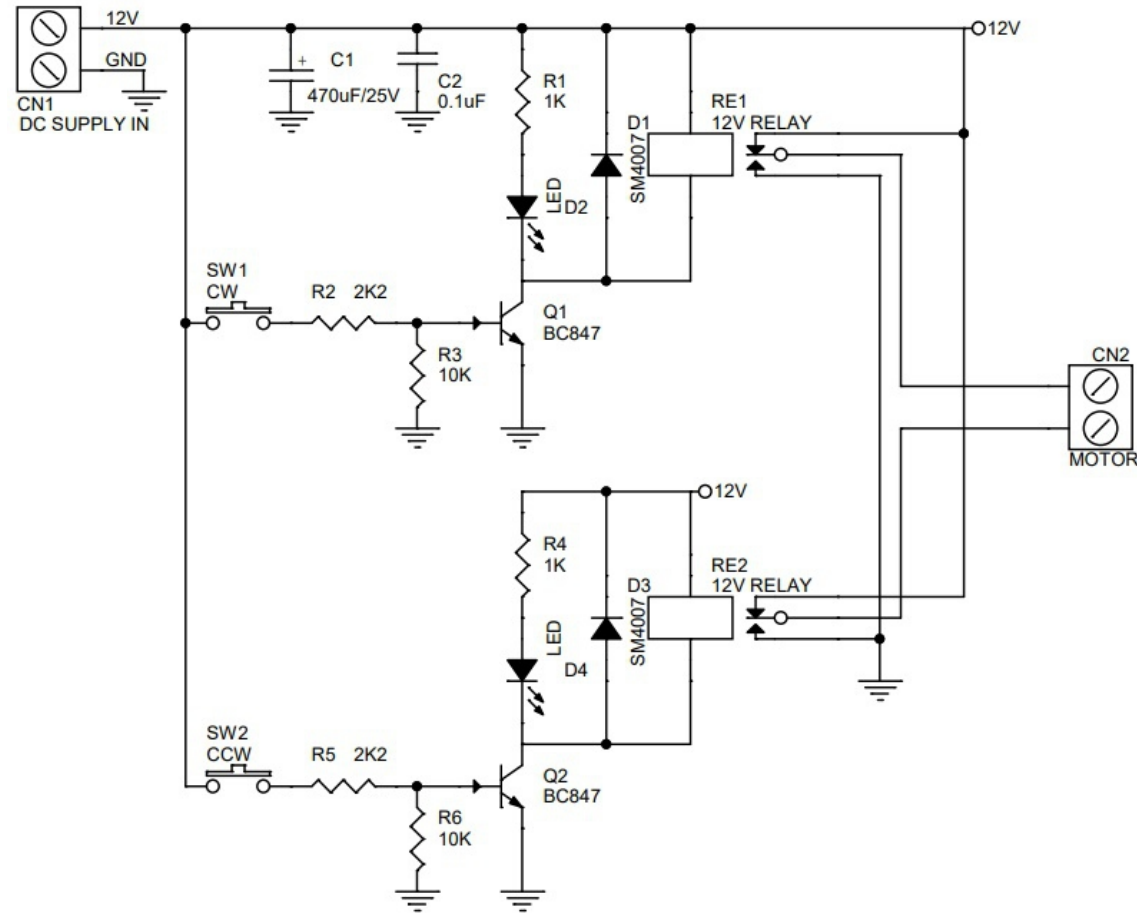
Operation

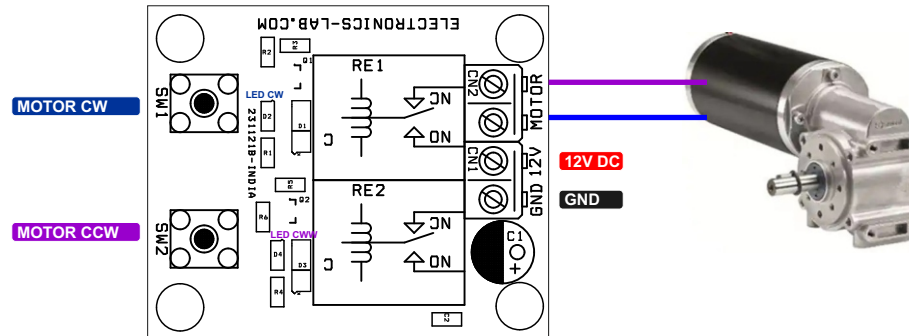
Connect 12V DC power supply to connector CN1, connect 12V DC brushed Motor to CN2. The motor will run in any direction by pressing any of the switches, other switch will rotate the motor in another direction. When the user leaves the switch fast brake apply as both terminals of the motor are short when both relays are in an OFF state.

Features

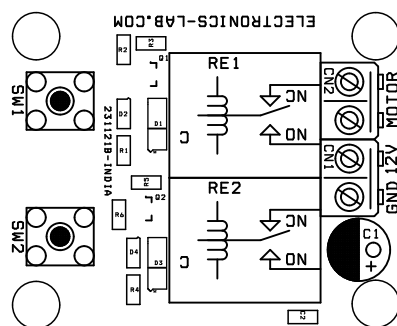
- Operating Supply 12V to 14V DC
- Motor Load Up to 10Amps
- Fast Brake while changing the direction
- 2 X LED to display the direction of the motor
- 2 X Tactile Switches to Control the Direction
- PCB Dimensions 52.55 x 43.18 mm



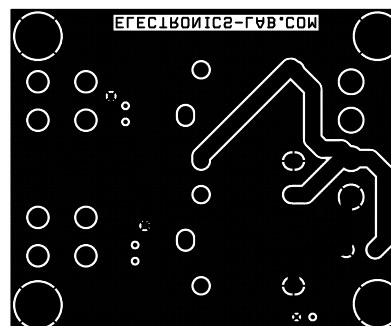




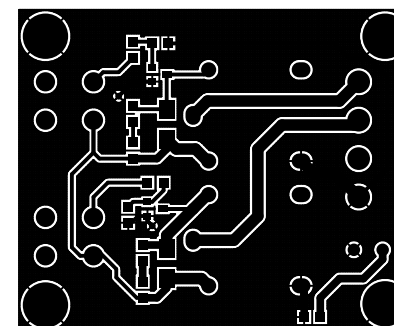
BOM						
NO.	QNTY.	REF.	DESC.	MANUFACTURER	SUPPLIER	SUPPLIER PART NO
1	1	CN1	2 PIN SCREW TERMINAL PITCH 5.08MM	PHOENIX	DIGIKEY	277-1247-ND
2	1	CN2	2 PIN SCREW TERMINAL PITCH 5.08MM	PHOENIX	DIGIKEY	277-1247-ND
3	1	C1	470uF/25V	NICHICON	DIGIKEY	493-1553-ND
4	1	C2	0.1uF/50V SIZE 0805	MURATA/YAGEO	DIGIKEY	
5	2	D1,D3	SM4007 SMD	DIODE	DIGIKEY	S1MBDITR-ND
6	2	D2,D4	LED SMD SIZE 0805	OSRAM	DIGIKEY	475-1278-1-ND
7	2	Q1,Q2	BC847	NEXPERIA	DIGIKEY	1727-2924-2-ND
8	2	RE1,RE2	12V RELAY	TE CONNECTIVITY	DIGIKEY	PB2029-ND
9	2	R1,R4	1K 5% SMD SIZE 0805	MURATA/YAGEO	DIGIKEY	
10	2	R2,R5	2K2 5% SMD SIZE 0805	MURATA/YAGEO	DIGIKEY	
11	2	R3,R6	10K 5% SMD SIZE 0805	MURATA/YAGEO	DIGIKEY	
12	1	SW1	TACTILE SWITCH	NKK SWITCH	DIGIKEY	HP0215AFKP2-ND
13	1	SW2	TACTLIE SWITCH	NKK SWITCH	DIGIKEY	HP0215AFKP2-ND



SILK SCREEN TOP



BOTTOM LAYER



TOP LAYER

PCB DIMENSIONS 52.55MM X 43.18MM

