



# FOUR QUADRANT DC MOTOR CONTROL WITHOUT MICROCONTROLLER

## ABSTRACT

The project is designed to develop a four quadrant control system for a DC motor.

The motor is operated in four quadrants i.e. clockwise; counter clock-wise, forward brake and reverse brake.

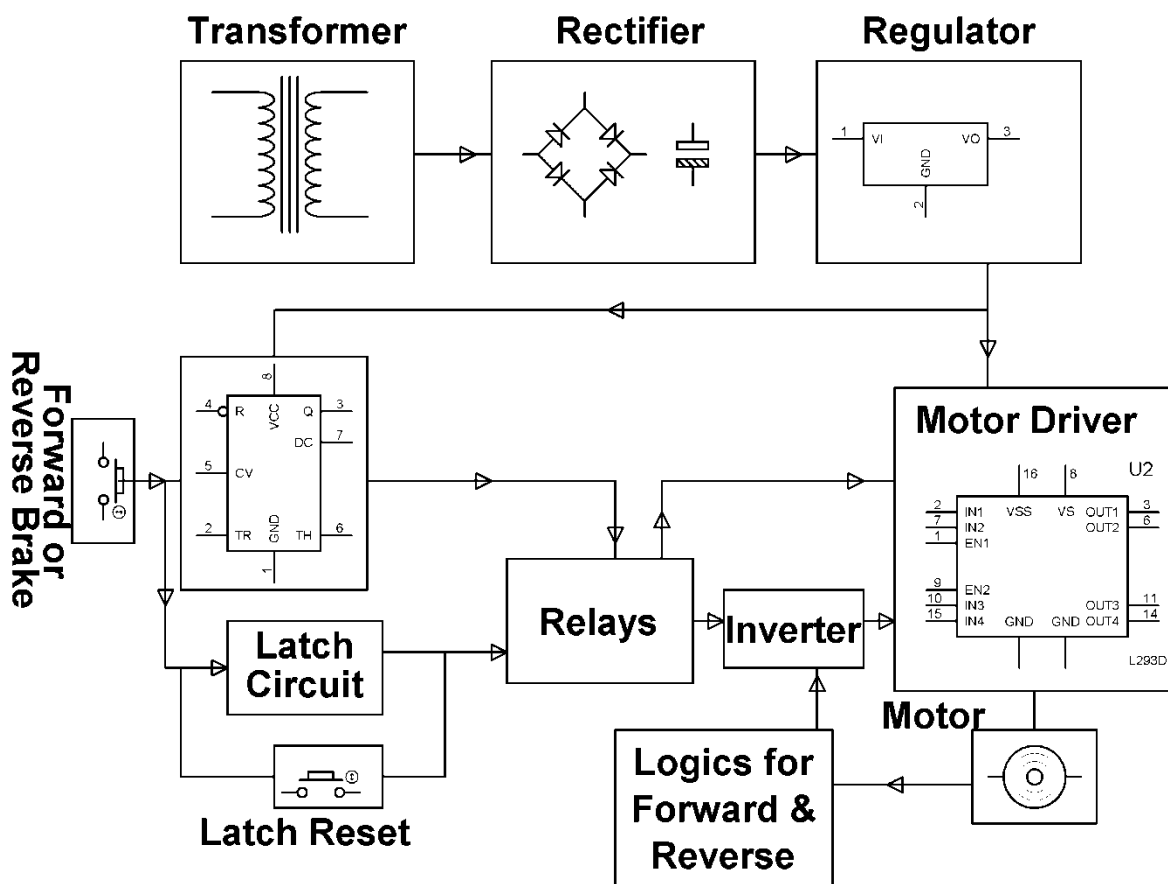
The four quadrant operation of the dc motor is best suited for industries where motors are used and as per requirement as they can rotate in clockwise, counter-clockwise and also apply brakes immediately in both the directions. In case of a specific operation in industrial environment, the motor needs to be stopped immediately. In such scenario, this proposed system is very apt as forward brake and reverse brake are its integral features.

Instantaneous brake in both the directions happens as a result of applying a reverse voltage across the running motor for a brief period. 555 timer used in the project develops required pulses. Push buttons are provided for the operation of the motor



which are interfaced to the circuit that provides an input signal to it and in turn controls the motor through a driver IC. Optionally speed control feature can be achieved (but not provided in this project) by push button operation.

### BLOCK DIAGRAM



### HARDWARE REQUIREMENTS:

- Diodes, 555Timer, Relays, Transistors, Motor Driver IC, DC motor, Inverter IC, Push Buttons, Voltage Regulator, and Transformer.