The circuit below shows one way to operate a DC motor (such as our LEGO motors) in two directions. This particular circuit only works for motors that have a relatively large resistance (By large, I mean large as compared to the two 470Ω resistors shown in the circuit. The Lego motors have a static resistance of about 25Ω, but their resistance rises to something around 700Ω or 1000Ω when they're actually running).

Control A is used to drive the motor in one direction ("yellow"), and control B in the other direction ("green"), as shown in this "truth table".

A	B	Motor Status
0	0	off
0	1	clockwise
1	0	Counter-clockwise
1	1	off

The colored LED's are optional; if used, the appropriate LED will light while the motor is turning. Controls "A" and "B" are "active low" outputs from the DAQ, which means that you set the value to zero when you want to use it. If both A and B are the same, then the motor will not run.

The +12V power supply can be adjusted depending on the speed you want. Use +6 or +7 volts for a slower speed; use +12 or +13V for a higher speed. With the LEGO motors, don't go higher than about +15V.