Design of Obstacle Avoiding Robot using Arduino

Arduino is the main processing unit of the robot. Out of the 14 available digital I/O pins, 6 pins are used in this project design.

The ultrasonic sensor has 4 pins: Vcc, Trig, Echo and Gnd. Vcc and Gnd are connected to the supply pins of the Arduino. Trig is connected to the 11th pin and Echo is connected to 10th pin of the Arduino.

L293D is a 16 pin IC. Pins 1 and 9 are enable pins. They are connected to Vcc. Pins 2 and 7 are control inputs from microcontroller for first motor. They are connected to pins 9 and 8 of Arduino respectively.

Similarly, pins 10 and 15 are control inputs from microcontroller for second motor. They are connected to pins 4 and 3 of Arduino. Pins 4, 5, 12 and 13 of L293D are ground pins and are connected to Gnd.

First motor (consider this as the motor for left wheel) is connected across the pins 3 and 6 of L293D. The second motor, which acts as the right wheel motor, is connected to 11 and 14 pins of L293D.

The 16th pin of L293D is Vcc1. This is connected to 5V Vcc. The 8th pin is Vcc2. This is the motor supply voltage. This can be connected anywhere between 4.7V and 36V. In this project, pin 8 if L293D is connected to 9V supply.

Motor Driver boards are available with on – board 5V voltage regulator. A similar one is used in the project.