

Since the L298N Motor Driver IC is a dual full bridge driver IC, you can control two motors at the same time with individual inputs. The logic supply voltage is 5V but the motor supply voltage can be as high as 45V. The peak output current per channel is 2A.

Generally, L298N Driver is available as modules that contains all the necessary components and connectors for controlling two DC Motors. One such module is shown below. I'll explain few important components on this module. The L298N Motor Driver Module consists of two 2-pin screw terminal blocks for connecting two motors. It also has six pin male headers for connecting the two enable inputs and the four input pins (two for each motor).

There is a 3-pin screw terminal block through which you need to give the supply voltage to the motor. If the motors used are rated for 12V or less, then the 12V supply is given through this screw terminal and the onboard 5V regulator will provide the 5V logic supply to the L298N IC.

B. Arduino DC Motor Control using L298N

We can control the speed and direction of a DC Motor using Arduino and L298N IC. Here we are using RS775 motor which is high speed & high current motor. We are using only one motor so we require only one motor connection. We are using Motor1 out .ENA pin is connected directly to 5V with the help of jumper , as we don't want to control speed.IN1 & IN2 are connected to A0 & A1 of Arduino which are available on L293 Motor shield above Arduino. A0 & A1 are used as digital pins here.



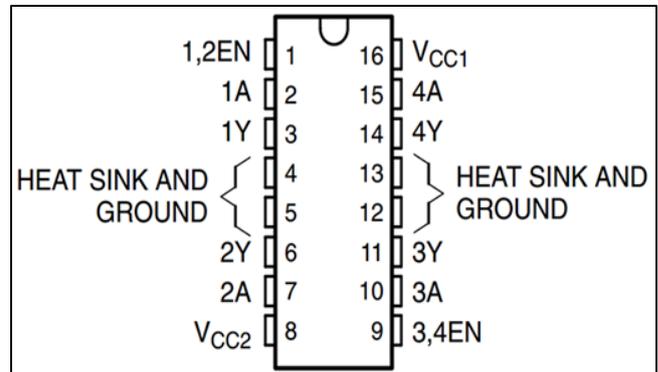
This motor driver expansion board is based on the L293D chip which is designed to drive up to 4 bidirectional DC motors with individual 8-bit speed selection. It can also drive 2 stepper motors (unipolar or bipolar), single coil or double coil, interleaved or micro-stepping. It contains 4 H-bridges which provide up to 0.6 A per bridge (1.2A peak) at voltages from 4.5 V to 36 V.

This shield has pull down resistors to keep the motors disabled during power up. It also features a 2-pin terminal block to ensure separate logic and motor external power supplies. This expansion board is compatible with Arduinos Mega, Diecimila, and Duemilanove.

C. L293D

The L293D is quadruple high-current half-H drivers.It is designed to provide bidirectional drive currents of up to 600-mA at voltages from 4.5 V to 36 V. Both devices are designed to drive inductive loads such as relays, solenoids, dc and bipolar stepping motors, as well as other high-current/high-voltage loads in positive-supply applications. All inputs are TTL compatible. Each output is a complete totem-pole drive circuit, with a Darlington transistor sink and a pseudo-

Darlington source. Drivers are enabled in pairs, with drivers 1 and 2 enabled by 1,2EN and drivers 3 and 4 enabled by 3,4EN. When an enable input is high, the associated drivers are enabled, and their outputs are active and in phase with their inputs. When the enable input is low, those drivers are disabled, and their outputs are off and in the high-impedance state. With the proper data inputs, each pair of drivers forms a full-H (or bridge) reversible drive suitable for solenoid or motor.



V. SOLAR PANEL

Photovoltaic solar panels absorb sunlight as a source of energy to generate electricity. A photovoltaic (PV) module is a packaged, connected assembly of typically 6x10 photovoltaic solar cells. Photovoltaic modules constitute the photovoltaic array of a photovoltaic system that generates and supplies solar electricity in commercial and residential applications.

Each module is rated by its DC output power under standard test conditions (STC), and typically ranges from 100 to 365 Watts (W). The efficiency of a module determines the area of a module given the same rated output – an 8% efficient 230 W module will have twice the area of a 16% efficient 230 W module. There are a few commercially available solar modules that exceed efficiency of 24.

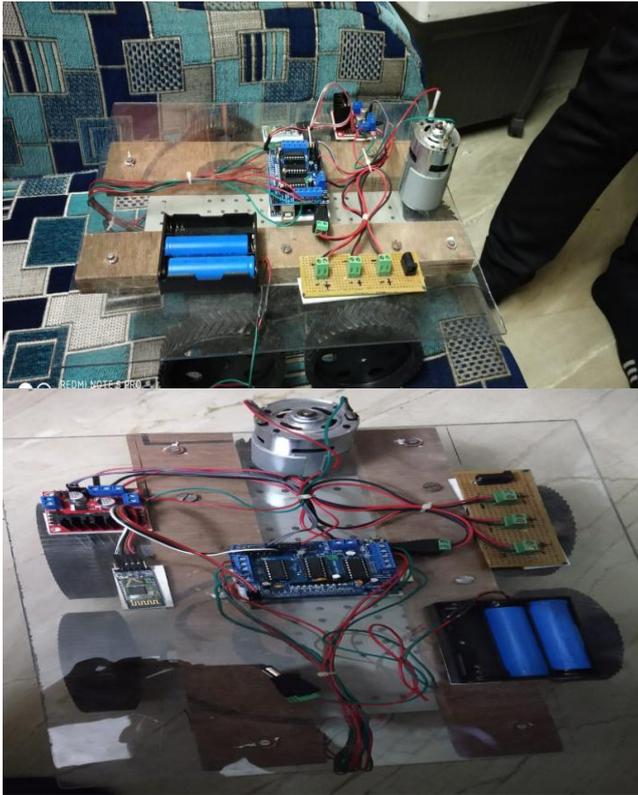
A single solar module can produce only a limited amount of power; most installations contain multiple modules. A photovoltaic system typically includes an array of photovoltaic modules, an inverter, a battery pack for storage, interconnection wiring, and optionally a solar tracking mechanism.

The most common application of solar energy collection outside agriculture is solar water heating systems, Tracking system grass cutting system etc.

A. HC05 Bluetooth Details

HC-05 module is an easy to use Bluetooth SPP (Serial Port Protocol) module, designed for transparent wireless serial connection setup. The HC-05 Bluetooth Module can be used in a Master or Slave configuration, making it a great solution for wireless communication. This serial port bluetooth module is fully qualified Bluetooth V2.0+EDR (Enhanced Data Rate) 3Mbps Modulation with complete 2.4GHz radio transceiver and baseband. It uses CSR Bluecore 04-External single chip Bluetooth system with CMOS technology and with AFH (Adaptive Frequency Hopping Feature).

VI. RESULT



REFERENCES

- [1] G.Rahul, "Grass cutting machine by solar energy power", ISSN no:2348-4845,international journal and magazine of engineering, technology management and research.
- [2] Bhosale Swapnil, Khadke Sagar, "Solar powered automatic grass cutter", ISSN:2395-0056,volume no:04 issue:05,may 2017,International research journal of engineering and technology.
- [3] Ms.Yogita D. Ambekar, Mr. Abhishek U. Ghate, "Solar based grass cutter", ISBN:978-93-86171-31-3, 26 Feb 2017, International conference on recent trends in engineering, science, Humanities and management.