



TITLE: Fan with Speed Control

LEARNING SCENARIO

School:	Duration (minutes):	40
Teacher:	Students age:	12 -13

Essential Question:

Topics:

- Arduino Programming Card and Block coding (Mblock)

Aims:

- They will understand how to use DC motors

Outcomes:

- They will code Arduino with Mblock.
- They will use DC Motor
- They will use Motor driver to control DC motor

Work forms:

- Work in pairs

Methods:

Presentation and Project based Learning

ARTICULATION

Course of action (duration, minutes)

INTRODUCTION

Talk about the final project:

We will connect a DC motor to Arduino and then use motor driver to control the dc motor. We will control it's speed and direction by using L298n motor Driver.

MAIN PART

- Give information about DC motor
 A DC motor (Direct Current motor) is any of a class of rotary electrical motors that converts direct current electrical energy into mechanical energy.

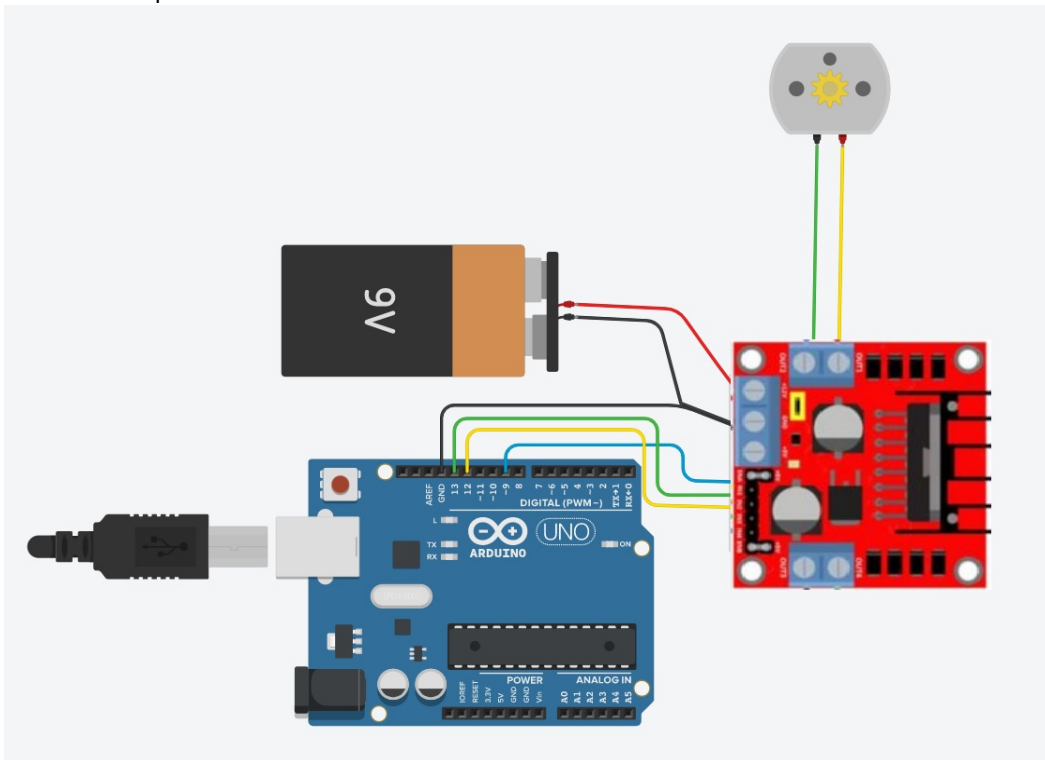


A DC motor is the most common type of motor. ... If you connect these two leads directly to a battery, the motor will rotate. If you switch the leads, the motor will rotate in the opposite direction. Warning – Do not drive the motor directly from Arduino board pins. This may damage the board.

- Connect it to a battery
 Video : <https://youtu.be/oFJAiyqAN5Q>
- Ask to Classroom how to control its speed? And give information about L’98n Motor driver.

The L298N is a dual H-Bridge motor driver which allows speed and direction control of two DC motors at the same time. The module can drive DC motors that have voltages between 5 and 35V, with a peak current up to 2A.

- Let’s make a fan with speed control.
- Set up this circuit with Arduino and servo motor.



- Open Mblock and connect the Arduino
- Don't forget the extension of L298n motor driver.
- Write this code:

```

when Arduino Uno starts up
  setup pinA1 12 pinA2 11 pinSpeedA 9 pinB1 7 pinB2 8 pinSpeedB 6
  move forward at power 5 % for 2 seconds
  move forward at power 10 % for 2 seconds
  move forward at power 15 % for 2 seconds
  move forward at power 20 % for 2 seconds
  move forward at power 25 % for 2 seconds
    
```

Video: <https://youtu.be/Bi0j6fPOFPs>

**CONCLUSION**

We used DC motor and L298n motor driver to control it's Speed.

Methods

presentation
talk
work on the text
graphic work
interactive exercise /simulation on the computer

interview
demonstration
role playing

Work forms

individual work
work in pairs
group work
frontal work

Material

- Arduino and USB connection Cable
- Computer
- DC motor
- L298n Motor Driver
- jumper Cables

Literature**PERSONAL OBSERVATIONS, COMMENTS AND NOTES**