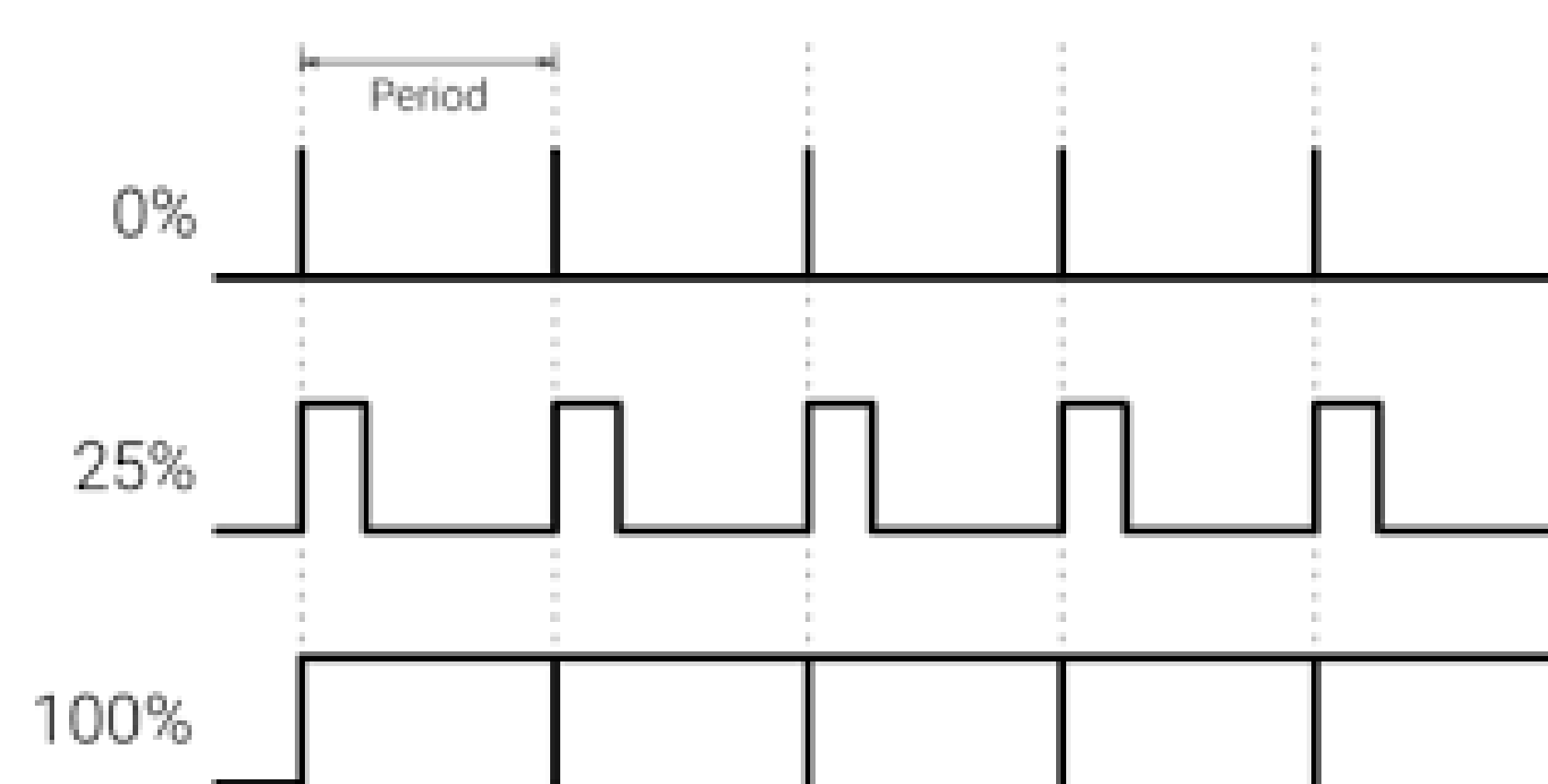
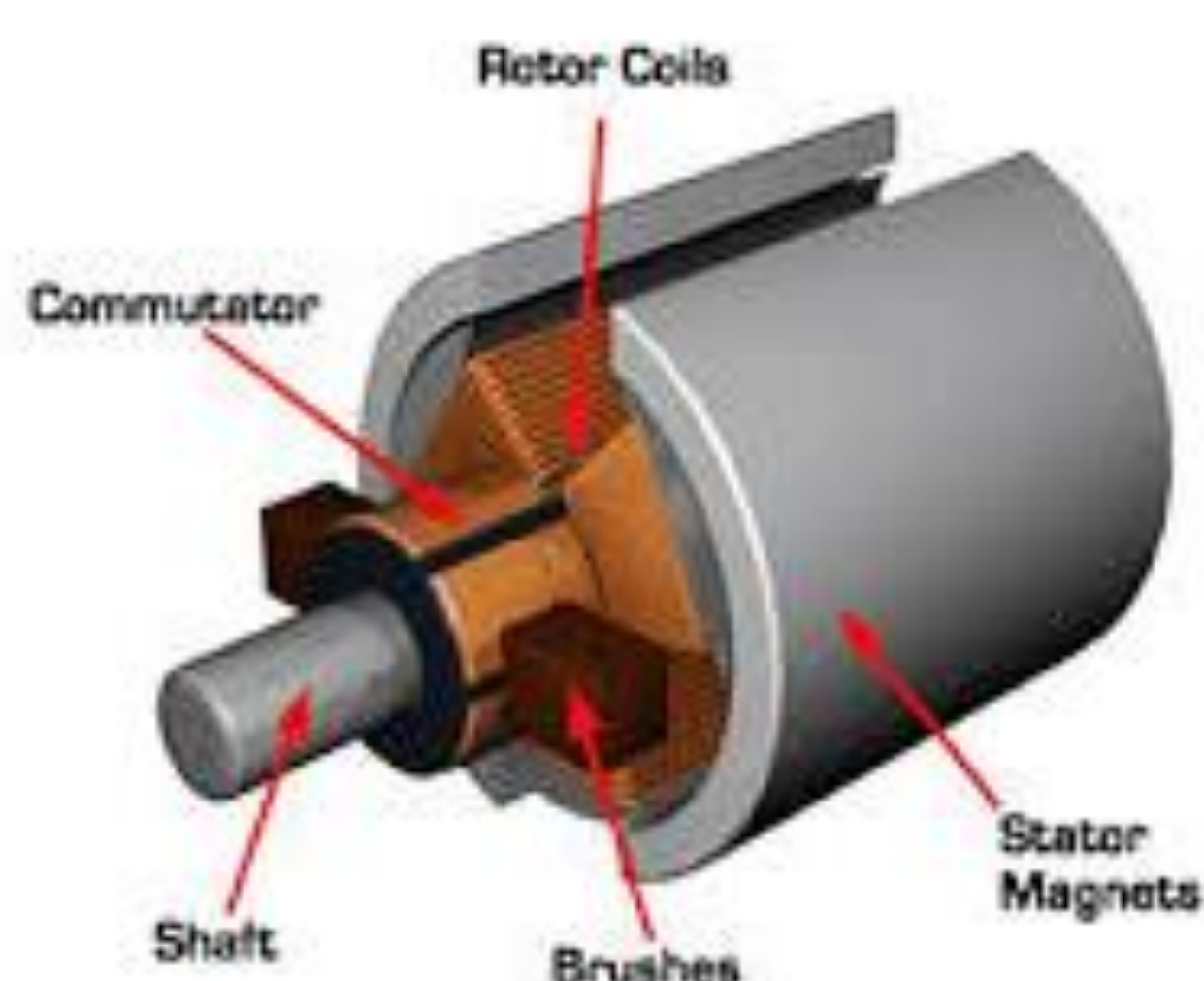


Project Objectives

- To design and develop a DC Motor control system to manipulate the speed of the DC motor.
- Investigate the steady state characteristics of the DC Motor and speed sensor.
- Investigate and develop a current-limiting design to limit the motor's peak current level during maximum torque.
- Investigate EV power dissipation during operation and promote alternative solution, where applicable.

Potential Issues

- Insufficient supply of current and voltage to start the motor when load present.
- Heat management system – a bespoke heat management system may be required due to power stage's high power dissipation during maximum torque.
- Safety issues – since the torque command control is a potentiometer hooked to a pedal, a failure of the piece of wire might cause injury during testing.

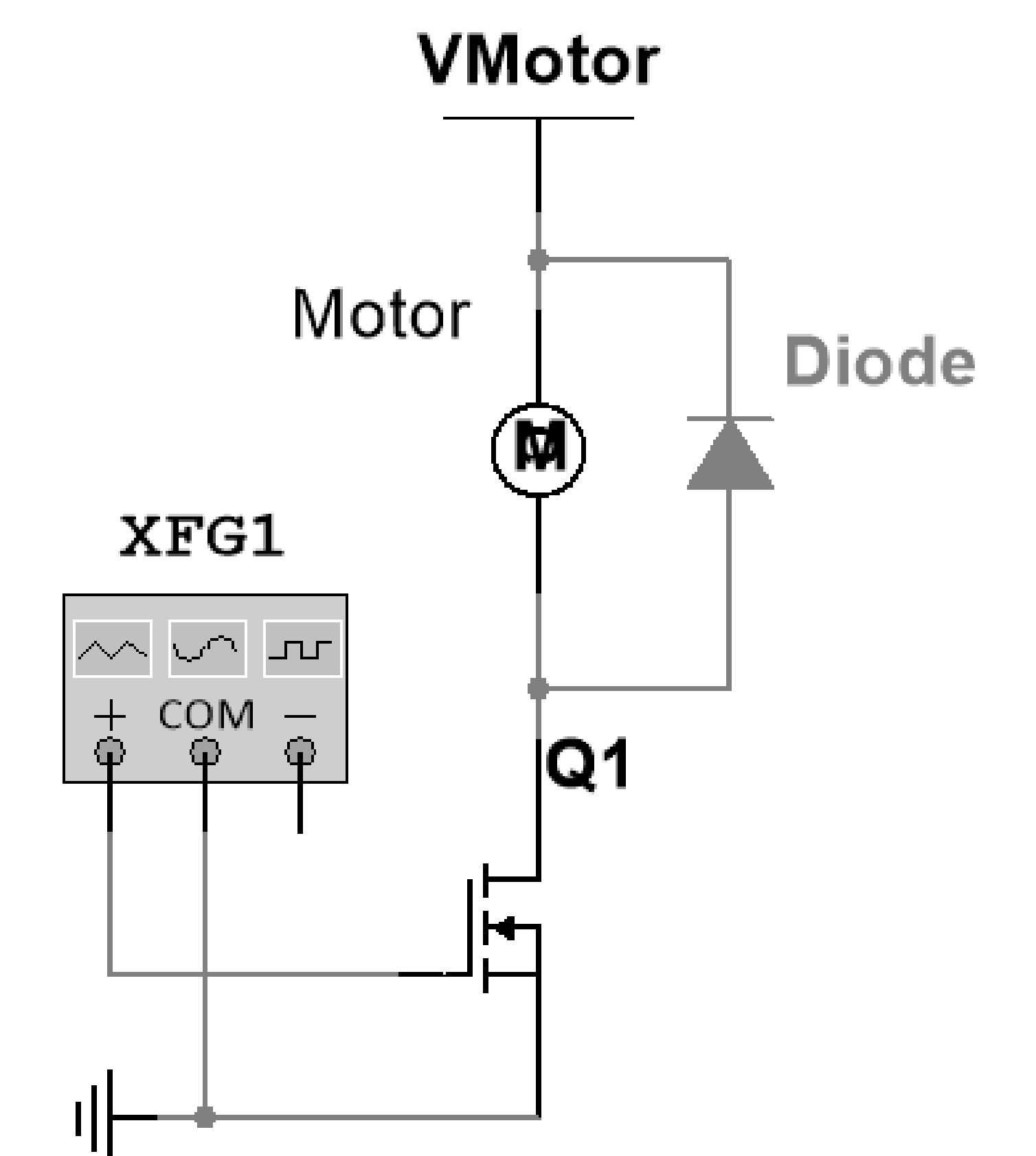


DC brushed motor – Lynch Motor

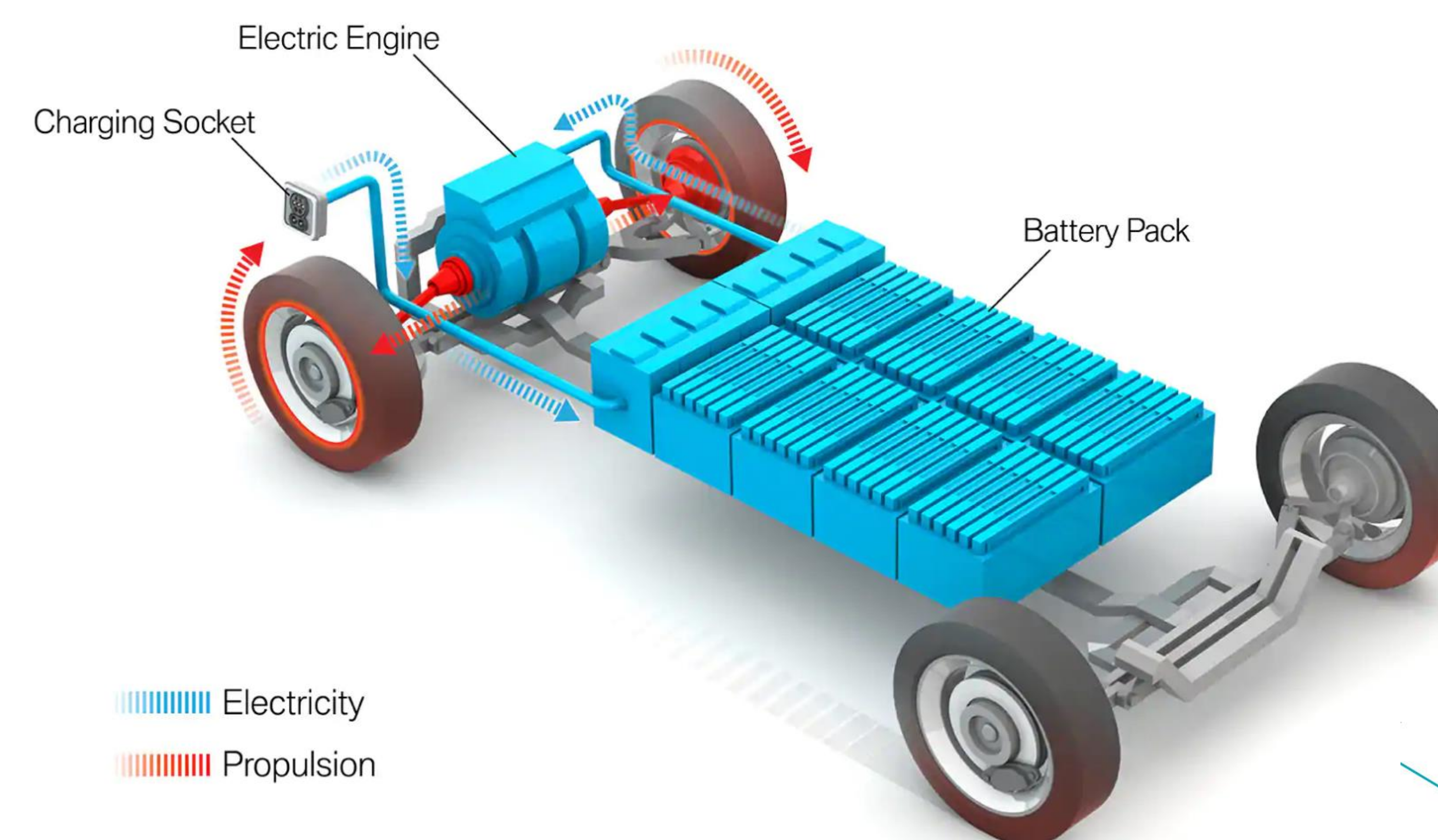
PWM signal to control the motor speed

Proposed Implementation

- A simple circuit serves as a backbone of the motor control system and was designed to test the capability of a Pulse Width Modulation to control the speed of a DC Motor at a low voltage input.
- Using a potentiometer as a speed control of the EV, a microcontroller takes the analog value and output a PWM signal to the high powered MOSFET driver to drive the gate.



- Introduce a tachogenerator where output measured speed is fed back to the speed controller. This provides a fine speed control of the electric vehicle where constant speed is essential.



Infinite Possibilities