

Crazy Motor Driver

1. Introduction

This a simple resistor motor driver circuit:

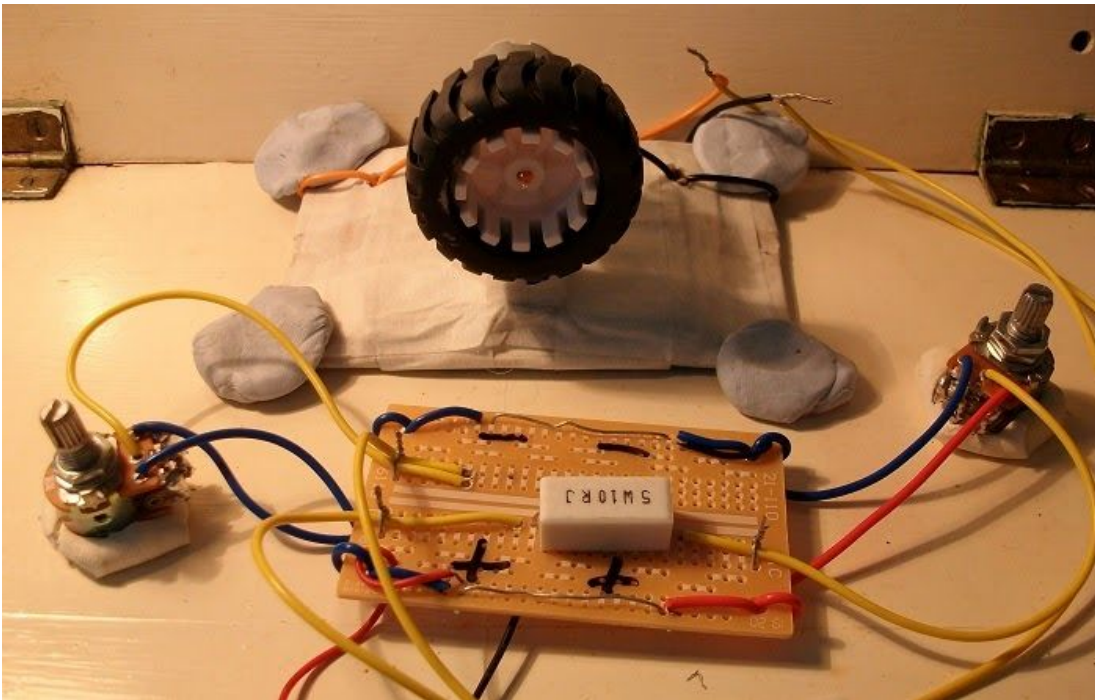


Figure 1: Device

You can see the low current motor with the wheel attached in the photo.

This circuit is not the most optimum motor driver design. I suggest that you do NOT connect this circuit to the USB power supply or mains powered power supply.

2. Step 1: Design the Circuit

I drew the circuit via PSpice simulation software:

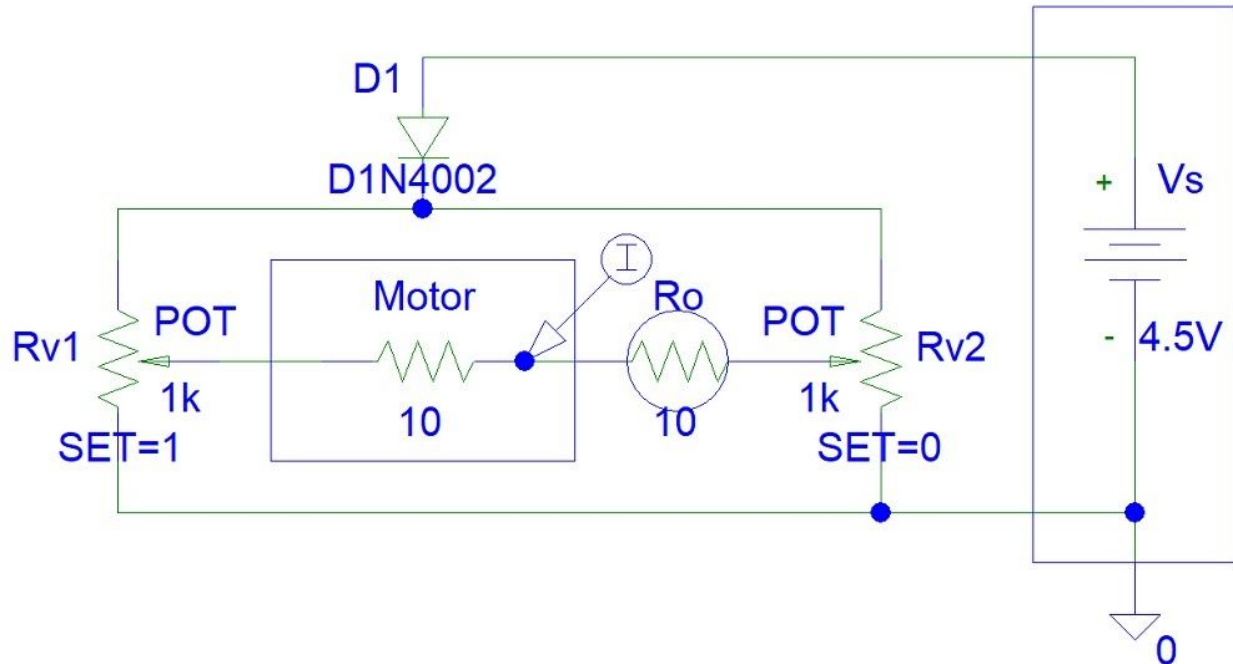


Figure 2: PSpice Drawing

The diode is used for protecting the power supply from discharging currents of the motor. This can occur when the battery is discharged and the motor is spinning very fast.

3. Step 2: Simulations

PSpice simulations show a high current output.

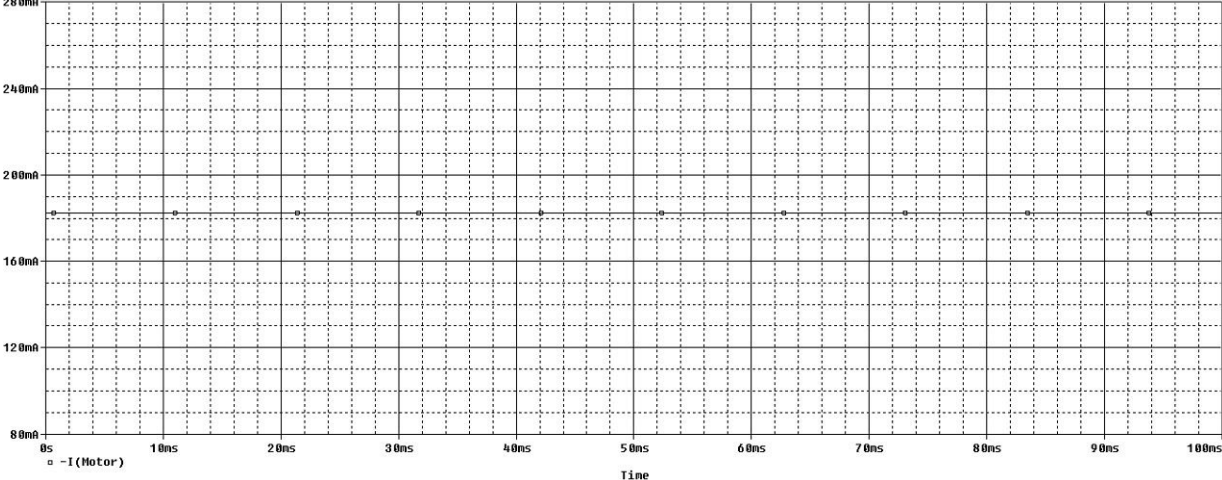


Figure 3: PSpice Simulations

4. Step 3: Make the Circuit

I did not include the diode in my circuit.

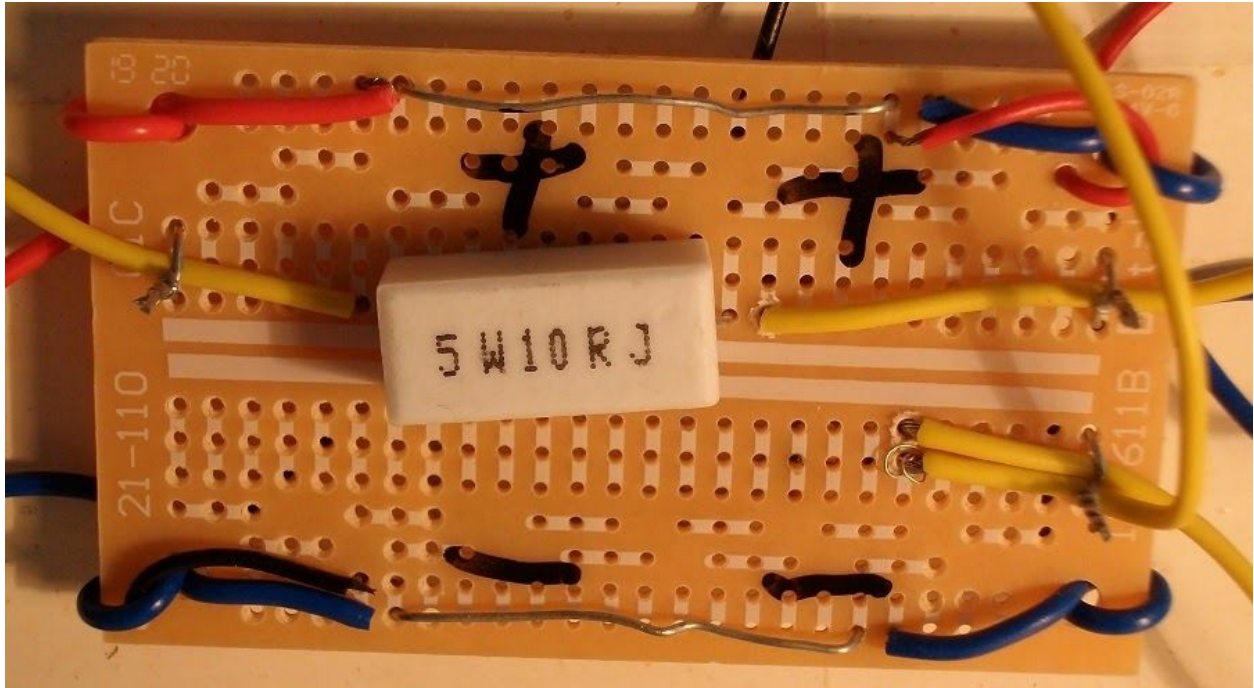


Figure 4: Circuit Construction

I could have used 2 Watt or even 1 Watt resistor instead of the expensive 5 Watt resistor that I used.

You can see from other photos of this article that I used dual gang potentiometers to reduce a small chance of burning my potentiometer.

5. Step 4: Testing

You can see the motor spinning fast when connected to 4.5 V, three AA rechargeable battery power supply, in the photo below. You can watch YouTube videos.

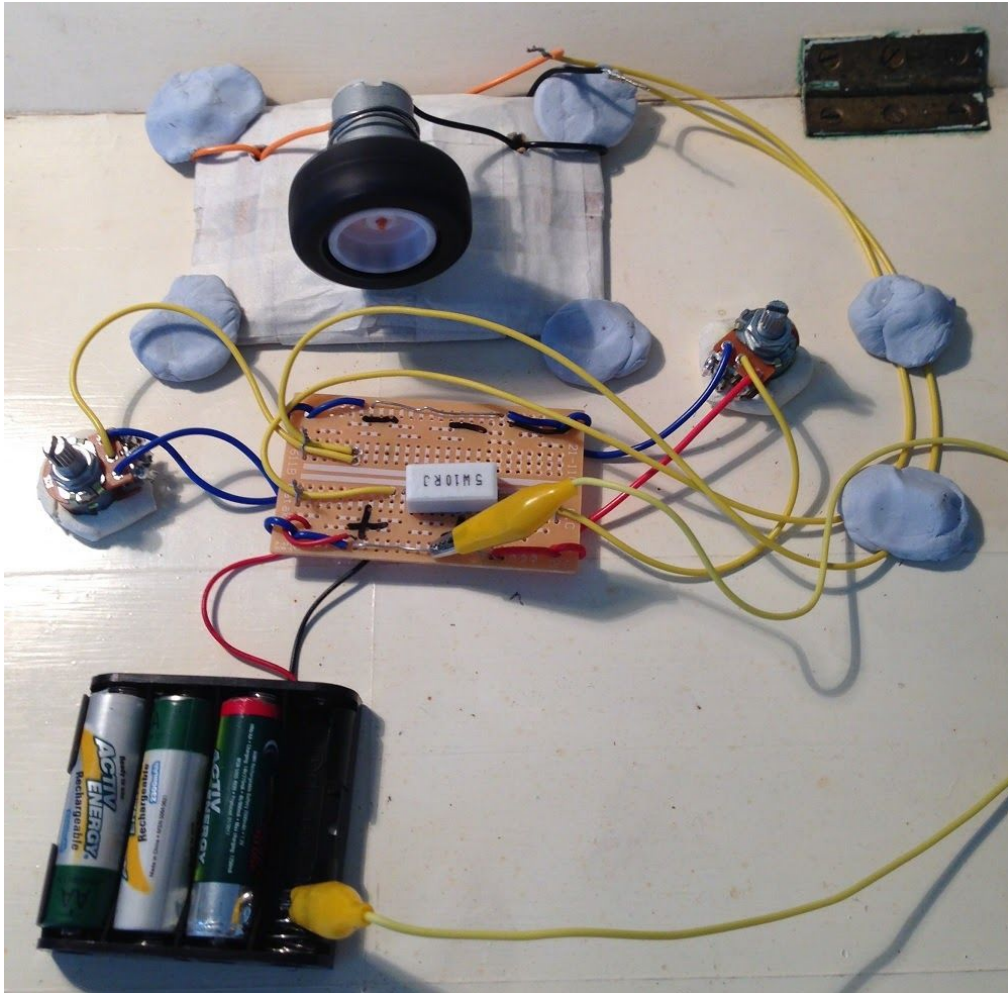


Figure 5: Testing

6. Conclusion

This circuit worked well and I did not burn my potentiometers. I did not implement the diodes protection feature because my motor is a low current motor.