Electrical Subsystem

Q1 Motor Driver Circuit Diagram

I have designed a schematic for a motor driver connected with a motor with an inbuilt encoder. For the given requirements, I have taken a VNH2SP30 motor driver (as we have to deal with voltages up to 12V) with a 12 V motor. Then I have connected all the ports as given in the schematic.

Also, the left out connections are to be connected with the microcontrollers for input/output and monitoring the direction and speed of the motor.

Also, for back voltage protection, I have connected a diode with the main power supply. Also, for back EMF protection, few more diodes can be applied in this circuit. Also, a small resistor or fuse can be applied in the circuit for stall protection (against high currents).