For my capstone project, I decided to build an electric motor similar to the one pictured above. I got my idea from watching a YouTube video and also I am fascinated with cars and electric automobile motors.

The basic principle for this design is to use magnet wire wrapped in a coil to act as the motor. This motor will be housed in two metal brackets mounted to a block of wood. Magnets will be placed on either side perpendicular to the coil. The motor will be powered initially with a variable DC power supply.

The next part of my project incorporates the use of a microcontroller to control the motor and the use of several LEDs. The basic design includes a green LED which comes on when the motor turns on. A yellow LED which activates and tells the motor to slow down and finally a Red LED which will come on when the motor stops. See picture below for details.

Future implementations include using a temperature sensor to turn it on and off when the motor is too hot. Also, experimenting with different gauge wire and number of turns and voltage combinations to make a faster and more powerful version of the motor.