



MASSACHUSETTS CLEAN TECHNOLOGY AWARDS

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Region VI: Southeastern MA,
Recognition:

Edwin Perez-Clancy, John D. O'Bryant
High School, Roxbury/Boston

*"Rating the Efficiency of Electric
Motors"*

I am Edwin Perez-Clancy, a junior at the John D. O'Bryant School of Mathematics and Science, a Boston Public exam school. I would like to pursue an engineering career in my life. I am a part of MIT SEED Academy, a Saturday enrichment program focusing on engineering. I have also attended Harvard Medical School's PRISM summer program and Mentoring for Science program from eighth to tenth grade. I am a Food Project Alumni, having completed a summer in their Summer Youth Program. I have interests in mountain biking, martial arts, computers, cars (basically anything that moves) and anim .

The clubs I participate in are Environmental Club, Math Club, Art Club, Robotics Club, Anim  Club, Engineering Club, and Astronomy Club. I wish to be the founding member of a mountain biking or computer club at my school during senior year.

MY PROJECT:

Electric motors RPM and voltage have a relationship. In my project I intended to try to explore this relationship and educate my peers and myself about this subject. The experiment I planned was to vary the voltage in my computer case using a Rheostat, measure it with a volt meter and use a strobe-meter to measure the RPM.

Results: The motors are constantly slowing and speeding up to some degree; that is they do not perfectly maintain a certain RPM for any given time. Also the graph of different voltages versus RPM is seemingly linear and stable. I am surprised at this because I expected some obvious variations in the RPM to voltage, but within the recommended range the antec fans behaved extremely well and were always efficient.

Conclusion: my hypothesis was correct, in that the voltage has an effect on RPM. What surprised me was that it was so steady a rate, for all the fans I tested, and the factor of optimization, in this range, the fans are already optimized. They do not exhibit the behavior of a sharp decrease in RPM for a minimal decrease in voltage. They have a nice linear flat power curve to the graph.