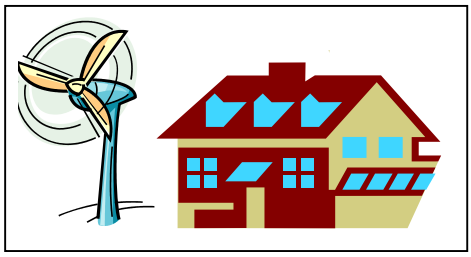
1234 Research Parkway
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"State-of-the-Art Power"

M E M O R A N D U M

TO: ***WindDrive*™** Development Group
FROM: C. Radcliffe, Controls Group Supervisor
DATE: February 15, 2010
SUBJ: Analog Circuit Modeling of the ***WindDrive*™** Drivetrain System for a Periodic Input.



1. This week the group will experimentally investigate analog circuit modeling. This technology has many applications in the electronics of our ***WindDrive*™** home wind generator system.

2. You will make the circuit for a first order plant using the Operational Amplifier with resistors and a capacitor on a breadboard. This particular configuration behaves as a first order system.

3. This experimental investigation will help you understand the physics of the system and how system parameters affect the response of a system. The system parameters are K (DC gain) and the τ (Time Constant). Varying the values of resistors and the capacitor varies these parameters.

4. Many such "1st order" systems involving Operational Amplifiers exist in drivetrain control systems. Other examples include thermostat controllers used in cooling and heating systems.

5. In reporting the results of your investigation this week, you should specifically focus on a discussion of where this modeling technology could be applied to the analytical design of our new wind powered home generator.