Brake Lights
By Brian Robinson for his General Electronics class

I would like to design a simple electronic circuit that would measure the force applied to the brake pedal. This circuit would turn that information into a visual indicator that other motorists would see. Perhaps the brake lights would get brighter the harder the pedal was pressed. Or maybe a series of LED's would light. The harder the brake is pressed, the more LED's would come on.

Modern brake light systems on most vehicles give very little information to other drivers as to how quickly a car will come to a stop. I would guess that a substantial number of car accidents are caused by this lack of information.

Brake light indicators on vehicles give no information other than the fact that the brake pedal is being stepped on. I would like to design and build a simple electronic circuit that would give motorists more information such as how hard they are actually stepping on the brakes. I plan to have the project work and possibly be a marketable product.
Smart Brake Lights

I look forward to working on this project. I have already done some preliminary research into the circuitry required for a project like this, and I feel confident that I would be able to make a working prototype to demonstrate at the Honors Reception.

This circuit could actually lead to a marketable product that may have the potential of saving lives. If a motorist following another vehicle suddenly saw a very bright brake light, or a long string of LED's come on instantly, there would be a quick reaction and stop. Whereas if a dim light was seen or just one or two LED's lit up, the following driver would not slam on the brake pedal and so cause a collision.

I believe I could use a new component called a force-sensing resistor along with a voltage divider network to light the LED's. This is strictly a DC circuit that we are studying in class.