OBJECTIVE
To determine how LEDs function, a simple PCB can be constructed to compare the functions of circuit components. Each LED can be assigned to output a certain flashing frequency based on the type of circuit components used.

HOW DO THE CIRCUITS WORK?
Each circuit is designed to produce different results based on the size of the resistors, capacitors, and the different components used. The first circuit uses a transistor to modify the current within the circuit. The second circuit made use of a 555 Timer IC which directly affected the rate at which the LEDs would blink. Finally, the third circuit used a potentiometer, combined with two ICs, to vary the speed of the LEDs flashing.

LEDs have become the future of lights in cars. Now, cars are able to angle the LED lights with the road allowing for stronger visibility. These small LEDs allow for more room for other parts, and LEDs are able to dim and brighten when oncoming cars are present. New LED technology even allows turn signals to activate when approaching an intersection. LEDs use a minute amount of energy compared to traditional bulbs allowing for better efficiency.

LEDs In Fire Alarms
Fire alarms are a fundamental example of how LEDs effectively work better than standard bulbs. The LEDs in alarms are brighter and require less power. Because LEDs require less power, they last longer and are a necessity in all fire alarms. Less power needed also equals less heat produced.

LED Technology in Cars
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REFERENCES
www.electronicshub.org
www.audi.com