Alternating LED blinker uses four parts

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The circuit in **Figure 1** is an easy-to-make attention-getter and runs for a week or longer on two AA cells. In September, I used this circuit for a school fundraiser, and it helped me generate more than $100. My dad showed me a circuit in *EDN* that did the same thing, but it uses more parts (see "Alternating LED flasher uses minimal parts," *EDN*, Nov 20, 1997, pg 104).

The main element of this circuit is LED_1, a Radio Shack 276-036 blinking red LED. D_1 can be almost any silicon diode. The forward bias of D_1 brings the turn-on voltage of LED_2 up to 2.5V. R_1 is a current-limit resistor for LED_1, and this resistor also reduces the current of LED_1 for longer battery life.

LED_2 is a Radio Shack 276-041 red LED. When you apply power, LED_1 turns on and drops the voltage across LED_2 to 1V. When LED_1 turns off, the voltage across LED_2 equals 3V, and LED_2 turns on. (DI #2172) EDN

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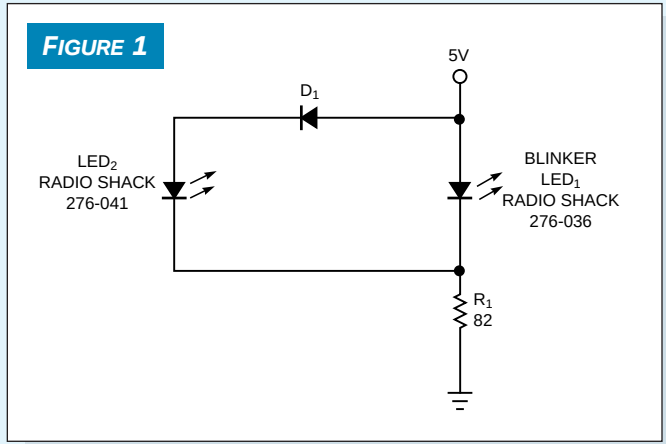
FIGURE 1



This blinking-LED circuit, designed by a seventh grader, uses only four parts.