

## 2.5 Biscuit Tin Alarm Project

(Source: Doctrionics Educational Publishing for Design & Technology | <http://www.doctrionics.co.uk/>)

*“Someone is stealing the biscuits! Your mission, should you choose to accept it, is to design a circuit which will give an audible alarm as soon as the biscuit tin is opened.”*

This is an excellent construction kit for beginners. The circuit uses the 4093 Schmitt trigger NAND gate integrated circuit. You can learn a lot by testing parts of the circuit on prototype board and following the explanation of how the final circuit was developed.

### Parts list

Qty	Component
1	0.25 W carbon film resistor 4.7 k $\Omega$ (yellow, violet, red)
1	0.25 W carbon film resistor 1 M $\Omega$ (brown, black, green)
2	0.25 W carbon film resistor 1 k $\Omega$ (brown, black, red)
1	0.25 W carbon film resistor 2.2 k $\Omega$ (red, red, red)
1	0.25 W carbon film resistor 10 k $\Omega$ (brown, black, orange)
1	ORP12 light dependent resistor
1	carbon preset potentiometer 10 k $\Omega$
2	100 nF metallised polyester
1	10 $\mu$ F 25 V radial electrolytic
1	100 $\mu$ F 16 V radial electrolytic
1	1N 4148 silicon signal diode
1	5 mm red LED
1	BC547B transistor
1	4093 Schmitt trigger NAND gate integrated circuit
1	14-pin low profile DIL socket
1	miniature PCB piezo transducer
1	heavy duty PP3 battery clip
1	DOCTRIONICS biscuit tin alarm printed circuit board

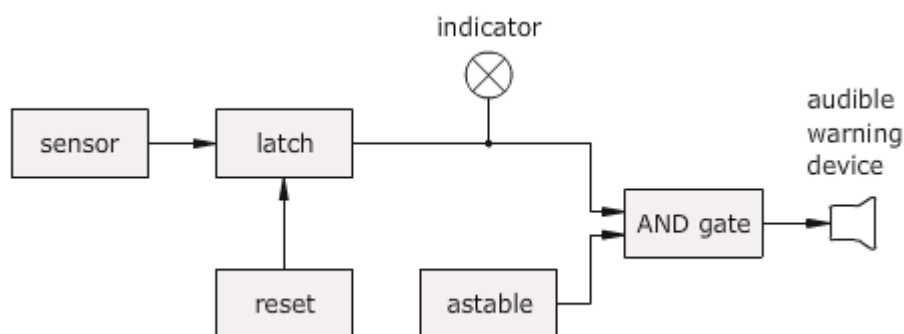


Figure 2.4: Biscuit Tin Alarm block diagram

## How is this system going to work?

The sensor detects the opening of the tin. The output of the sensor triggers the latch so that its output goes HIGH. The reset subsystem provides some way of silencing the alarm.

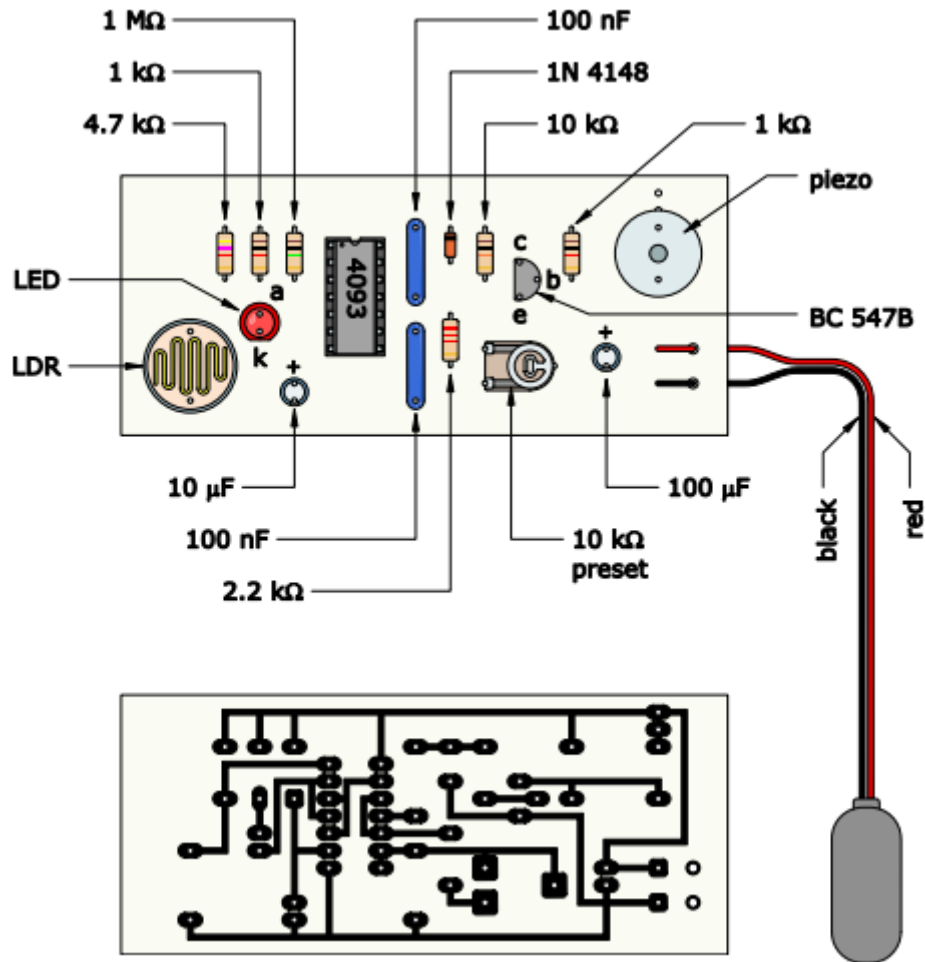


Figure 2.5: PCB components side view

For more information on how to build and useful guidelines check the website below.

<http://www.doctrionics.co.uk/biscuit.htm#PCB>