World's simplest IR remote control checker

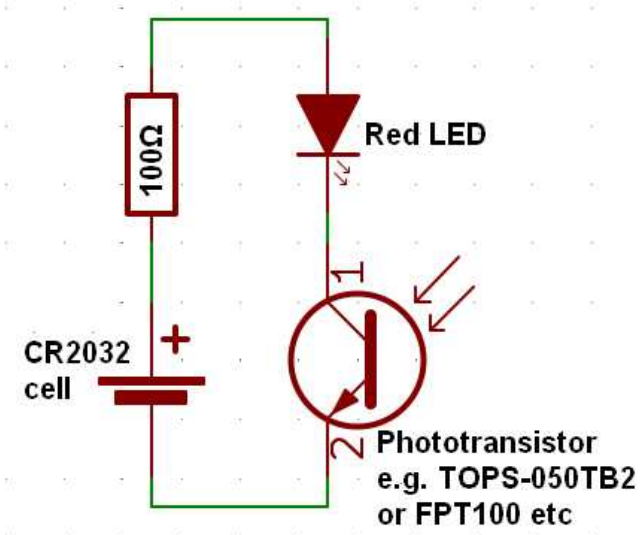
The most-used buttons of infra-red remote controls tend to operate erratically after being pushed a large number of times. This is due to the carbon-impregnated conductive surface behind them deteriorating.

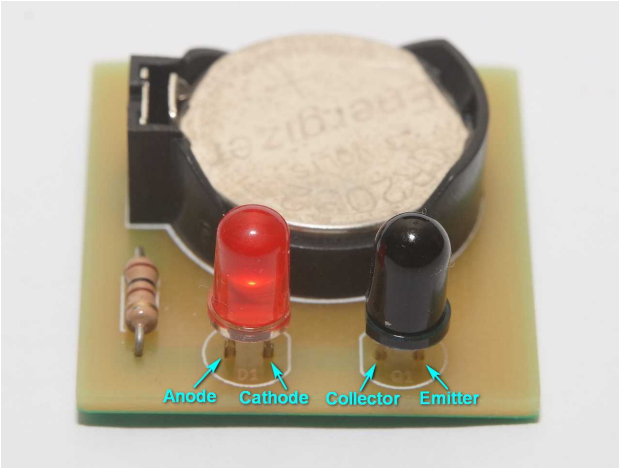
There are lots of methods of repairing them. One is to stick pieces of aluminium foil to the backs of the buttons with silicone rubber aka Silastic®. A search of Ebay for “remote control repair” will turn up many other ways of doing it.

After doing keypad repairs, it helps to be sure that the troublesome keys are working properly again. Infra-red light is invisible to humans, so something is needed to give a visible indication of the remote control's output.

The traditional method is to point the remote at a digital camera and watch for a (usually) purple glow coming out of it. However, according to a Sony website I saw, some digital cameras have IR-blocking optical filters in them. It's also kind-of clumsy to be holding a camera/mobile phone in one hand while pushing buttons on a remote control with the other.

An internet search for “IR remote tester” brings up plenty of circuits, and almost all of them are based on dedicated IR receiver ICs. If you are only interested in knowing if a remote is generating a signal, all that's needed to detect it is a simple cheap silicon phototransistor which can easily drive a red (not blue) LED directly, powered by a 3V lithium coin cell.





This circuit doesn't even need an on-off switch. As long as it's kept in a very dark location when it's not being used, the tiny leakage current through the phototransistor won't significantly discharge the lithium cell.

The phototransistor in the photos is a TOPS-050TB2 (Tayda Electronics A-1542). Most phototransistors have a base lead so if you use an FPT100 etc, just cut off the base wire.

Keep the circuit out of strong light (which makes the LED glow brightly) and point the remote control at the phototransistor from a distance of about 50mm (2”). The LED will flash brightly when the remote control transmits.

Parts list

1x CR2032 lithium cell holder e.g. Jaycar PH9238, Tayda A-869

1x 100Ω 1/4W resistor

1x 5mm red LED

1x phototransistor e.g. Jaycar ZD1950, Tayda A-1542

1x CR2032 lithium coin cell

1x PCB – details in zip file