Nervous LEDman



A small analog, interactive light object that responds to sounds and vibrations by flashing a LED.
It's very sensitive, and reacts on human voice over a distance of 3m or more, when put on the right

surface, e.g. a wooden table, box or anything that vibrates.

Nervous LEDMAN consists of 3 parts : (top down)

1) battery holder & power switch

I use a LilyPad coin battery holder or compatible and a rechargable LIR2032 battery

2) LEDMAN PCB

It's a redesign of a circuit by Yair Reshef .
The original design uses an obsolete opamp and needs 2 batteries for 6V supply. Now it runs with a single cell and uses a cheap CMOS opamp *) + 3 resistors + 1 ceramic capacitor in "beginner friendly" sized SMD packages (1206)
*) many SOT23-5 CMOS opamps, output @ pin 4, tested

3) piezo disc sensor
this is a common 35mm diameter Piezo sounder/buzzer/speaker/drum sensor. Smaller discs are not recommended until you put LEDMAN straight on a loudspeaker box ;-)

the picture shows the "elektro kitsch" (C) version with vintage power resistors as legs and arms. A flexible 38mm, 3V LED filament is used as LED.

construction notes :
resistor "arms" can be 0...10 Ohm, any wattage.
resistor "legs" can be 0...100 Ohm, any wattage.
LilyPad connection is a bit tricky : the red "+" wire is soldered straight to a LilyPad "+" pin. The black "-" wire tunnels the other LilyPad "+" pin without connection (it must be isolated) and is soldered to LilyPad "-" pin on the rear side.
The reason is: if you solder a wire to one of LilyPads "-" pins on the battery side, the battery can't be removed anymore !

documentation :

NervousLEDman Schematics (PDF)

NervousLEDman PCB Layout (PDF, 24pcs. 100x160mm single sided)

NervousLEDman SMD assembly (PDF)

credits go to my friend Yair Reshef and unknown early developers for inspiration
and Leah Buechley for LilyPad
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