LED/MOTOR ACTIVATED BY VOICE

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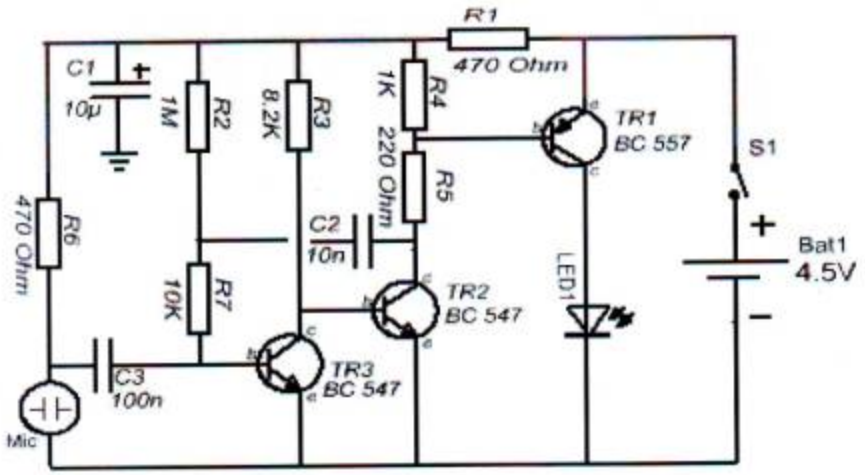
LED/Motor activated by voice

This project demonstrates voice activated dancing LED. A small condenser mic detects the voice and turns on and off the LED light with the intensity of the sound. Alternatively we can also use a motor that will rotate a flower or small water pump that pump water when someone make a noise or whistle in front of the condenser mic. The project requires just three transistors, a condenser mic and a few resistors and capacitors.

Circuit Diagram:



REF	PART TYPE	PART NAME	VALUE	COUNT	INFO
Bat1	BATTERYPACK	Battery Pack 3V AA	--	1	See Picture
C1	ELECCAPACITOR	Electrolytic Capacitor 10uF	10uF	1	See Picture
C2	CAPACITOR	Capacitor 10n	10n	1	See Picture
C3	CAPACITOR	Capacitor 100n	100n	1	See Picture
LED1	LED	LED Green	GreenLED	3	See Picture
Mic	MIC	Condenser Mic	--	1	See Picture
Mot	MOTOR	Toy Motor 3V	3V-	1	See Picture
R1,R6	RESISTOR	Resistor 470Ohm	470Ohm	2	See Picture
R2	RESISTOR	Resistor 1M	1M	1	See Picture
R3	RESISTOR	Resistor 8.2K	8.2K	1	See Picture
R4	RESISTOR	Resistor 1K	1K	1	See Picture
R5	RESISTOR	Resistor 220Ohm	220Ohm	1	See Picture
R7	RESISTOR	Resistor 10K	10K	1	See Picture
TR1	TRANSISTOR	Transistor BC557	557BC	1	See Picture
TR2,TR3	TRANSISTOR	Transistor BC547	547BC	2	See Picture

The condenser mic is very small and we may have to hold it near to our mouth. When using LED we may observe that the circuit is not sensitive, this is because the LED requires a minimum of 0.8 volt to start glowing. If you use an ordinary bulb or motorwe can see that the response to sound is much better. We can have a lot of fun by having a variety of electronic components connected to the output.

Tips on condenser mic: The condenser mic comes with three pins and two pins. Here there are only two pins; one of the pin is connected to the outer shell. We make sure that this pin is connected to the capacitor C3.

This is how the project works: 1) The condenser mic detects voice or sound (it can also pick up any other vibration outside the audible frequency 20-20000 Hz 2) The capacitors C1 and C3 filters out the high and low frequencies and let only audible frequency pass through to the transistor TR3. 3) The transistors TR2 and TR3 amplifies these signals multiple times and feeds it to transistor TR1 4) the transistor TR1 (works as a switch) gets turned ON whenever there is sound and the LED glows. LED requires a minimum voltage of .8 volt and if the sound is high enough the LED glows. A normal bulb would glow even with a low sound.

Applications:

- It can be used in various ceremonies like birthday parties.
- It can also be used in protecting costly (Hidden) materials.
- It is used in toys.