Electronics Projects Guide

Simplifying Project

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3. Security System Using Infrared Light

Description:

This system acts as a simple burglar alarm. It uses an invisible infrared (IR) light beam. When an intruder breaks this beam, a sensor detects the interruption, and an alarm (like a buzzer) is triggered, alerting you to the presence of someone. It's a fundamental concept in security and a great beginner electronics project.

Cheapest Cost & Components Required (INR):

You can build a very basic IR security alarm for **150RS - 400RS** if you source individual components. DIY kits are also available, often in the range of 400RS - 600RS, which can save you the hassle of finding individual parts.

Components and Estimated Prices (Approximate, can vary based on seller and location):

• **IR LED:** 3RS - 10RS

• **IR Photodiode / IR Receiver (e.g., TSOP1738):** 5RS - 25RS

• **555 Timer IC:** 5RS - 15RS

• **LM358 Op-Amp IC (optional):** 10RS - 20RS

• **Resistors:** 0.5RS - 2RS (per piece, need a few)

• **Capacitors:** 1RS - 5RS (per piece, need a few)

• **Buzzer (Piezoelectric):** 10RS - 30RS

• **Transistors (e.g., BC547 NPN):** 3RS - 10RS

• **9V Battery:** 30RS - 50RS

• **9V Battery Clip:** 5RS - 15RS

• **Breadboard (for prototyping):** 60RS - 150RS

• **Jumper Wires (for prototyping):** 50RS - 100RS

Cost-Saving Tips:

• Buy from local electronics shops: Often better prices for individual components.

• Look for combo packs: Resistors, capacitors, or basic component kits can be cheaper.

• Simple Circuit Design: A very basic circuit (IR LED, photodiode, transistor, buzzer) is cheapest.

4. Girl Safety Mini Kit Using Mosquito Machine (Interpreted as Audible Alarm)

Description:

This mini kit is designed to be a personal safety device that emits a loud, attention-grabbing sound. The 'mosquito machine' part is interpreted as using the *principle* of an electronic sound-emitting device, rather than a chemical repellent or a high-voltage zapper (which would be unsafe and less practical for a 'mini kit'). It's essentially a compact personal alarm.

How it works:

When activated (e.g., by pressing a button), a simple electronic circuit generates a very loud, high-pitched, and irritating sound through a small speaker or buzzer. This sound aims to startle an attacker, draw attention from bystanders, and provide a window for escape.

Cheapest Cost & Components Required (INR):

This project can be extremely cheap, often **under 100RS - 250RS**.

Components and Estimated Prices (Approximate):

• **555 Timer IC:** 5RS - 15RS

• **Piezoelectric Buzzer:** 10RS - 30RS

• **Resistors:** 0.5RS - 2RS (per piece, a few values)

• **Capacitors:** 1RS - 5RS (per piece, e.g., 0.1uF, 1uF)

• **Push Button Switch:** 5RS - 15RS

• **9V Battery:** 30RS - 50RS

• **9V Battery Clip:** 5RS - 15RS

• **Small Enclosure/Case:** 20RS - 50RS

• **Connecting Wires:** 10RS - 20RS

Cost-Saving Tips:

• Scavenge: Old toys or discarded electronics might have a small speaker, buzzer, or battery clip.

• Simplest 555 configuration: Use the most basic astable multivibrator circuit.

• Repurpose: Use a small, readily available container for the enclosure.

Important Note on 'Mosquito Machine' Interpretation:

If you *actually* meant to use components from a mosquito *swatter* (the high-voltage zapping kind), this becomes a much more complex and dangerous project. **I strongly advise against trying to build a high-voltage self-defense device without expert knowledge and safety precautions, as it carries**

significant risks of electric shock and injury. The audible alarm is a much safer and more practical 'safety mini kit' for a project.