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SYNOPSIS FOR TV REMOTE CONTROLLED HOME APPLIANCES

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ABSTRACT:

This project aims to control home appliances remotely using a TV remote, IC 4017, and relay module. The project utilizes the principle of infrared (IR) communication to receive signals from a TV remote and decode them to control various household appliances. The IC 4017 acts as a decade counter to sequence through different appliances, while the relay used for switching the appliances on and off. This project provides a cost-effective and efficient solution for remote appliance control without the need for complex microcontrollers like Arduino.

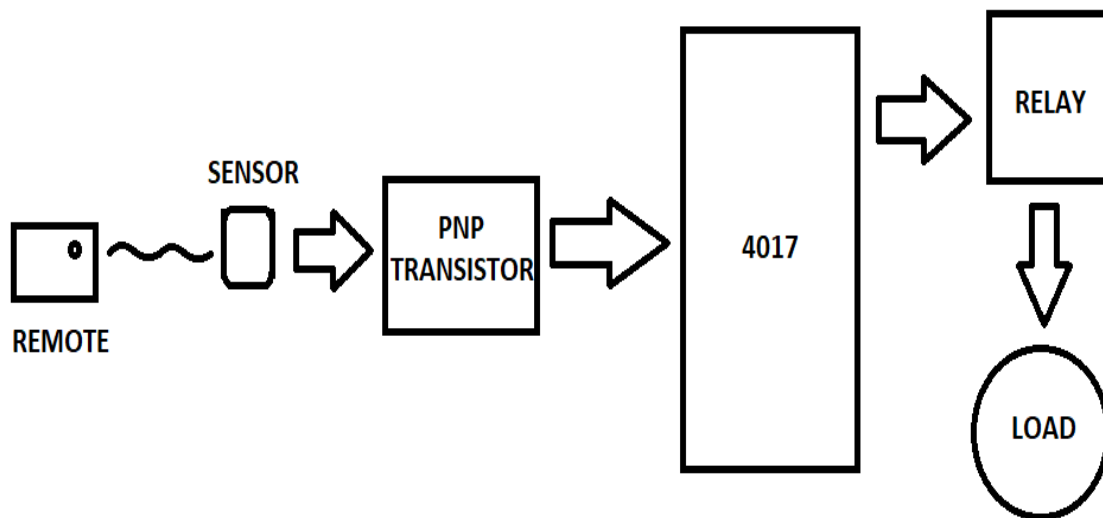
INTRODUCTION:

In this project, we explore the design and implementation of a TV remote-controlled system for home appliances. The system is designed to offer convenience and ease of use by allowing users to control multiple appliances using a single remote control.

AIM:

The main objective of this project is to develop a TV remote-controlled system that can remotely operate home appliances. The system should be able to receive IR signals from a TV remote control, decode them to identify the desired command, and trigger the appropriate appliance using IC 4017, PNP transistor, TSOP sensor, and relay module.

BLOCK DIAGRAM:



PRINCIPLE:

The system operates on the principle of IR communication and signal decoding. When a button is pressed on the TV remote control, it emits an IR signal carrying a specific code unique to that button. The TSOP sensor receives the IR signal, converts it into an electrical signal, and passes it to the IC 4017. The IC 4017 acts as a decade counter and sequentially selects its output pins based on the input pulses received. Each output pin is connected to the base of a PNP transistor. When an output pin is activated, the corresponding PNP

transistor conducts, allowing current to flow through the relay module, which switches the AC power supply to the desired appliance.

COMPONENTS LIST:

- IC 4017
- 16 pin base
- TSOP Sensor
- Transistor
NPN- BC548
PNP – BC558
- Capacitor
100uf, 16V
104pf/0.1uf
- 1N4007
- 5V Relay
- Screw Terminal Block X 2
- 7805
- SWITCH
- DC Pin
- 9V BATTERY
- RESISTOR
47Ω X 1
220K X 1
1K X1
470Ω X1
- RED LED
- GREEN LED
- PCB
- DC Socket
- Main Lead
- Bulb Holder

APPLICATION:

- Home automation: Control lights, fans, air conditioners, etc., with a TV remote control.
- Energy efficiency: Conveniently switch off appliances when not in use, reducing energy consumption.
- Accessibility: Enables individuals with mobility issues to control appliances without physical interaction.

ADVANTAGES:

- Cost-effective solution compared to using microcontrollers like Arduino.
- Easy to implement and understand for electronics enthusiasts.
- Does not require extensive programming knowledge.
- Allows control of multiple home appliances using a single remote control

FUTURE SCOPE:

- Integration with voice assistants: Combine the system with voice recognition technology for voice-controlled home automation.
- Smartphone integration: Develop a mobile application to control appliances remotely using smartphones.
- Expand functionality: Add additional features like scheduling, timers, and remote monitoring.

CONCLUSION:



The TV remote-controlled home appliances project provides a practical solution for remotely controlling household appliances using a TV remote control, IC 4017, and IC 555 timer. It offers convenience, simplicity, and cost-effectiveness for controlling multiple appliances with a single remote. The project has various applications in home automation and energy efficiency, and it holds potential for further expansion and integration with emerging technologies.

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