

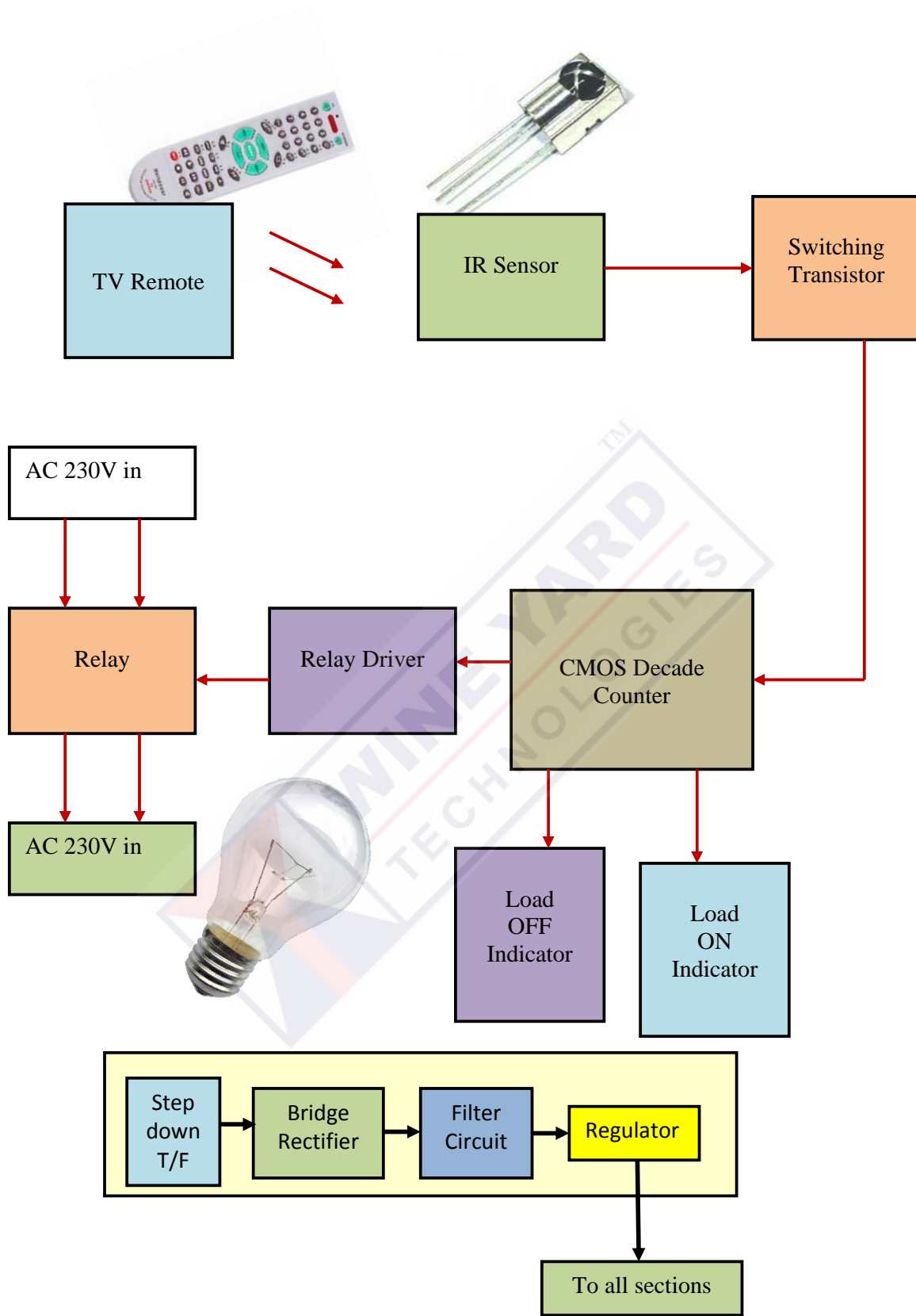
Controlling Electrical Appliances through TV Remote

This is an interesting project built with an IR sensor and a decade counter. By using this project, one can control his lights / fans / AC / any electrical appliance with a TV Remote. CD4017 is a CMOS Decade counter. It can detect a clock pulse and the BCD out put will be incremented by one for each CLK pulse. If we observe the BCD numbers, the LSB (Least Significant Bit) of BCD complemented every time. This project uses this LSB to switch ON / OFF an electrical appliance.

TSOP1738 is a high sensitive IR receiver which can sense 38 KHz IR light. The electrolytic capacitor (100 μ F) connected across pin no's 3 and 1 of TSOP1738 for medium sensitivity. The NPN transistor BC557 is connected as a switch. Whenever an IR signal is detected, the transition is sensed by the PNP transistor and it supplies a CLK pulse to the BCD counter (CD4017). For every clock pulse the LSB (Least Significant Bit) of the BCD output is complemented. This toggling output is given to an NPN transistor through a base resistor. If logic '0' is applied to the transistor, it will be driven into cut-off region. As the collector current is zero in cut-off region, the relay will not be energized and the electrical appliance will be in OFF mode.

If logic '1' is applied to the transistor, it will be driven into saturation region. As the collector current is high in saturation region, the relay will be energized and the electrical appliance will be in ON mode. A diode is connected across the relay to protect the transistor by neutralizing the reverse EMF generated by the electromagnetic relay. An LED connected at pin no.2 of CD4017 to indicate the ON condition of the LOAD. An LED connected at pin no.3 of CD4017 to indicate the OFF condition of the LOAD.

This circuit works with regulated 5V supply. This circuit is sensitive to any remote control like TV remote, VCD remote, DVD remote etc.



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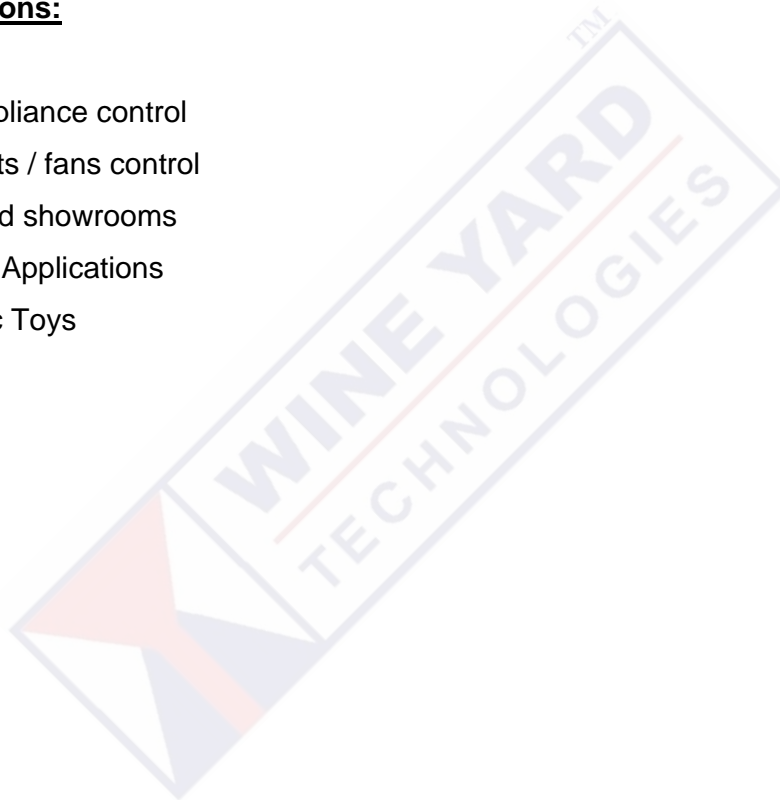
Block Diagram: Controlling Home Appliances through TV remote

Advantages:

- Highly sensitive
- Works with any TV / DVD remote
- Low cost and reliable circuit
- Coverage distance up to 10m
- Can handle heavy loads up to 7A
- System can be switched into manual mode whenever required

Applications:

- Home appliance control
- Hotel lights / fans control
- Shops and showrooms
- Industrial Applications
- Electronic Toys



Abstract Prepared By

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