AUTOMATIC WASH BASIN MIRROR LAMP CONTROLLER

Generally, in restaurants, auditoria and even homes, many a times we forget to switch off the wash basin mirror lamp after use. So to rectify this problem we have designed a project named "Automatic wash basin mirror lamp controller". This project automatically switches on the wash basin mirror lamp whenever a person stands in front of it and switch off the same after you move away from it, thereby saving energy.

This project consists of two sections i.e., infrared transmitter and receiver. The transmitter section is built around two IC's namely 555 IC1 and 555 IC2 and the receiver section is built around IC3 namely 555 IC which is a timer. The first two IC's IC1 and IC2 functions as an astable multivibrators and the third IC3 functions as a monostable timer. The IR led's transmit 38kHz square wave pulses which are generated by IC2 configured in astable mode. When these IR pulses are reflected back to the receiver sensor by the person standing in front of the mirror, the sensor at the receiver end detects these IR rays and triggers IC3 configured in monostable mode. A relay is connected to the output of IC3. Thus when the receiver sensor senses IR pulses it will trigger IC3 which in turn energises relay for a predetermined period. As the basin lamp is connected to the relay it will turn on for that period of time and switches off after few seconds.

The receiver circuit comprises of an IR sensor TSOP 1738, a timer , relay driver transistor and its associated components. Whenever the sensor receives IR radiations, it triggers IC3 which is wired as a monostable multivibrator with a time period of approximately 24 seconds. The time period can be changed by changing the respective resistor and capacitor values in the receiver section. Thus the wash basin mirror lamp switches on as and when a person stands in front of it. Otherwise, it remains off.

The complete circuit works on regulated 9v power supply. The arrangement should be done in such a way by mounting the IR led's and receiver sensor above the wash basin.

BLOCK DIAGRAM

38KHZ SQUARE WAVE GENERATOR	→	INFRA RED TRANSMITTER	→	INFRARED RECEIVER	→	MONOSTABLE MULTIVIBRATOR

MONOSTABLE MULTIVIBRATOR → RELAY → DEVICE

Step down T/F	→	Bridge Rectifier	→	Filter Circuit	→	Regulator

Regulator → To all sections