

**AUTOMATIC SWITCH ROOM LIGHT**

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## **ABSTRACT**

### **AUTOMATIC SWITCH ROOM LIGHT**

This project is an advancing assignment from KEU 280 which the objective is to realize in the form of model and performance at the end of the semester. According to this automatic switch room light, it is often used in cars, stores, and gymnasiums, hypermarket, personal room in houses and so many more places depends on its applications. The major function of this project is to lights up the specified room automatically when someone is entering it. The advanced usage of the switch is that it can detect more than one person coming through the door and could automatically “switch off” when all persons were left the room.

In this circuit, there are two Light Detecting resistors (LDRs) which in the presentation ongoing are placed for a certain distance each other at the two different doors. The first door only allows someone to come inside the room whereas the second door is used only to allow persons leaving the room. For the LDRs, one will be put at the first door which its function to sense an object or persons entering the room. While the other one LDR is put at the second door and senses the persons who exit the room.

Although the circuit looks initially combined together, the change we have made is separating the LDRs where they are put at the different doors. The bulb or the light we use is placed at the middle of the room and its function is to lights up the whole room.

The additional modification in this circuit is we have added two LEDs (Green and Red) and they are placed somewhere in the room. The Green LED will “ON” automatically when someone is entering the room regarding by the operation of LDR<sub>1</sub>. Meanwhile the Red LED will ‘ON’ when a person leaving the room, as a result of the action by the LDR<sub>2</sub>.

The main purpose in designing this circuit is to overcome the problem for the condition where more than one person entering the room. It is to avoid the light from getting ‘OFF’ when the former people leaving the room while the latter is still in the room.

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## 1.1 Background Theory

An ordinary automatic room power control circuit has only one light sensor. So when a person enters the room it gets one pulse and the lights come 'on.' When the person goes out it gets another pulse and the lights go 'off.' But what happens when two persons enter the room, one after the other? It gets two pulses and the lights remain in 'off' state. The circuit described here overcomes the above-mentioned problem. It has a small memory, which enables it to automatically switch 'on' and switch 'off' the lights in a desired fashion.

The circuit uses two LDRs, which are placed one after another (separated by a distance of say half a meter) so that they may separately sense a person going into the room or coming out of the room. Outputs of the two LDR sensors, after processing, are used in conjunction with a bicolour LED in such a fashion that when a person gets into the room it emits green light and when a person goes out of the room it emits red light, and vice versa.