

Motion recognition LED lamp technology using infrared ray sensor

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Abstract

These days, citizens are interested in the energy. IT technology needs to develop and to make use of energy effectively and to save energy. In this study, motion recognition LED lamp was used to have good energy efficiency and to be made of environment friendly material. The purpose of development of the lamp was to add motion recognition to LED lamp. In this study, infrared ray sensor's distance measurement was used to develop LED lamp. Most of the lamps were used under dark environment, so that infrared ray sensor was used to perceive movement under dark environment. And, LED lamp with good efficiency and less power consumption was used to increase efficiency. Citizens were interested in perception of the movement to distinguish from conventional type of the lamps.

Keywords: Motion recognition, LED lamp technology, infrared ray sensor.

1. Introduction

These days, citizens are interested in the energy. IT technology needs to develop and to make use of energy effectively and to save energy. In this study, motion recognition LED lamp was used to have good energy efficiency and to be made of environment friendly material. The purpose of development of the lamp was to add motion recognition to LED lamp.

Motion recognition lamp has practical use and function: Conventional type of the lamp emits light by heating to consume energy more, while LED bulb without heating prevents energy loss to save energy

more than conventional type of the lamp. LED lamp turns ON up to 100,000 hours to turn ON and OFF very much quickly and to be environmental friendly owing to no use of mercury. Motion recognition makes users be interested in it to differ from conventional type of lamps and to produce practical use. The purpose of the study was to investigate development of LED lamp with motion recognition. Many kinds of sensors were used to develop lamp. Infrared ray sensor recognizes movement by distance with hands to turn ON and OFF by hand movement.

2. Associated Studies

Infrared ray sensor has been used in various ways. In this study, infrared ray sensor was used to measure distance and to perceive movement. The sensor is commonly said to be PIR and to perceive infrared ray of human body and/or living body. It basically perceives movement of more than 30cm per second. It is unable to perceive standing object that has less infrared ray. It does not emit infrared ray but receives ray and perceives object. It is not affected by surrounding environment and temperature to perceive under dark environment.

3. Research and Experiment

A circuit was made to connect arduino to conduct test.

LED lamp connected pwm 3pin, and transistor was used to turn LED lamp ON. Resistance was used to prevent overload.

4. Conclusion

In this study, infrared ray sensor's distance measurement was used to develop LED lamp. Most of the lamps were used under dark environment, so that infrared ray sensor was used to perceive movement under dark environment. And, LED lamp with good efficiency and less power consumption was used to increase efficiency. Citizens were interested in perception of the movement to distinguish from conventional type of the lamps.

LED bulb with less power consumption can increase energy efficiency as much as possible to have marketability.

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