AUTOMATIC ROOM LIGHT CONTROLLER

INTRODUCTION

Lots of people in this world are without electricity and modern lighting. This problem is more severe in rural areas or in cities. The rural electrification varies widely from country to country. Our country India frequently suffers from unreliable and intermittent electricity supply. In some places, people get electricity only few hours of the day only. Without electricity, it becomes challenging for adults towards concentrating on their professional work or study. Rural communities of course need a reliable and sustainable solution for lighting towards providing a brighter future. The country has made significant progress towards the augmentation of its power infrastructure. Moreover, poor quality of power supply and frequent power cuts and shortages impose a heavy burden on India's growing trade and industry. So current scenario insists towards highly efficient and effective usage of any form of power in educational institutions like Colleges and Universities where we use power for our teaching in class room or labs. It is common practice that most of us leave the class rooms or labs with Air conditioner, Fans and lighting on even if no students or faculty members present. In some cases, we see only few students sitting in one corner of the class room or lab and entire fan, light and air conditioner going. All these amounts to unnecessary wastage of power contributing to country energy resource. Energy conservation has become a critical issue in today's world due to the increasing demand for electricity and the limited availability of resources. In this context, the Automatic Room Light Controller using IR Sensor and LDR with Visitor Count is a project that aims to conserve energy by automating the process of controlling room lighting based on human presence and ambient light levels.

ABSTRACT

Automatic Room Light Controller using IR Sensor and LDR with Visitor Count is designed to automatically control the lighting of a room based on the human presence and ambient light levels. It uses a combination of sensors and a microcontroller to control the lights in the room. The IR Sensors and LDR sensors are used in this system. The microcontroller named arduino collect information provided by the IR sensor and LDR in order to turn on or off the lights in the room. When the system detects the presence of people in the room and the ambient light levels are low, the microcontroller will turn on the lights to provide adequate illumination. If no one is present in the room, the microcontroller will turn off the lights to conserve energy. Additionally, if the ambient light levels are high, the microcontroller will reduce the brightness of the lights to save energy. The visitor count is implemented using an Infrared (IR) sensor. It is placed at the entrance of the room and counts the number of people entered and left the room. The microcontroller calculates the total number of people in the room and adjust the lighting accordingly. The Automatic Room Light Controller using IR Sensor and LDR with Visitor Count is an efficient and cost-effective way to save energy and reduce carbon footprint in indoor spaces. It is easy to install and can be implemented in any room with a simple wiring system. Overall, this system provides a comfortable and sustainable environment for the occupants of the room while promoting energy conservation.

BACKGROUND AND PROBLEM STATEMENT

The demand for electricity has been increasing rapidly in recent years due to the growth of the population and the increased use of electronic devices. This has resulted in a significant strain on the power supply infrastructure and limited availability of resources. In this context, energy conservation has become a critical issue, and there is a need to reduce the energy consumption in buildings. One of the main sources of energy consumption in buildings is lighting. Many rooms are often lit unnecessarily, leading to a waste of energy. Traditional lighting systems do not have the ability to adjust the brightness of the lights based on human presence and ambient light levels, resulting in unnecessary energy consumption. The Automatic Room Light Controller using IR Sensor and LDR with Visitor Count aims to address this issue by automating the process of controlling room lighting based on human presence and ambient light levels