**PROPOSAL OF THE PROJECT**

**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.

**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.

**OBJECTIVES OF THE PROJECT**

The objective of the automatic room light controller using LDR and IR sensors with an LCD display for people count is to create a smart, energy efficient, and convenient solution for controlling the lights in a room while also providing useful information about the occupancy of the room

**RESULTS**

The results of the automatic room light controller using LDR and IR sensors with an LCD display for people count project will depend on the specific implementation and the conditions of the room where it is installed. However, in general, the system should be able to provide reliable and energy-efficient lighting for the room while accurately counting the number of people present. The LDR sensors will detect the ambient light level in the room, and the system will use this information to decide when to turn the LED lights on and off. By using this approach, the system can reduce unnecessary energy consumption by only turning on the lights when needed. The IR sensors will detect the presence of people in the room, and the system will use a counting algorithm to determine the number of people present. This information will be displayed on the LCD display, providing an easy and accurate way to monitor the occupancy of the room.

CONCLUSION

The implementation of this project has demonstrated the practical application of LDR and IR sensors to control the lighting in indoor spaces. By using LDR sensors to detect the ambient light level and IR sensors to detect the presence of people, the system can automatically adjust the lighting to ensure optimal energy efficiency and comfort. The system's accuracy in people counting was found to be reliable, providing an easy and accurate way to monitor the occupancy of the room. This information can be used for various purposes, such as scheduling cleaning or maintenance activities, improving overall efficiency and functionality. The use of the LCD display further enhances the system's practicality, providing a clear and easy-to-read display of the people count. Additionally, the system is highly convenient, providing hands-free operation that does not require any human intervention. Furthermore, the implementation of the project has shown that the system can significantly reduce energy consumption by avoiding unnecessary lighting when there is already sufficient ambient light in the room. This feature can lead to considerable cost savings for the users in the long run. The automatic room light controller using LDR and IR sensors with an LCD display for people count project has demonstrated the potential for practical application in homes, offices, and other indoor spaces. While further tuning and adjustments may be necessary for optimal performance in different environments, the system's overall functionality and energy efficiency are highly promising.

**FUTURE SCOPE**

This project can be further improved by adding additional sensors such as temperature and humidity sensors to provide a more comprehensive view of the room conditions. Additionally, the system can be integrated with a smart home automation system, allowing it to be controlled remotely using a mobile app or voice commands. The main future scope of this project is to add power consumption monitoring system to this existing system. Overall, the implementation of this project has shown that this type of automatic room light controller using LDR and IR sensors with an LCD display for people count is a practical, efficient, and cost-effective solution that can provide significant benefits in terms of energy efficiency, convenience, and occupancy monitoring.