Optimized energy saving solutions for commercial buildings

Introduction:

A commercial building is a building that is used for commercial use. Types can include office buildings, warehouses, or retail. In urban locations, a commercial building often combines functions, such as an office on levels 2-10, with retail on floor 1. Local authorities commonly maintain strict regulations on commercial zoning, and have the authority to designate any zoned area as such. A business must be located in a commercial area or area zoned at least partially for commerce.

Here's a fact that might surprise you. About 20% of all the energy we use in the U.S. goes to power commercial buildings. Buildings like the offices and schools we use every day. So you can easily see how much energy and money we can save when our buildings are as energy efficient as possible.

Purpose:

Power usage is very high in some cities. By this project we can reduce the power through lights, AC's in commercial buildings also we can save money.

Existing System:

In a existing system if weather condition is cool in that time we don't want AC in the room In that time we have to go and switch off the particular switch's. Like that light also if the sun rays are high there is a no need of light in our room in that also we can go and switch off that. Through that there is some work disturbance.

Proposed System:

In the proposed system lights and ac’s are on and off based on the weather conditions like temperature etc. If the temperature is high in that time AC will on and the temperature is low there is a no need of AC in that time it will off automatically. So it’s works based on the weather conditions and the person motion manually. Light will also work like that. Through this we can improve the technology.

Requirements:

Arduino

PIR sensor

DHT11 sensor

Current sensor

Hardware and Software Design:

The hardware part of the project involves the Arduino.

Here LDR, PIR sensor are used. The sensor values are read by the Arduino, processed, and then sent to the IBM cloud services using the internet module. The data send to mobile application which is developed using MIT app inventor. Here we use IOT device simulator for coding. Node-Red, etc. used.

Advantages:

The goal to reduce the amount of energy required to the lights and AC’s.

Insulating a home allows a building to use less heating and cooling energy to achieve and maintain a comfortable temperature.

We can improve the technology of IOT.

Dis advantages:

Power wastage is too high.

Energy bills can be the second highest business expense.

Conclusion:

In conclusion, energy cost savings is on top of mind of every commercial building owner, operator or facility manager. There are many solutions available that can help you with energy cost savings. These range from implementing sophisticated technologies like IOT to low cost energy efficiency strategies like using natural light and finally using Energy Star rated equipment for long-term energy savings.

Future scope:

In this way we can save money and power. That power will be useful to the future generations.