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Power saving project

Logic Design

Introduction

In order to limit the amount of power and electricity usage that causes companies to pay exorbitant amounts of money, we will look at conventional ways a company is able to save power which in return will result to them spending less money.

Background and Justification

Commercial businesses account for almost 20% of the SA energy consumption.

* In order to cool down the building (usage of computers), employees use heaters to warm themselves.
* Companies do not switch off their cooling appliances at the end of a work day.
* Companies light up almost each and every place in their buildings no matter the time of day.
* Companies also use outdated bulbs in lighting instead of upgrading to LED’s or CFL’s.
* Computers, printers and other equipment are always on even during weekends even when not in use.
* The geysers are always running even when unnecessary.
* Candid cameras are always on after a day’s work.

A large sum of finances within a company are projected towards the maintenance and “housing” of the businesses daily operations, these large amounts of money could be in fact be pumped into other areas of the business. The cost that a business spends to run keep their company alight (Literally) has escalated year by year. It is time that extreme measures are taken that will in whole not only save power but the companies’ turnover too.

By optimizing the use of refrigeration and chilling units. A time management system will be implemented where cooling units will operate whenever employees are in a specific place, this will be detected through the use of motion detector sensors.

Objectives

* The main objective is to reduce the amount of electricity spent by 5%, thus saving companies money spent throughout the months.
* This will be achieved by utilizing sensors that will pick up motion given a certain time frame therefore using power savvy ways to monitor electricity use.

Specifications

* During office hours, operations at the business are normal.
* After hours, employers and employees who happen to be at the offices, the motion detectors will begin to work and turn on applications according to motion.
* Motion detectors enable certain application and lights in different intervals.
* The lights are immediately switched on when motion is detected.
* Within a matter of seconds the camera awakes from standby to start recording feed.
* When an employee/employer is within a specific room for a given period (10 minutes), the computers, cooling system will switch on.

Methods and approach

Before Work/During

1. As soon as the PIR senses motion from an employee, the camera will start to operate, being moved by the servo motor to any direction
2. Lights will then switch on as this will mean an employee is at the office
3. After a period of time(10 minutes) the air conditioner, printers will go on

After work

1. When the sensors are not actuated, printers and air conditioner will go off
2. PC’s will switch off if it is not being used

Conclusions

By reducing the amount of electricity used in a building, companies will save tremendous amounts of money they can spend elsewhere. They would also be reducing the amount of taxes paid on their carbon footprint, thus making their company eco-friendly