

Energy audit at the kolej mawar in the uitm shah alam

[Finance](#)



Abstraction

The proposal presents a item undertaking of energy audit at the Kolej Mawar in the UiTM Shah Alam. The chief intent of this proposal to analyze on the energy ingestion in that edifice and to develop the GUI, so that user can cipher informations from the power analyzer equipment. Based on this information, the burden form and energy form ingestion at each edifice can be analysed and to give recommendation to cut down the energy ingestion, waste energy and to increase the energy efficiency of the edifice.

Chapter1

Introduction

1. Introduction

As twelvemonth 2020 attacks, Malaysia, a underdeveloped state, sees the demand of energy as a viral component to assist it to accomplish the mark of twelvemonth 2020, which is developed state. As it is, about half of the energy ingestion in the state is in industrial, residential and commercial sectors [1] . Universiti Teknologi Mara (UiTM) Shah Alam is one of the university directed by the Ministry of HigherEducationMalaysia (MOHE) to set up the program of greenTechnology[2] . Green Technology is the development and application of merchandise, equipment and system used to conserve the naturalenvironmentand resources, to minimise and cut down the negative impact of human activities [3] .

Energy efficiency is a plan that brings great salvaging with proper planning and implemented right. The top direction should be informed about the

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current degree of operating efficiency, extra economy potencies and resources needed to accomplish it [4] . Therefore, the cooperation of top direction is lightly appreciated. Energy audit is a procedure to pull off the electrical energy ingestion efficaciously and to increase the energy efficiency.

The energy audit discussed in this undertaking will be merely focused in the Kolej Mawar UiTM Shah Alam edifice. These edifice has a capacity of 3450 college pupils and began operations in May 2002 with the first consumption of pupils on semester Jun-Nov 2002. The College has four blocks of residential edifices viz. Block 1A - 5 degree, Block 1B - 5 degree, Block 2A - 8 degrees and block 2B - 10 degrees. College disposal edifice is located in the center of the Block 1A and 2A. These edifice is located near the entryway 2 UiTM andHealthCenter and next to the Kolej Melati. The intent of the four blocks in this edifice is house the female pupils. These edifice is non merely considered as pupil adjustment but serves as a topographic point of acquisition and pupil Centre. Besides that, for the college disposal constructing the intent to pull off the pupil and their activities. In these disposal edifice is accommodates 10 staff and operate during office hr from 8. 00am to 5. 00pm. Figure 1 shows the location of Kolej Mawar in UiTM Shah Alam.

Figure 1: Location of Kolej Mawar.

1. PROBLEM STATEMENT

UiTM Shah Alam has spent about RM20, 819, 758 electricity measure annually as in 2013. The measure ingestion comes from all colleges, <https://assignbuster.com/energy-audit-at-the-kolej-mawar-in-the-uitm-shah-alam/>

installations, enrollment office, chancellery office, dining hall, athletics Centre and street illuming about in UiTM Shah Alam. The high electricity measure cause from the use chilling system, illuming and equipment is used non suited for the supply energy at that edifice. The 2nd factor that can do the high electricity measure, is found that at the hair-raiser system. That is because, unsatisfactory current public presentation, operation and scheduling the centralized air- conditioning system.

From the observations that have been done, it found that the some of the colleges in UiTM Shah Alam has non used electrical energy expeditiously. It is suspected that the Kolej Mawar one of the cause contribute the extremely measure public-service corporations compare to the other colleges by the old informations gathered. By do the walk-through audit, it found that in Kolej Mawar most of staff and pupils tend to go forth their electricity contraptions in status switch on. Students normally leave the suites with the lamp and fan switch-on status. Most of the staff leave their room with the air-conditioner with switch-on place. This bad wont can do blowing energy and increase in the monthly measure public-service corporations.

Besides that, in this edifice the electrical energy has non been managed decently. For illustration, the lamps at the corridor colleges have been light on the daytime. Actually the lamp have been switch on to illume up the certain lamp at left side. However, because of the wiring have been set to illume all lamp with one switch when the switch is turn on. This deficient wiring can do the waste energy use in this edifice.

1. Aim

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1. To analyze the energy use, burden profile and the energy efficiency of the chosen edifice.
2. To analyze informations collected and develop Ocular BASIC (VB) package and to cipher the energy use of a edifice.
3. To find the energy salvaging chances.

1. Scope OF WORK

This undertaking is more focussed on analyzing the energy ingestions by package ocular BASIC (VB) , GUI to make the computation from the existent information. This energy audit, is conducted to seek chances to better the energy efficiency of the edifice in UiTM Shah Alam peculiarly Kolej Mawar. By the bettering the energy efficiency, the energy ingestions can be reduced and besides can extinguish the waste energy. Besides that, this undertaking besides focus to propose cost-efficient steps to better the efficiency of energy usage and appraisal of execution costs and payback periods for each recommended action. This undertaking can be divided in two stages:

1. Phase 1 (FYP 1)

1. Carry out overall energy audit for Kolej Mawar UiTM Shah Alam.
2. Collect informations by walk-through audit the edifice and place the type of burden in that edifice.
3. Analysis of energy use and burden profile from the natural information (Flukes Analyser 435 and 1750) .

2. Phase 2 (FYP 2)

1. Develop the package plan to cipher the energy use and burden profile by utilizing Ocular Basic (VB) , GUI.

2. Determining the energy salvaging chances and to propose the recommendation to the direction.

Chapter2

LITERATURE REVIEW

2. 1Introduction

Based on research by Mohd Azrin [5] , the electrical energy at their FKE disposal block UTEM has non hold been managed decently. He found out that the anteroom lamps have been light on the daytime and the lamp and the air conditioners of certain room have been switched on although the room is empty. Such go oning gave rise to waste of the electrical energy. He suggested that, to increase the energy efficiency at FKE UTEM disposal is by exchanging on a few lamps near the entryway would be sufficient during dark clip.

“ Energy Audit in Block 3 in S & A ; T Tower towards Energy Efficiency in UiTM Shah Alam” [6] was carried out last twelvemonth. This Building can be divided into 3 blocks and 2 towers. By mentioning on the research Muhammad Azwan [6] , such research merely focused on the block 3 in S & A ; T edifice. From the work, block 3 has a two types of air-conditioning. The 1st type of air-conditioning is centralized controlled by the hair-raiser. This type can be set automatically turn on and off. The 2nd type of air-conditioning is disconnected unit, these type can be controlled by manually. Each of schoolroom is fitted with type 1 and the offices with type 2 [6] .

Besides that, harmonizing to the research Siti Nor Ayu [7] , “ Energy Audit for Energy Efficiency at Facility Management Office in UiTM Shah Alam” was carried out 2 old ages ago. The edifice of the installation direction office in UiTM Shah Alam can be divided into 5 classs. This five classs office is under the installation direction and this all edifice comes from the one substation which are Pejabat Pengurusan Fasiliti (PPF) , Pejabat Pembangunan, Annex, Bahagian Khidmat Elektrikal dan Telekomunikasi (BKET) , Pembangunan dan Pengurusan Fasiliti (ICT) , Bilik Gerakan Krisis (Cabin) and Bendahari Zon 5. She found out that the entire energy used in UiTM is increasing every twelvemonth from the chief consumption since the establishment have big population. By mentioning on the research is conducted, she found that the energy ingestion can be reduced by implementing energy efficiency construct at the air conditioner, illuming, computing machines and other electrical contraptions. Besides that, she found that, the air conditoner is consumed the highest energy ingestion which is about 72 % of entire energy ingestion. So that, from this it can blow the electrical energy. She suggested to alter the gas from R22 gas to R22 cold gas. After iplementing this manner the energy ingestion by utilizing R22 cold gas for air conditioner is reduced [7] .

2. 2ENERGY AUDIT

Energy audit is an review or study and analysis and to place energy that been used in that edifice. Based on this energy audit, it is besides defined as the possible energy economy or energy direction [8] . Energy audit is one of the best methods to command the waste energy ingestion. Besides that,

these energy audit is similar to fiscal accounting procedure, in which the procedure to analyze an energy history, look intoing the right manner energy is used and besides place which country can be minimized to cut down the wastage energy ingestion.

2. 2. 1Energy Audit Stages.

These energy audit phases, can be categorized into two types that is, preliminary audit and inside informations audit.

a)Preliminary Audit.

Preliminary audit is the study based on the edifice. In other words, before the audit is performed, a complete checklist should be made. The list point must be considered in this audit energy includes:

1. Lighting system
2. Air-conditioning System
3. Utility measures

B)Detailss Audit.

Detailss audit is carried out for the energy salvaging proposal recommended in preliminary audit. It will supply proficient solution options and economic analysis for the edifice direction to make up one's mind undertaking execution. A feasibleness survey will be required to find the viability of each option.

2. 3Type OF TARIFF TNB USED

Based on the duty TNB UiTM is classified in the commercial duty. The duty for commercial can be classified into two parts that is:

Duty C1: Medium Voltage General Commercial.

Duty C2: Average Voltage Peak/off-Peak Commercial.

The whole edifice in UiTM Shah Alam used duty C1 but for the air conditioner duty C2 is used because the Air-Conditioner used the Thermal Energy Storage (TES) .

2. 4Light System

Lighting is one of the largest consumer of electricity in commercial edifice. About 41 per centum of electricity and 28 per centum of entire energy, consumed in the commercial sector is for illuming. In the residential sector, illuming energy usage is little though non fiddling, stand foring about 7 per centum of residential energy usage. Based on this fact, lighting is the major impact on energy in edifice or otherwise. A thorough study should be carried out to find the efficiency of the lighting system. This is, to obtain the lighting form agenda and to look into the lighting strength, so that it follows the Malaysians Standard (MS-1525-2007) .

2. 5AIR-CONDITIONER SYSTEM

Air - conditioning can be defined as coincident mechanical control of temperature, humidness and air gesture. The chief map of all air - conditioning system is to supply thermic comfort for edifice residents. The system used for air-conditioner in the UiTM Shah Alam is the Thermal Energy
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Storage (TES) . Based on the duty TNB the TES system can be defined under the duty C2 that is, Medium Voltage Peak/off-Peak Commercial. Referred to the MS 1525: 2007, the indoor design status of an air - conditioning infinite for comfort chilling should be as follows:

1. Recommended design dry bulb temperature 23? C - 26? C
2. Minimum dry bulb temperature 22? C
3. Recommended design comparative humidity 55 % - 70 %
4. Recommended air movement 0. 15 m/s - 0. 50 m/s
5. Maximum air movement 0. 70 m/s

2. VISUAL BASIC (VB) , GUI SOFTWARE

In this undertaking, the package development is used as the measuring to analyze informations collected and to cipher the energy use of a edifice by utilizing GUI construct utilizing Visual Basic (VB) . This VB is the most popular and widely used programing linguistic communications available today. By this package, analysis can be done easy because the VB can associate the database with the Microsoft Excel and Access databases. By utilizing this VB it can besides back up a new scheduling technique called object - oriented scheduling (OOP) and traditional process - oriented programing [9] .

Chapter 3

Methodology

3. 1 FLOW CHART OF THE PROJECT

Figure 3. 1, shows the advancement of this undertaking from the beginning until this undertaking is completed. By mentioning this flow chart, it can be seen that this undertaking involves theoretical portion, practical portion and accomplishment to develop the package. In the theoretical portion, it deals with power quality of the system, energy direction and how to cut down the energy ingestion to increase the energy efficiency. Besides that, in practical portion it consists of walk through audit, informations aggregation and analysing the information by utilizing power analyser package by lading the information from equipment power analyser.

The designation of country is the most of import portion, to find the chances of energy economy can run from simplest, such as illuming retrofits, to the most complex such as the installing of a substation. After the preliminary designation of chances, more clip should be spent on those which have shorter payback periods [10] . Furthermore, a reappraisal about Malayan Standard must be done. The MS 1525: 2007 is the one guidelines for energy audit intents. The undermentioned stairss are involved in the informations aggregation:

- Walk-through audit. (Determine the type of burden in the edifice concerned)
- Installing power analyser (fluke's metre) at the DB of the specified edifice.
- Data aggregation for a certain figure of yearss including on the job yearss and weekends.
- Transferring the information into excel spreadsheet.

- Analyzing of informations collected.

Last the Microsoft Visual Basic (VB) by implementing the GUI construct will be developed and cipher the energy use of the edifice.

Figure 3. 1: Flow Chart of the Undertaking.

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3. 2GANT CHART FOR THE PROJECT

Chapter4

EXPECTED RESULT

4. 0EXPECTED RESULT

Based on this undertaking, the expected consequence is to see the energy pattern use and it's besides to analyze the form of the burden profile during working daies and vacation in the edifice. The expected consequence will demo the sum of energy ingestion and the entire cost for the energy during workday and vacation. GUI construct can be implemented to be use friendly and synergistic. From the form of the energy use, entire cost and the burden form in that edifice can be estimated. It is hoped that we can propose practical thoughts and activities to cut down the energy ingestion.

Decision

As a decision, it is hoped that it can assist the direction or the installation to pull off their electricity more efficient. Based on this undertaking, it can reason that by the execution of energy efficiency patterns can cut down the energy ingestion without impacting the human comfort. From this undertaking it can see there are many factors and that contribute to wastage energy such as human behaviour, the life-time of the equipment, and the operating clip the burden. These factors can lend to the waste energy. By the implement action of the package it can easy scrutinize the energy ingestion for farther hereafter analysis.

Mentions

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[2] Retrived from online: hypertext transfer protocol: //www. greentechmalaysia. my

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