
**INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA**

**INFO 2304 - SYSTEM ANALYSIS AND DESIGN**

**SECTION 2**

**SEMESTER 2, 2023/2024**

**PROJECT TITLE: ENERGY TRACKING FRAMEWORK**

**GROUP NAME: BIT BYTE**

**GROUP MEMBERS:**

| ROLE | NAME | METRIC NO. |
|---|---|---|
| FACILITATOR | YUSUF MOHAMMAD YUNUS | 2314467 |
| RECORDER | WAN AHMED FAUZIZAFRY BIN WAN KHALID | 2221141 |
| COORDINATOR | TENGKU MUHAMMAD ABDUH BIN TENGKU MOHAMAD ZULKIFLI | 2219029 |
| RUNNER | AKIF ASYRANI BIN MOHAMAD IZANI | 2201267 |
| CONTRIBUTOR | AHMAD SYAWQI BIN WAHID | 2121347 |

**LECTURER: TS. DR. ZAHIDAH BINTI ZULKIFLI**

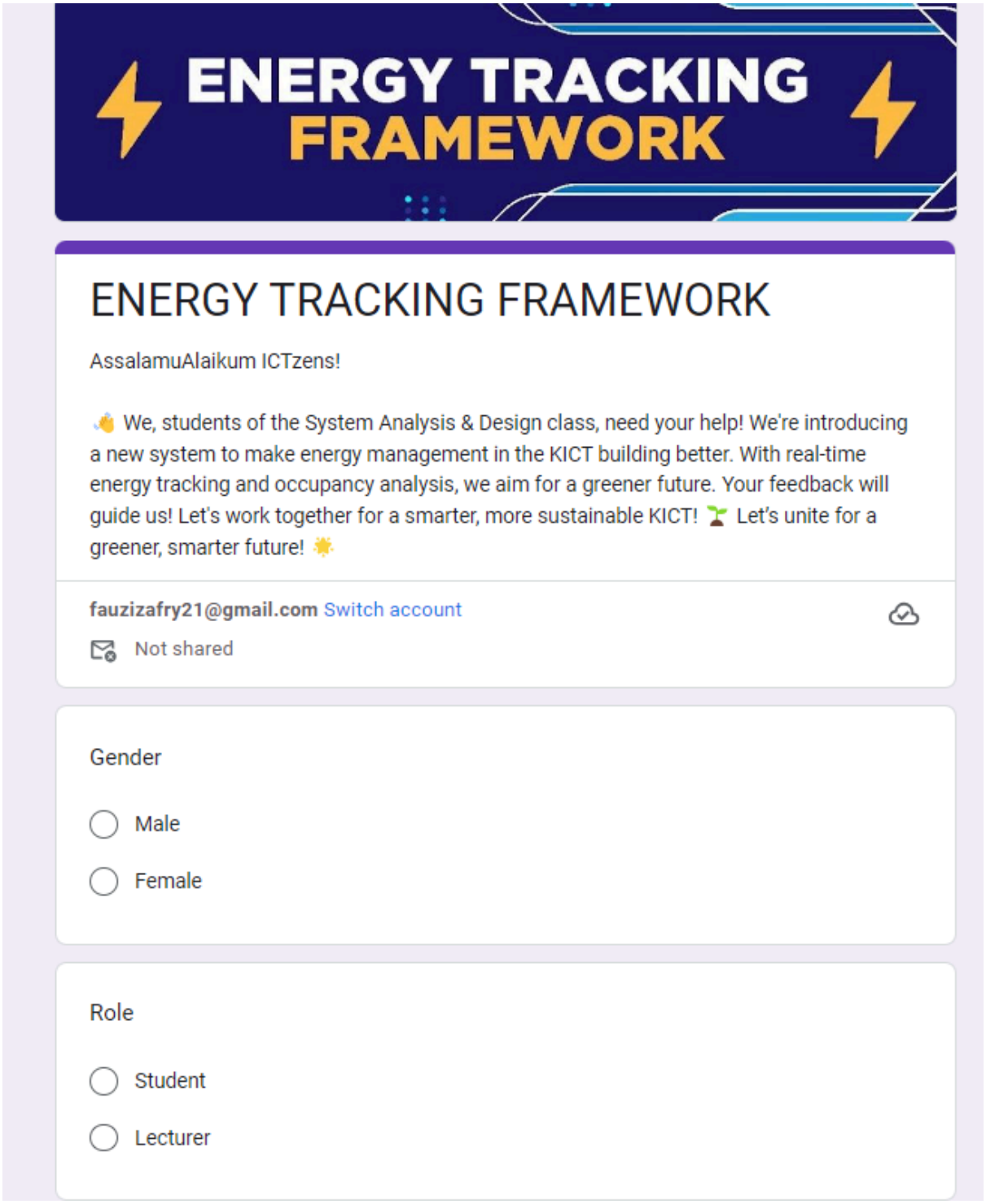
## 3.0 Data Collection

For our project, we exclusively rely on the questionnaire method, utilizing the accessibility and convenience of Google Forms to collect data from respondents. This approach ensures streamlined and easy data gathering and analysis processes. The questionnaire is made to take in perspectives from both students and staff members, gathering a complete understanding of the subject matter.

Our target audience only comprises individuals from the KICT department, aligning with the primary focus of our project. By narrowing our scope to this specific department, we aim to delve deep into issues and insights relevant to KICT's operations and community. The questionnaire, developed using Google Forms, was circulated among KICT-related groups such as ICTSS and KICT Batch 221, as well as shared among acquaintances within the KICT community via WhatsApp and Telegram.

Within the questionnaire, our objectives not only were to gather demographic information and awareness of energy consumption. We also sought to explore respondents' perspectives on various aspects related to our project idea. By inviting their insights and opinions, we aim to enrich our understanding of potential challenges, opportunities, and innovative solutions within the KICT department.

### 3.1 List of questions



Age

- ◯ 18 - 24
- ◯ 25 - 29
- ◯ 30 - 34
- ◯ 35 - 39
- ◯ 40 and above

Year of Study

Choose

Department

- ◯ Information Systems
- ◯ Computer Science

Are you aware of how much energy is being consumed within KICT?

- ◯ Completely unaware
- ◯ Somewhat aware
- ◯ Very aware

Would you like to save electricity in the KICT department? If so, why?

- ◯ Yes, to reduce negative impact on the environment
- ◯ Yes, to lower energy cost
- ◯ Yes, for both reasons
- ◯ No, not a priority
- ◯ Other: _____

Do you notice equipment such as air conditioner and lights switched on when there is no one present in the class?

- ◯ Never
- ◯ Rarely
- ◯ Often
- ◯ Always

Do you often turn off the equipment (lights etc.) if you are the last one to leave the class?

- ◯ Never
- ◯ Sometimes
- ◯ Often
- ◯ Always

Would you prefer a system that turns off automatically based on occupancy of the class?

- ◯ Yes
- ◯ Not sure
- ◯ No

Do you believe that this sensor based energy system is sustainable?

- ◯ Not sustainable at all
- ◯ Not very sustainable
- ◯ Somewhat sustainable
- ◯ Highly sustainable

What other features would you like to see in the new system?

- ☐ Automated scheduled on/off times
- ☐ Remote control through an application
- ☐ Receive AI-driven recommendations for optimizing energy consumption
- ☐ Other: _____

Thank you for taking your time to share your opinions!
As token of our gratitude, we wish you all success in your studies! Ameen.

### 3.2 Data collection results

In summary, the outcomes from our Energy Tracking Framework questionnaire (as detailed in the Appendix) involved a total of 75 participants. Among them, 70 were students (93.3%) and 5 were lecturers (6.7%), all contributing valuable insights. In terms of demographics, the majority fell within the 18-24 age range (64.9%), with a relatively even split between genders (38.7% female, 61.3% male). Departmental representation was equally divided between Computer Science and Information Systems (each at 50.0%). As for study levels, the largest proportion was in Level 2 (43.8%), followed by Level 3 (24.7%) and Level 1 (20.5%).

When evaluating energy monitoring and awareness, a notable portion (34.7%) indicated frequent observations of equipment left on when not in use. Regarding awareness of energy usage in KICT, responses varied, with 14.7% stating high awareness, 40.0% moderate awareness, and 45.3% indicating no awareness at all. Concerning the practice of turning off equipment after class, 45.9% reported always committing to this practice, while 6.8% admitted to never doing so. A significant majority (69.3%) expressed a preference for an automated system that shuts off based on occupancy. Participants generally believed that a sensor-based energy system is environmentally sustainable, with 33.3% viewing it as highly sustainable and 44.0% considering it somewhat sustainable

Regarding the inquiry about conserving electricity, 41.3% expressed a desire to conserve electricity for both environmental reasons and cost savings. Among desired features for the new system, the majority (83.8%) favored scheduling automated on/off times, while half of the respondents (50.0%) expressed interest in remotely controlling equipment via a mobile app. Notably, 14.9% showed interest in AI-generated recommendations for optimizing energy usage. These findings underscore the significance of incorporating user-friendly functionalities that support sustainability objectives

In conclusion, the comprehensive analysis of the Energy Tracking Framework questionnaire results provides valuable insights into the perspectives of both students and lecturers within the KICT building. The majority of participants, predominantly students in their second year and from the departments of Computer Science and Information Systems, showcased a keen interest in sustainable energy practices.

### 3.3 Summary

This report presents the findings from a comprehensive data collection effort aimed at understanding energy consumption patterns and attitudes within KICT. Utilizing the questionnaire, the study gathered perspectives from students and staff..

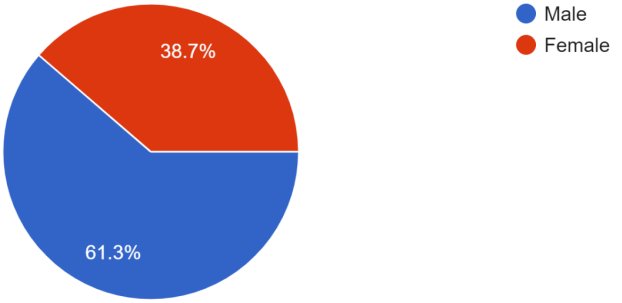
The questionnaire results with responses from 75 participants (70 students and 6 lecturers), provided a demographic breakdown and insights into energy awareness and behaviors. The majority of respondents were in the 18-24 age group, with a near-equal gender distribution, and were exclusively from the Computer Science and Information Systems departments. The findings indicate a significant awareness of energy consumption issues among the respondents, with varying degrees of observation and behaviors towards energy-saving practices. A notable interest in a sensor-based energy system was evident, with preferences for features like automated on/off scheduling, remote control via apps and AI-driven optimization recommendations.

In summary, the data collected paints a comprehensive picture of the current state of energy consumption at KICT. It highlights the awareness levels, attitudes, and behaviors towards energy usage among students and staff. The report suggests a strong foundation for developing an effective Energy Monitoring System, tailored to meet the specific needs and preferences of the KICT community. The study emphasizes the potential of technology-driven solutions in promoting sustainable energy practices in an educational environment.

## Appendix: Questionnaire for Energy Tracking Framework

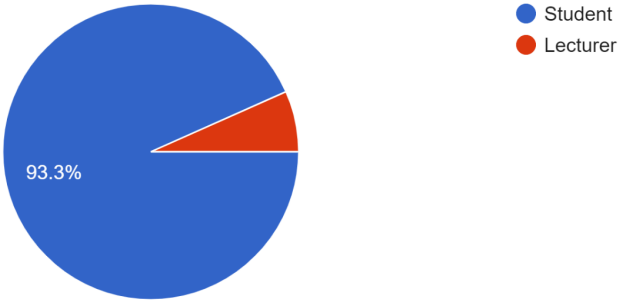
Gender

75 responses



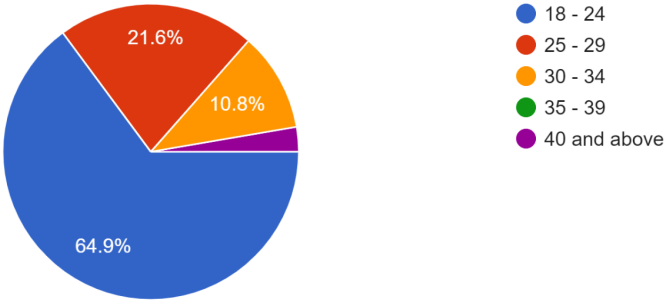

Role

75 responses



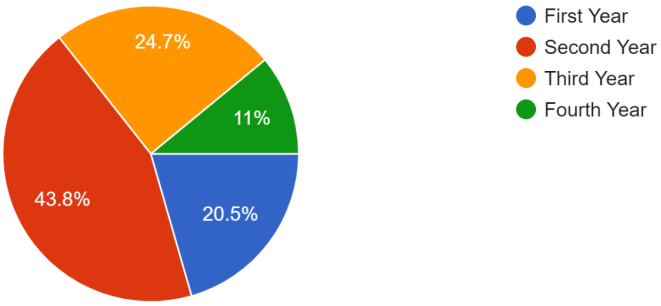

Age

74 responses



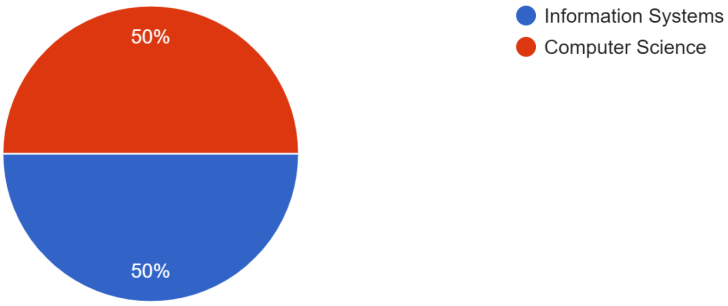
## Year of Study

73 responses



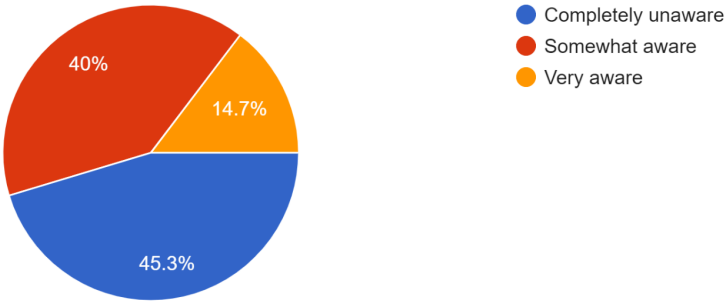

## Department

74 responses



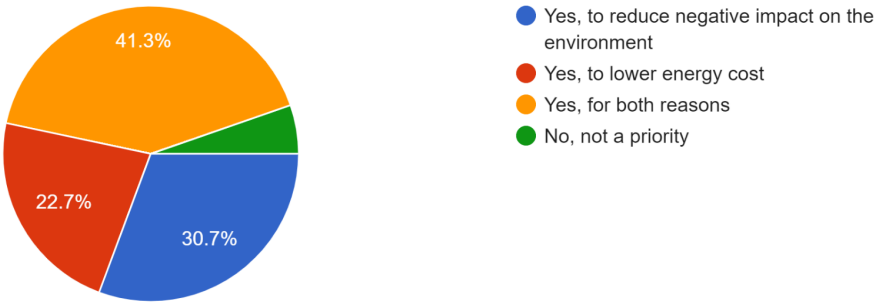

## Are you aware of how much energy is being consumed within KICT?

75 responses



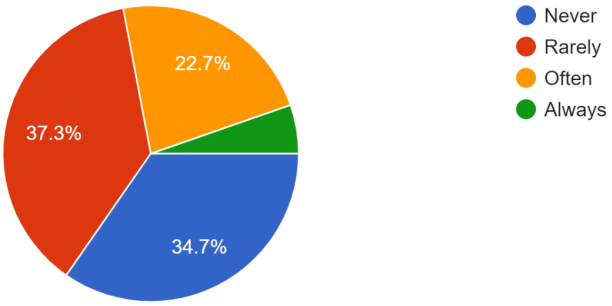
Would you like to save electricity in the KICT department? If so, why?

75 responses



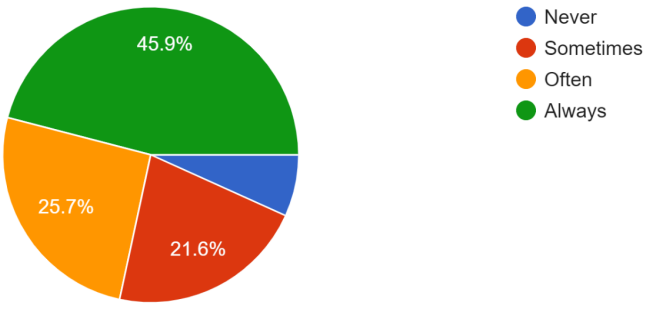

Do you notice equipment such as air conditioner and lights switched on when there is no one present in the class?

75 responses



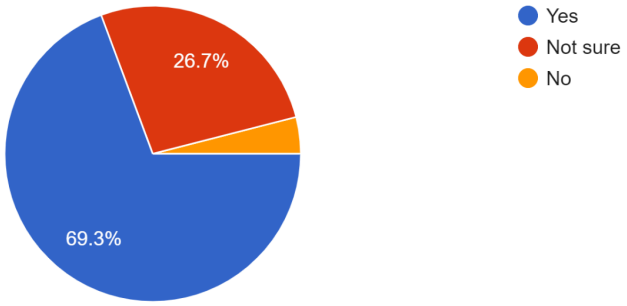

Do you often turn off the equipment (lights etc.) if you are the last one to leave the class?

74 responses



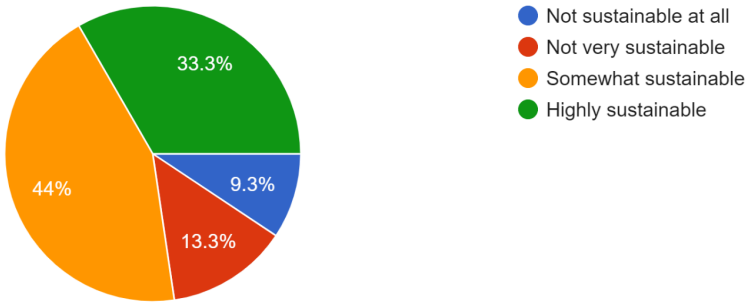
Would you prefer a system that turns off automatically based on occupancy of the class?

75 responses



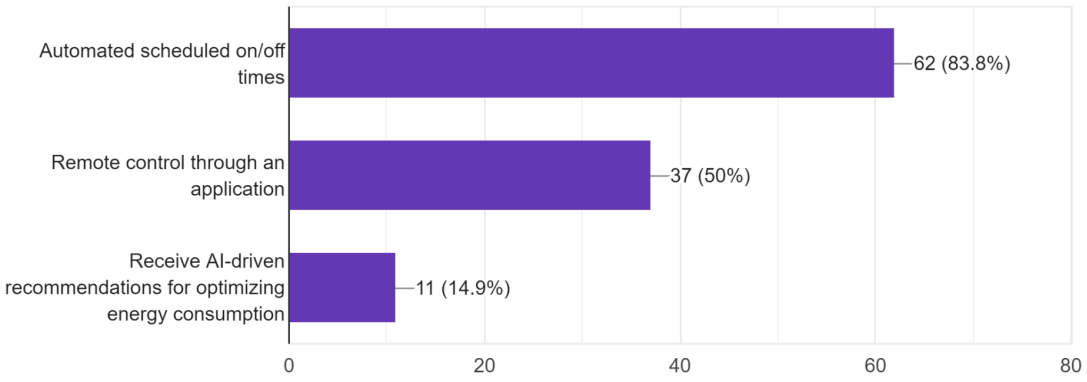

Do you believe that this sensor based energy system is sustainable?

75 responses




What other features would you like to see in the new system?

74 responses



Group Name: BitByte

Group Members:

| |
|---|
| YUSUF MOHAMMAD YUNUS |
| WAN AHMED FAUZIZAFRY BIN WAN KHALID |
| TENGKU MUHAMMAD ZABDKHEL BIN TENGKU MOHAMAD |
| AKIF ASYRANI BIN MOHAMAD IZANI |
| AHMAD SYAWQI BIN WAHID |

Assignment / Projetct : ENERGY TRACKING FRAMEWORK

| **FACTS**<br>What do we know about the task/ problem? (information) | **IDEAS**<br>What do we need to find out? | Who is going to do it (put details and names here) | **ACTION**<br>Deadline |
|---|---|---|---|
| We know how to handle and make a google form to gather information to continue our project. | What is the opinion of the KICT community regarding energy conservation in the kuliyyah and suggestions on how to improve the existing or new system. | All group members work together | 7/5/2024 |

| | | | |
|---|---|---|---|
| | | | |

**continue to the next page if the table is not enough*

*Example on howto fill up the FILA form:*

Reporting Sheet ( 1 / 1 )
Date : 12/2/2010

**UNIVERSITY OF MALAYA**
Department of Civil Engineering, Faculty of Engineering,50603, Kuala Lumpur

| GP No. | Topic : NANGGA MIKU LANDSLIDE |
|---|---|

Group members : Zaul, Henry, Farzeen Hanisah

| What do we know about the task? | What do we need to find out? | Who is going to do it (put details and names here) | Deadline |
|---|---|---|---|
| 1.0 INTRODUCTION | | | |
| • Review on the events | • When did the landslide happen?<br>• Which part of the area was affected?<br>• Is there any hurt victim / deaths? What happened to the victims?<br>• Was there any 'symptoms' of the landslide? | Zafreen | 19/2 |
| • The soil type of the landslide's area and the soil description | • What is the soil type of the affected area?<br>• What is the soil description on the affected area? | Zafreen | 19/2 |
| • The nature of the soil | • What is the nature of the soil? Is it homogeneous / non-homogeneous / isotropic / non-isotropic or excavated material / natural material / reconstructed material? | - Henry | 19/2 |
| • The failure that involved | • What has failed during the landslide?<br>• How is the failure happening? | - Zaul | 19/2 |
| • The nature of soil mass failure and the retaining wall failure | • What is the nature of the soil mass failure and the retaining wall failure? | - Hanisah | |