

## **1.0 INTRODUCTION**

In recent years, more and more university employees tend to choose their residences in places inside the campus or residential. As a result of this change, the number of private cars owned by student is increasing rapidly. In addition, the communication between universities and communities has become much closer than before. This leads to a shortage of campus parking capacity. This article has presented a case study of the campus parking problem, taking the Tun Hussein Onn Malaysia's university as a main scope. The campus inflow and outflow of vehicles, the location and use of parking lots as well as the drivers' parking behavior are surveyed and analyzed. The average parking duration and the use turnovers of parking lots are computed from the survey data.

Public utilities need a parking infrastructure that can function efficiently and be integrated with the other urban city utilities. Economic development sees parking as a tool to support current economic activity and as incentive to attract new businesses. Safety and security departments see parking and its prerequisite enforcement as, just that, a requirement, albeit it is a low priority requirement that can divert that department from its higher priority function. The university campus provides all staff and students a place for their working, studying and even living. Parking is one of the important topics in urban transportation planning and traffic management. This is true too for the university campus.

However, there is a parking problem on campus as there are too many drivers for the amount of available parking spaces as evidenced by our statistical analysis. External forces that are often beyond the control of Tun Hussein Onn Malaysia's university administrators exacerbate the parking problem. The parking situation as it currently stands only leads to further dilemmas that involve economics, societal attitudes, and our overall quality of life.

## **1.1 BACKGROUND OF STUDY**

Parking is an important issue for all students, staff, and faculty at Tun Hussein Onn Malaysia's university. Through extensive data collection and analysis, three categories of problems have been identified. First, there is a logistical parking problem as shown by the results of our research. Ideally, a compromise would create a situation where available parking meets the demand of Tun Hussein Onn Malaysia's university. Second, social attitudes of the UTHM community contribute to the campus's parking problem. A variety of factors determines the social constructs originating from areas outside the university community including mass media and political forces.

## **1.2 PROBLEM STATEMENT**

There is no systematic method for the allocation of parking and management lacks coordinated and centralized information for the effective management and control of the parking facility. As for instance, if capacity is below 120, congestion causes delays, while if it is above 120 there is no delay. As a result, some drivers arrive at the bottleneck early to avoid the delay.

## **1.3 OBJECTIVES**

There are several objectives of this project:

1. To identify the causes for parking issues in UTHM
2. To suggest the solution in overcoming the parking's problem in UTHM

## **1.4 SCOPE**

This study will be conducted within the main UTHM campus area. The main respondents for the study are the students and staffs of UTHM that owning car and using it as their main transport.

## **1.5 SIGNIFICANCE**

Findings of the study will be useful in creating alternatives in managing parking issue in UTHM. The findings will also help the UTHM and formulating policies with regard to parking control and management for students and staffs ,for example creating a directory parking system that allow those who intending to park their vehicle easily get the information where is available parking lot within campus.

## **1.6 LIMITATIONS**

The process to gather the data for this study is limited because the information from Properties & Development Department is confidential.

## **1.7 BACKGROUND OF STUDY**

The University of Tun Hussein Onn of Traffic Department estimates that there are about 1240 parking spaces available in the UTHM. Parking problems are expected to increase with the elimination of key central campus parking areas as demand increases and supply decreases. Both the UTHM Department of Parking Services and the UTHM Master Plan provide the basis of current university parking facilities and programs.

The university vision is consistent with the development of a system that provides real-time information to UTHM faculty and staff, students, guests, and visitors. The Campus Master

Plan recommends a more “pedestrian-friendly” campus as there will be no more second campus which are; the city campus and all student will be ensured staying within the main campus. As parking decreases, the number of students enrolled at UTHM continues to increase. The student population is important to university parking aside from its impact on university trips person trips including all students, faculty, and staff because of student car storage.

As more students including freshmen desire their vehicles while the semester is in session, the university will have to continue to provide a limited amount of parking for students to store their vehicles. Even if on-campus storage parking is increased, there will still be an excess of extra cars parked on streets adjacent to campus. In order to develop a good traffic system in campus that will accommodate the goals and recommend the best alternative from users’ perspective through university surveys and focus groups.

The demands of parking spaces in campus can be classified into: (1) venues utilizing, (2) evaluations. The venues utilizing range from classes to faculties and the specific distance for each particular venue reflect the good background of what current parking systems entail. Part (2) explores the nature of human factors in any behavior changing system and how they relate to parking utilization.

## **1.8 BEHAVIORAL OF PARKING**

All cities designing, deploying, or evaluating management discussed in this review have sound needs for better parking management. In fact, the need one step further to ensure that the system not only meets the needs of the city, but of the actual vehicle lingering in campus by designing the management based on public perceptions. The need is present, but the utilization rates are low and even seen as “disappointing.”

And, because the cost of implementing for a far more complex system can be large, university should be interested not only in the need for such a system, but the actual use it will really get. Parking in itself is not a travel motive. It is simply the result of trip making

and part of travel behavior. To successfully implement simple parking management, actual behaviors must be changed and, in order to change human behavior, the attitude regarding alternative choices needs to be changed.

However, it is important to understand that behaviors do not change on a whim. Parking is habitual and habits are hard to break. Road users' perceptions of the suggested solutions are positive at first; however, the systems are not being used. Perhaps it would only work after next three years. Only a few drivers really understand the needs of this system direction while most drivers use the system to check their own decision.

Because the driver fails to notice or understand the importance of being punctual and being flexible in their work and ignores others' rights and it is irrelevant to his or her parking decision, and choose to proceed to a full or almost full facility after evaluating all options. Also, the actual characteristics of facilities chosen for parking, like location, walking distance, traffic situation, occupancy rate, and price in conjunction with the driver characteristics need to be accounted for.

Studying the relationships between the actual driver and his or her reasons for traveling have shown, in general, that drivers tend to be very confident in their own abilities with regard to route, in situations of increased uncertainty, they may be more likely to comply, and drivers past experience of guidance is likely to affect their acceptance of current advice. Because of the behavioral aspects involved in parking as a result of trip making, evaluation studies need to analyze behavior in response to route guidance in both the pre and post-deployment stages. Reasons why drivers stay with a familiar route and reasons for changing routes need to be identified. System familiarity should also be addressed as acceptance of advice directly relates to motorists exposure to similar guidance systems along with motorist familiarity with alternate routes. Ideally, a large number of individuals are sampled in a real-world setting. Past studies can also provide insight however, even if an individual is able to project they in a situation, there is no way of knowing if he or she will actually behave in the way stated when faced with the actual situation.

## **2.0 INTRODUCTION OF METHODOLOGY**

This chapter presents the data collection methods that were used by the researcher in exercising the study, tools that were used in the analysis and design of the system and also the tools used to develop and implement the system.

## **2.1 INSTRUMENTS OF RESEARCH**

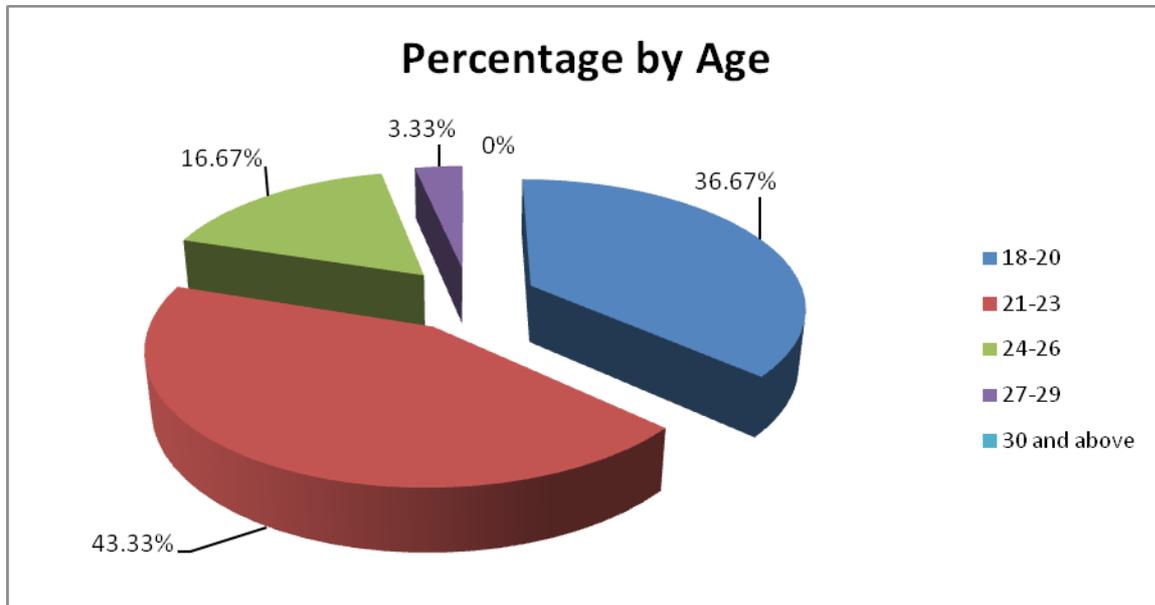
**2.1.1 Interviews:** An interview is a conversation in which the researcher tries to get information from the interviewer. The method assumes that the respondents to be interviewed have the information required; they can understand questions, which are put to them and will be willing to give answers while they are face-to-face.

**2.1.2 Questionnaires:** Questionnaires were used by the researcher to gather facts about the parking behavior of motorists and payment methods, questionnaires were aimed at getting information about the time spent in parking, and the mode of payment motorists would prefer for the utilization of parking bays. Questionnaires appear in the appendix part of this report. It was established from the questionnaires and interviews conducted that some motorists.

**2.1.3 Observations:** This method was used to investigate the situation of the car parks during peak hours. The main idea here was to find the exact nature of the problem being described by students and also to get information about the structure of the organization and any relevant background information about the organization that proved relevant to the study.

## **3.0 ANALYSIS & FINDINGS**

### 3.1 Percentage of Respondents by Age



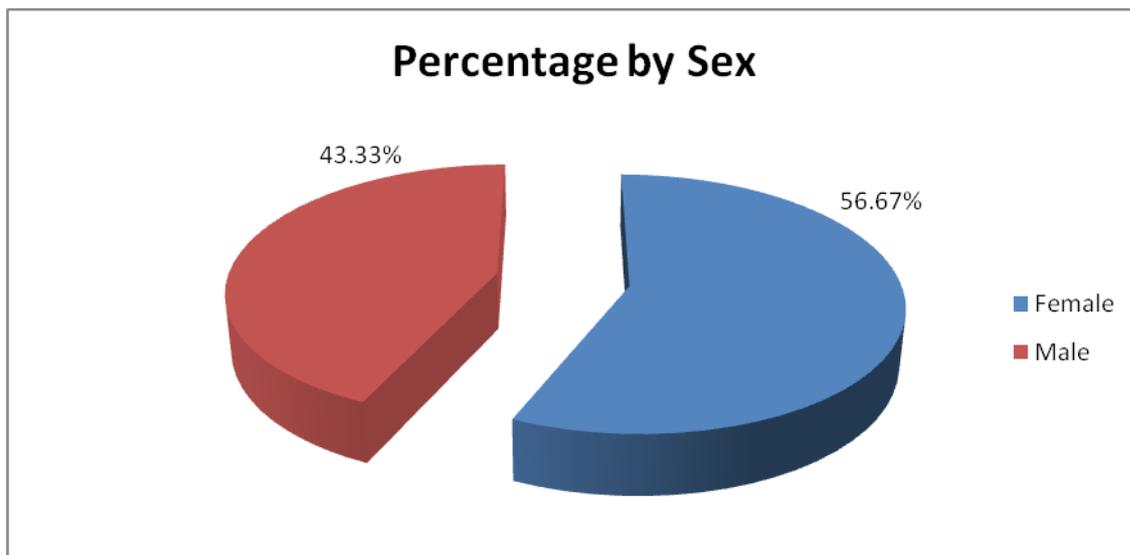
Analyze:

The figures for total percentage of respondents by age as follows:

Age	Percents
18-20	36.6%
21-23	43.3%
24-26	16.6%
27-29	3.33%
30 and above	0 %

Notice that the chart shows the highest parking users in UTHM are those who in the age of 21-23 years old with 43.3%, followed by the group in the age of 18-20 years old with 36.6 %, 24-26 years old with 16.6% and 27-29 years old with 3.33%. None of the respondents are in the group of 30 years old and above.

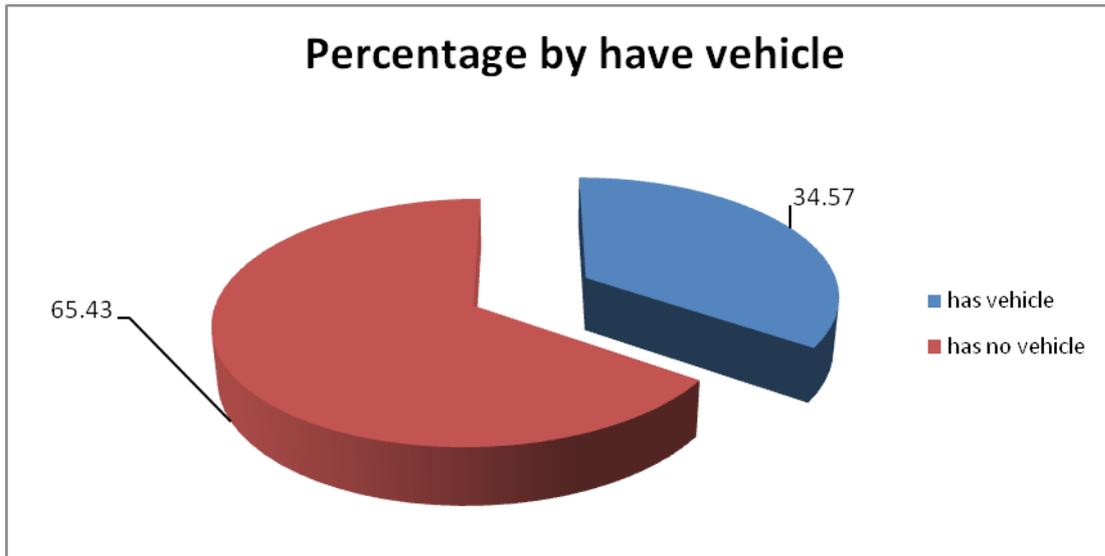
### 3.2 Percentage of Respondents by Sex



Analyze:

The above pie charts shows that female road users are dominantly on the parking within UTHM campus with 56.67% while male only represents 43.33% as the second parking lots user. From the result, it might be known that UTHM consists slightly higher male students than female.

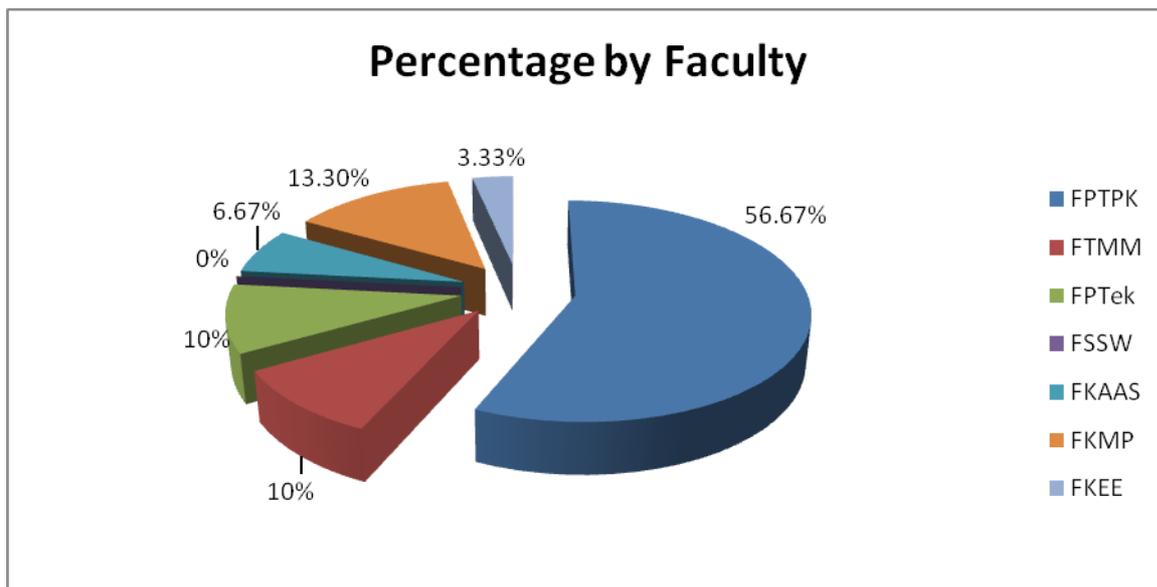
### 3.3 Percentage of Respondents by User Parking Lot at UTHM (%)



Analyze:

The chart above shows only 75% of our respondents having their own vehicle as their main transport. In the meanwhile the rest 43.33% may use the shuttle bus as their transporter.

### 3.4 Percentage of Respondents by Faculty (%)

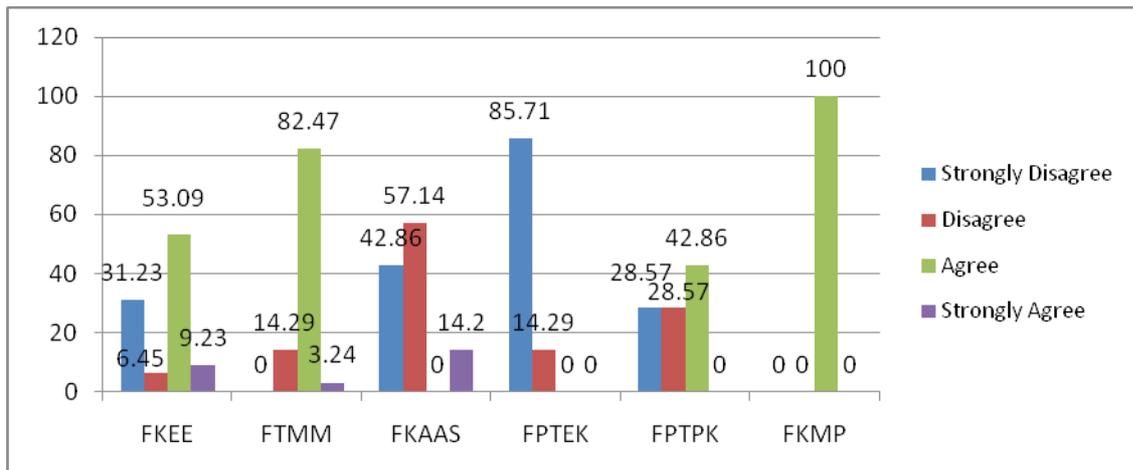


Analyze:

In the faculty category, most parking lots are being conquered with FPTPK's students whereby it stands for 56.67%. Second highest with 13.30% is FKMP's students and followed by FPTEK's, FTMM's, FKAAS', FKEE's, and FSSW's with 10%, 6.67%, 3.33%, and 0% respectively. The major factor for this is probably because the students from FPTPK and FPTEK needs to transporting themselves between city campus and main campus as their faculties located at the outside of the main campus. The second reason why students increasing preferred to have their own transport because the shuttle bus that provided by university does not satisfy the students' needs and could not occupy with students' time demand.

### 3.5 Analysis of Results of Research Based Faculty (%)

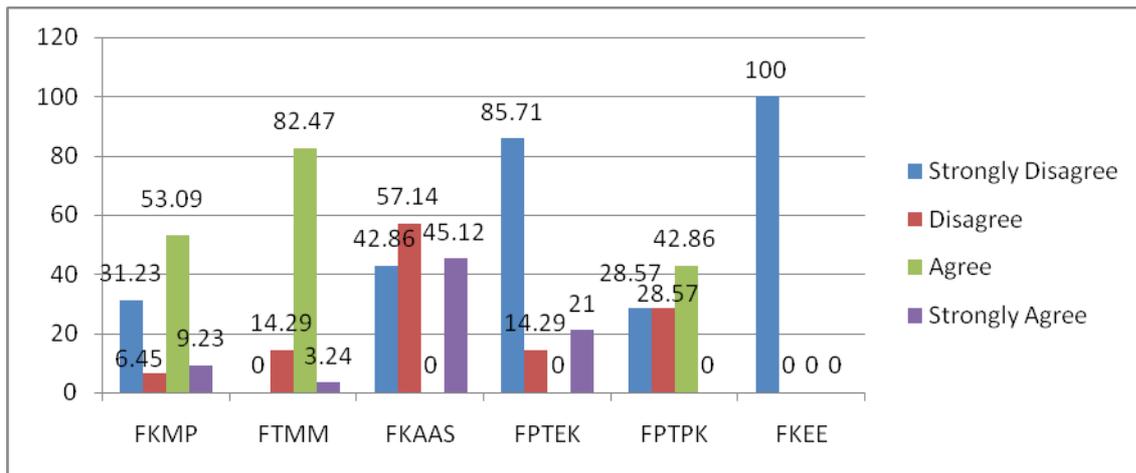
### 3.5.1 Result of total parking lot in study/office area



Analyze:

Two faculties that located in UTHM main campus area mostly agreed that parking spaces is adequate in study and offices compound. FKEE agrees with 53.09% and FKMP is totally agreed with 100%. Meanwhile, FPTPK and FTMM which their faculties located in city campus could only agreed with 42.86% and 82.47% respectively. The most contrast can be viewed by FPTEK's students whereby they are 85.71 strongly disagree with the amount of parking lot in that particular area. For FKAAS, slightly more than half with 57.14% disagree but might still be able to comprise with the current parking lot.

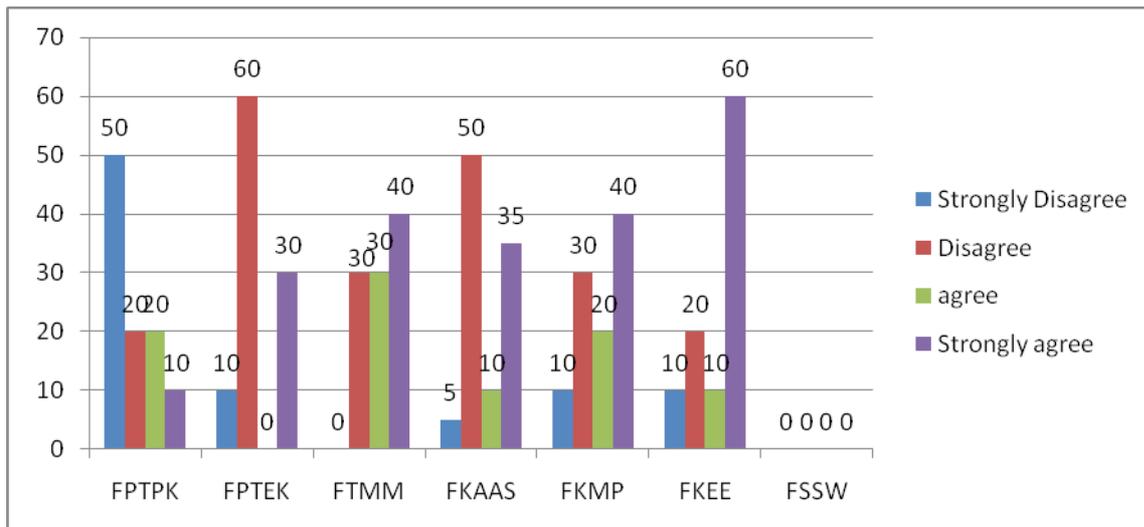
### 3.5.2 Result of total parking lot in cafeteria area



Analyze:

The result for strongly disagree with the amount of parking lots in cafeteria area by FKMP is 31.23%, FKAAS with 42.86%, FPTEK with 85.71%, FPTPK with 28.57% and FKEE with 100%. They may have different views of the amount maybe because the limited location of cafeteria. UTHM should provide more cafeterias near by the faculty so that students do not have to take extra turns to crave for foods especially during their hectic days.

### 3.5.3 Result of situation of parking lot (strategic and comfortable)



Analyze:

FPTPK: 50% of the students do not agree with the environment and there must be a certain issue around their faculty's compound.

FPTEK: Shows 60% disagree with the parking atmosphere.

FTMM: The percentage for this faculty is almost even for each indicator with 30% disagreeing, 30% agree and 40% strongly disagree.

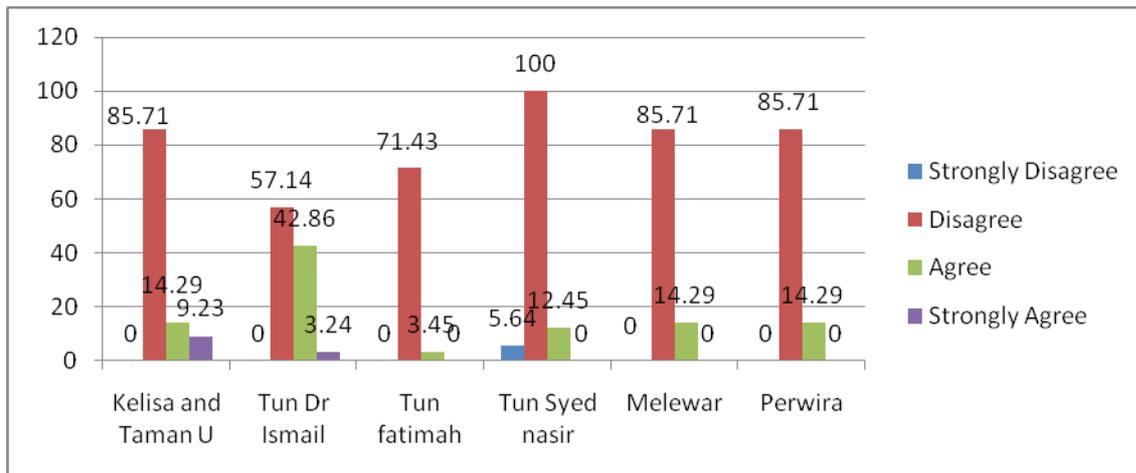
FKAAS: Only 40% disagree and the rest is still in good mood for the parking atmosphere.

FKEE: 60% of the students do not feel comfortable with the parking location and environment.

FSSW: It is a new faculty and we can barely find any students from this particular faculty and the result could not be collected during survey.

### 3.6 Analysis of Results of Research Based UTHM's residential (%)

### 3.6.1 Result of total parking lot in hostel area

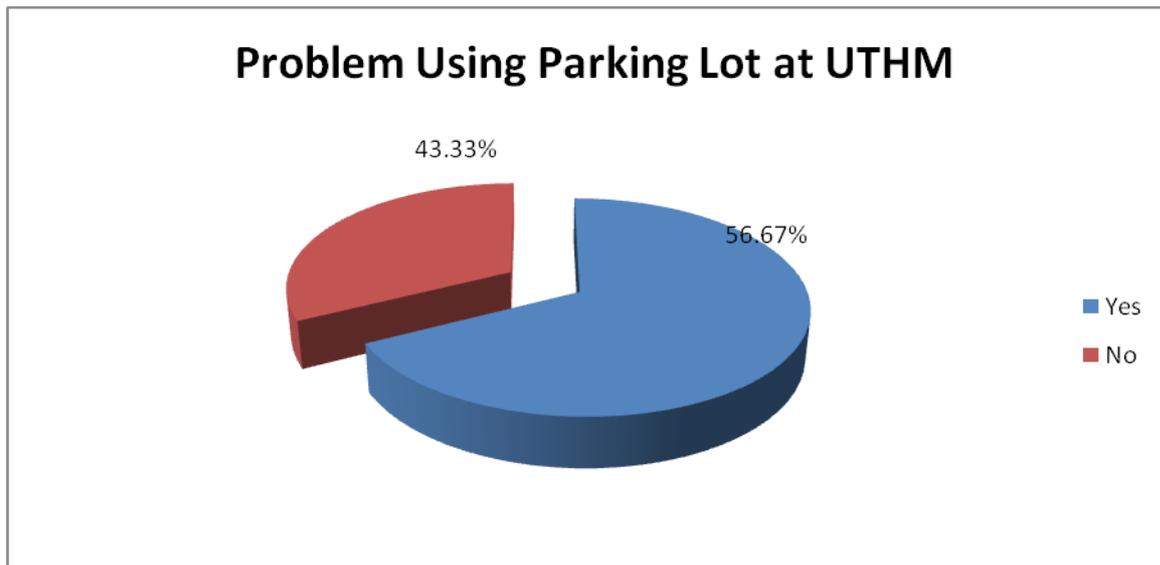


Analyze:

From the above result, most students at the respective residential areas disagree with the amount of parking with 85.71% disagree at Taman Kelisa & Taman U, 57.14% at TDI, 71.43% at TF, 100% at TSN, and Melewar and Perwira sharing the same percentage with 85.71% disagree. Most disagreements happened because of the increasing amount of students and the contract for staying in has been shortened to one year period only. This may lead dissatisfaction among students.

### 3.7 Percentage of Respondents (%)

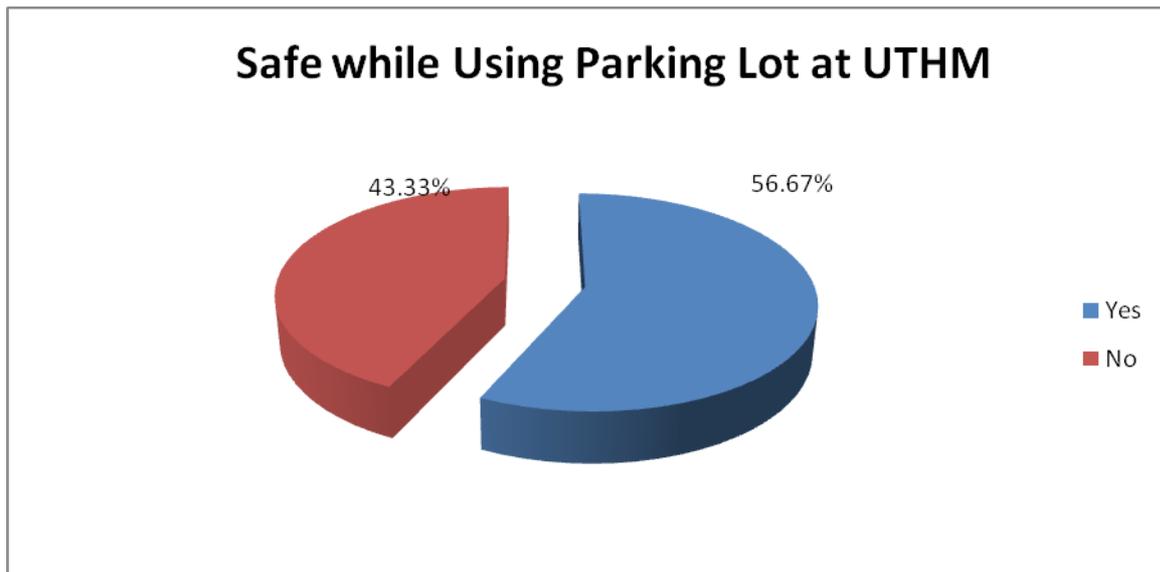
### 3.7.1 Result Respondent for Problem When Using parking Lot at UTHM



Analyze:

More than half of the respondents feels that they are having problem with parking space in UTHM which represented with 56.67% on chart and contradicted with 43.33% says they have no problem or concern with the parking space.

### 3.7.2 Results feel safe for respondent who are in parking lot at UTHM



Analyze:

Positive result of feeling safe parking their vehicle within UTHM can be shown in above chart with 56.67% agreed and 43.33% does not agree. Students who parked their vehicle near their whereabouts might think it is safe because they can monitor their vehicle in a short distance.

#### 4.0 DISCUSSION AND SOLUTION

Both focus groups agreed that university parking problems are worsening and lack of adequate transit service is part of the cause. Participants also identified light rail as a solution to reducing the number of vehicles on campus. They also agreed that regardless of amount and adequacy of transit available, university-parking structures must change to meet current and future demands. All participants cited Advanced Parking Management as a viable alternative to help allocate parking. Even if parking information was not disseminated in real time, they believed that having an operator at a central system that could identify supply in all garages could help allocate parking.

The alternatives that have been suggested by respondents are as follows:

- i) Improve the shuttle bus that provided by Sikun Jaya by transporting students to main location in the campus such as offices, library and lecture rooms.
- ii) Upgrade the amount of parking limits in college residential area.
- iii) Issuing parking coupons to students within lecture class rooms
- iv) Instruct patrons traffics observe parking lots from time to time to avoid Motorists Park their motorcycle at the car parking spaces.

## **5.0 CONCLUSION**

Because there is an increasing number of motorists who have access to campus while en-route, parking department services have focused on the most congested parking area. As central campus districts, transit stations, and lecture halls area continue to become more crowded during peak times, demand for parking information is increasing. University environments are no exception to this rule. With decreasing parking supply and increasing enrollments and faculty and staff numbers, universities are beginning to realize the importance of properly allocating available parking. Advance Parking Management can provide the positive guidance necessary to help university patrons to help students to find available parking quickly and safely.

