

Implementation of Parking Charges Collection System in Alor Setar City Council (MBAS): Flexi Parking System

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Abstract

The system for collecting parking charges became an issue when the private company appointed by the council failed to carry out the assigned duties and resulted the council having to manage the parking charge collection service. The questions were (1) what are the problems that affect the effectiveness of the management of the parking charge collection system at MBAS; and (2) what suggestions can be submitted for improvement? This study uses the interview method with the responsible parties at MBAS. This study found that the problems encountered include delays in obtaining coupon stocks, mistakes in scratching coupons, enforcement officers not started monitoring on time, high operating costs for operating machines and the need to attend the office MBAS for matters related to summons payments, monthly passes and booking parking slots. This study contributed evidence to support the model in previous studies. The interview method used in this study contributes to the increase of knowledge in terms of research methods to obtain important information from the responsible officers in the field study. The findings of this study contributed to improving understanding and strengthening measures towards the management system of parking charge collection using smart applications in a council area.

Keywords: Parking charges, parking system, flexi parking application, city council

1. INTRODUCTION

As the number of cars on the road increases, parking is an important facility for traffic management. Parking charges will be collected as revenue for the local council to cover the expense of maintaining a parking lot. However, the mechanism for collecting parking fees became a problem when the private company hired by the council failed to perform its duties. As a result, the council was forced to re-manage the parking charge collection operation.

The above scenario was experienced by the Alor Setar City Council (MBAS) when a private company's Flexi Parking application, implemented in April 2015, failed to carry out its assigned obligations. As a result, the MBAS was forced to re-manage the parking charge collecting operation in Alor Setar City beginning on November 28, 2015. The management of the parking fee collection system is critical since it is one of the outcomes of MBAS and can improve traffic control in an area. Furthermore, the management of this indirect parking charge collection method needs to be investigated more thoroughly at MBAS so that other municipalities might replicate the system in the future. As a result, the next step MBAS must consider is how to manage the technology utilised to collect

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parking fees. So, the question is, what problems did MBAS have when it attempted to implement the Flexi Parking system for collecting parking fees, and what steps did MBAS take to fix the problems.

According to the SWOT Analysis published in the 2019-2023 Strategic Plan Report, MBAS's weaknesses are enforcement limits and a lack of usage of cutting-edge technology and innovation. To ensure consistent and improved returns, the council must improve service delivery quality and increase its use of technology.

Around Alor Setar City, the Alor Setar City Council (MBAS) manages seven types of parking facilities: (1) coupon parking, (2) controlled parking at the Kuala Kedah Ferry Terminal, (3) parking-controlled cars, (4) multi-storey parking spaces at UTC MBAS Complex (Cashless Parking), (5) special parking spaces, (6) monthly stickers, and (7) parking space rentals.

Since the MBAS must re-manage the parking charge collection service in Alor Setar City, the next step is to consider how to manage the system used to collect the parking charge, whether through couponing or application technology. The previous MBAS Flexi Parking application is intended to make it easier for users to make charge payments and add parking rental time. However, it was not implemented successfully in Alor Setar City.

Based on the challenges outlined above, the following questions were explored in this study:

- a) What are the issues affecting the effectiveness of MBAS's parking charge collection system management?
- b) What suggestions or recommendations can be made to improve the MBAS parking situation?

This paper has four sections. The first section will discuss about the MBAS background, parking management system concept, Flexi Parking system and previous studies. The second section will discuss on the methodology while the third section will be discussing about the findings. The last section will provide a conclusion for this paper.

2. LITERATURE REVIEW

2.1 Alor Setar City Council (MBAS) background

Alor Setar City Council (MBAS) is an organization under the Ministry of Local Government. It offers services to all levels of society and covers an administrative area of 666 square kilometers and is directed by the Mayor and assisted by the Secretary, Deputy Secretaries, Department Directors, and Division Heads.

The Kedah Darul Aman State Government has nominated 24 Councilors to help the Datuk Bandar in developing the Council's policy and further achieving the MBAS's responsibilities. MBAS's vision is to develop the city of Alor Setar into a prosperous one. MBAS aims to drive sustainable MBAS excellence through quality, innovative, responsive companies devoted to sustainable development, with the goal of achieving sustainable townships by 2035.

2.2 Parking Management System concept

The parking fee collecting system management idea relates to policies and programs developed to make parking spaces more efficient and effective. It encompasses a wide range of systems that assist people in managing their parking spaces. There are many distinct kinds of systems, but they all have several things in common:

- a) Payment method: The public will pay the specified charge rate when using the public parking lot.
- b) Monitoring of Enforcement Officers: Vehicles that have not paid or should not be parked there will be monitored by enforcement officers.
- c) Access control: Parking lots are equipped with gates and obstacles that limit who has access to them.
- d) Report: To advise the parking lot's owner or manager of how the parking lot is being used.

Over the past few decades, the definition of a "parking management system" has shifted dramatically. Once upon a time, that meant a parking lot attendant cutting tickets and collecting money. With the advancement of technology, everything has changed. The advancement of technology and communication has acted as a catalyst in shifting management and has essentially replaced the human workforce (De Buitelir, 2023).

2.3 Flexi Parking System

Flexi Parking System is the most recent mobile application that simplifies parking for users. According to Supreeth et al. (2016), by utilizing the power of modern technology, this application has transformed the way we think about parking. Users may view available parking spaces in real-time thanks to GPS monitoring, payment processing, and data analysis. This allows people to reserve a room ahead of time and go directly to their destination.

One of the best aspects of parking management applications is that they make life easier and more efficient. Users no longer have to waste time traveling around in search of difficult-to-find parking places. Instead, they can utilize this app to quickly locate available space. Using GPS technology, the app can determine the user's location and provide a comprehensive list of local parking options, including real-time availability and pricing (Supreeth et al., 2016).

Furthermore, Owayjan et al. (2017) contended that parking management software understands the value of time. They help individuals save time and prevent stress by simplifying the parking process. Users can reserve parking ahead of time, ensuring they have a spot before arriving at their destination and without wasting time looking about aimlessly. Furthermore, some apps include features such as digital payment options, which allow users to pay for parking without having to carry cash or locate a parking meter.

Moreover, parking management applications frequently notify users about price trends, allowing them to select the most cost-effective parking options (Lam & Yang, 2019). Users can save money in the long term by comparing pricing and selecting the cheapest parking.

In short, the parking management application has altered our perception of parking. They provide numerous advantages, including greater simplicity of use, time and money savings, real-time availability updates, simple navigation, interaction with other services, and the opportunity to make adjustments. This software assists individuals in swiftly and simply finding parking, which saves time and minimizes stress. Parking management apps have become valuable tools for individuals and organizations because of their comprehensive functionality, user-friendly UI, and devotion to client satisfaction. People can quickly find parking and leave the hassles of the past behind by utilizing these technological improvements.

2.4 Previous studies

In past studies, Penang City Council (MBPP) and Shah Alam City Council (MBSA) had management experience in implementing parking charge collection systems for public users via smartphone applications.

The smart parking management system in Penang is known as 'PENANG SMART PARKING' (PSP). Prior to the adoption of the PSP system, parking lot users conducted parking payment transactions using the traditional system of paper coupons. This coupon approach, which has been in use for decades, needs to be improved due to persistent concerns such as:

- a) Difficulty finding registered coupon agents.
- b) More time is needed to buy coupons before the placement process cars can be done.
- c) Users need to return to the vehicle to extend the parking period vehicle
- d) There is no notification of parking time expiry.
- e) Users need to go to the counter for NTK payment.
- f) Enforcers need to conduct routine patrols.

The adoption of the PSP System has eased the procedure of parking use and operation. Users can pay parking fees using technology, and the MBPP Party has a mechanism for monitoring outcomes and enforcement actions (Noorazlan et al., 2020).

Meanwhile, in April 2017, the Shah Alam City Council (MBSA) adopted 'Flexi Parking,' a smart parking payment system that uses cell phones as an alternate option to scratch coupons and monthly passes. Shahrin Ahmad, the head of the MBSA's Corporate and Public Relations Division, stated that the method was one of his endeavors to improve parking lot management more efficiently and systematically. This flexi parking system simplifies the user payment procedure by allowing customers to make credit purchases online immediately through Internet banking on cell phones without having to present a scratch coupon or monthly pass. The Shah Alam City Council

(MBSA) also said that during the system's initial phase, which ran from January to March 2017, when it was recently implemented, a total of 6,195 customers were successfully recruited to the MBSA's administrative area.

Flexi Parking was also implemented, according to the Shah Alam City Council (MBSA), to lessen issues and user complaints about getting coupons, improperly scratching coupons, and disposing of coupon books for users. Apart from mitigating the reliance on paper, this flexi parking system leverages smartphone technology to enhance user and law enforcement personnel convenience and optimise quality-of-service efficiency (Mstar2020, April 1).

3. METHODOLOGY

3.1 Research framework

The Figure 1 illustrates the research framework consisting of problems, proposed solutions and challenges in collecting parking charges that are brought to the proposed Flexi Parking application.

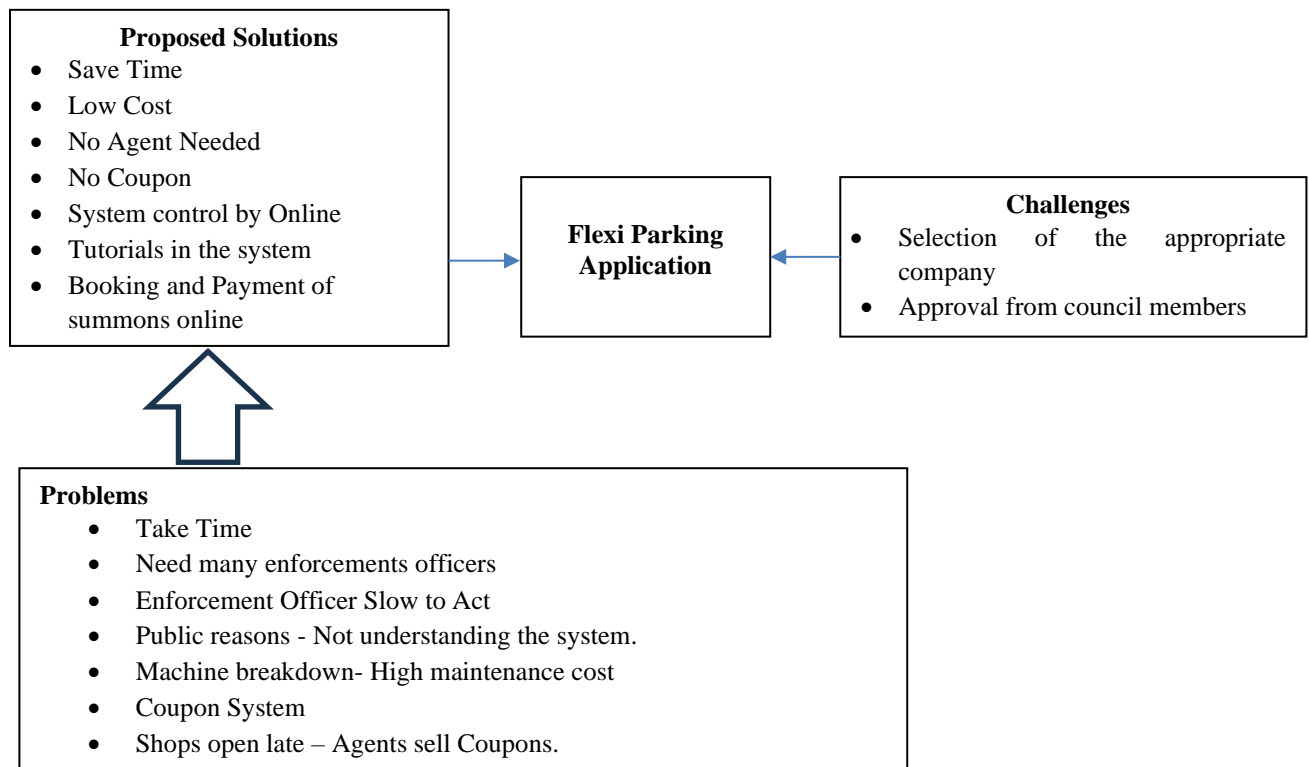


Fig. 1: Research Framework

3.2 Research design

The research design is based on a qualitative method using the case study method. This is due to the fact that the case study approach offers more in-depth details about the problem of parking fee collection in the MBAS region. Interviews were conducted with the Mayor, Director, Head of Department, and Head of Unit at MBAS, who are the final decision-makers when it comes to policy execution, in order to gather primary data. To gather more complete data, secondary data, in particular from MBAS annual reports, press clippings, and websites, will be examined. The results of the interview will be transcribed, and thematic analysis will be applied.

3.3 Population and study sample

Informants serve as the primary analytical unit in this study. These informants were chosen since one of the study's goals was to see how informants felt about the fee collection method in the Alor Setar parking lot. A total of 2 officers were the informants in this study as below:

Informant 1 (I1): Head of Property Management Division / Kedah UTC Manager

Informant 2 (I2): Head of Parking Unit, Property Management Division

3.4 Data collection method

This study's data came from both primary and secondary sources. Interviews were used as the primary method of data collection. Books, journals, papers, circulars, and other materials found in the library or online are used to gather secondary data.

3.5 Data analysis method

In order to achieve the objectives of the study, the researcher used the analyst's thematic method to involve in-depth interviews between the two study participants and the researcher. One of the most popular research techniques in qualitative research is thematic analysis. This approach works well for examining patents and topics in any reference material to increase the amount of information that can be researched on a particular subject of study.

The following six procedures are employed by Braun and Clarke (2006) to assess theme data in research:

- a) Collect and analyze research data.
- b) Produce initial codification.
- c) Looking for themes.
- d) Create theme highlights.
- e) Refine the theme categorization.
- f) Generate reports.

4. FINDINGS

4.1 Problems

Based on the interviews conducted, 8 types of problems were identified by MBAS in the management of the parking charge collection system before the flexi parking era. The details are as follows:

- a) Take time

According to the findings of the interviews, MBAS encountered challenges managing the old parking lot system when its stock of coupons ran low, and it had to wait to order more. In the interview, the informant acknowledged this:

“This is because conventional charge collection systems such as coupon systems are cheap but take a long time to print coupons.” (I1)

The laborious procedure of printing coupons brings about an imbalance in the distribution of coupons for customers. As a result, the previous parking system was unable to collect any money.

- b) Need many officers

MBAS is responsible for monitoring large areas of the parking management system. They need a lot of officers to monitor the parking system. In the interview results, it was found that the inadequacy of officers is also one of the problems for MBAS in the conventional parking management system:

“Apart from that, we also do not have enough officers to monitor and check the parking charge collection system.” (I1)

Every officer participates in the manual monitoring and inspection of this parking system. They can't stay put for an extended period. For monitoring, they must travel to various locations.

c) Enforcement officers slow to act

This MBAS also faces difficulties when the staff or officers involved in monitoring the parking system are not on time to start their work. In the interview, one of the officers shared his own experience:

“I once also reprimanded our officers who were still in the office until 11am, where they had to start work from 8am outside. This resulted in us having less collection of car parking charges.” (I1)

When officers involved in collecting parking charges themselves act late in carrying out their duties, it becomes one of the problems for MBAS in the management of the parking system.

d) The public does not understand the online parking system

MBAS launched an online parking system in 2017. However, because the public did not comprehend the concept, it was not successfully adopted. The interviewees talked about the following:

“But the problem of users who complain to us is that they don't understand the cashless system, they don't know how to use the system and there are many reasons.” (I1)

Customers refuse to learn about this online parking system, despite MBAS providing officers to assist and explain it to them.

e) Machine breakdown - high maintenance cost

Prior to the advent of flexi parking, MBAS discovered that using shillings to pay for parking was simple and secure. MBAS decided to go back to the coupon system since the machines that are used to pay for parking with shillings are prone to damage and have expensive maintenance costs. The participants in the interview acknowledged this:

“They focus on paying for parking using shillings because it's nice and easy. But because of the high cost of maintenance and rental fees for government agencies, MBAS started to return the coupon system.” (I2)

f) Coupon system

A collection of parking fees known as the coupon system is highly well-liked by the general population. For both the general public and MBAS, using the coupon system is inexpensive and simple. But the MBAS and the general public find this method to be very problematic as well. The interview subjects attested to the following:

“In addition, user complaints related to difficulties in obtaining coupons, wrong scratching of coupons and the dumping of coupon books for users also caused us to find a solution to deal with this problem.” (I2)

The MBAS seeks to develop a solution that benefits all sides since they believe that the current coupon system is unfair to the general people.

g) Shops open late – coupon agents

Based on the old coupon system, for the purpose of selling coupon tickets, MBAS only uses agents. When this coupon ticket is sold, the agent receives a commission. Nevertheless, MBAS has a lot of problems when the agents selling these coupon tickets don't launch their businesses or don't sell tickets on MBAS schedule. Delays in opening stores are another issue with the outdated parking charge management system. The participants in the interview acknowledged this:

“Because this agent will not open the shop according to our time. In the past, the operation time of this parking system was 8 am to 8 pm. The agent opened the shop after 10 or 11 am. This makes it difficult for the public who want to park their car starting at 8 am.” (I2)

As a result, people who wish to commute to work in the morning are unable to purchase parking system coupons. Thus, the people started to express their complaints and displeasure with MBAS.

h) Reservations and payment of summons must be managed at the MBAS Office

The public must visit the MBAS office for reservations and summons payments for anything affecting the parking management system. In an interview, this was admitted:

“In the past, customers had to queue at the MBAS office to reserve a parking space, purchase a monthly pass, and to pay for the compound.” (I2)

This is also one of the problems for MBAS in the parking charge management system.

4.2 Solutions

Based on the interviews conducted, Flexi Parking has been identified and implemented as a solution to the issues faced by MBAS in relation to parking management in the city of Alor Setar. Overall, there are 7 benefits of implementing Flexi Parking, and they are as follows:

a) Save time

The introduction of the flexi parking system leads to time savings for users and the MBAS. The general public does not need to find and buy coupons and provide enough shillings or money to pay parking charges. There is no need to look for a machine to pay parking charges. In fact, users will be given a warning notice 10 minutes before the parking period ends. This was acknowledged in the interview:

“On the other hand, this smartphone application does not involve any problems as I mentioned earlier. Only the machine that manages the entry and exit of the car for parking. We can monitor all matters from this flexi parking system from anywhere. This saves time for MBAS and users as well.” (I1)

MBAS is also very satisfied because Flexi Parking Apps monitors all sorts of parking-related activities.

b) Low cost

This Flexi parking system is not only easy but also cheap. Lower operating costs compared to conventional charge collection systems. It does not involve any manual operations such as the use of coupon books and receipts. The MBAS also does not have to bear the cost of maintaining the payment machines because payment through an application on a smartphone leads to the unnecessary need for a car payment machine. The participants acknowledge this:

“In addition, with this flexi parking, the MBAS can also hope that the cost for the maintenance of the machine - the car charge payment machine will also be reduced or no longer because all payment transactions are guided online.” (I1)

This application also speeds up customer parking matters in a good and safe way.

c) No agents

MBAS relied primarily on agents to sell coupons prior to the period of flexi parking. However, as everything is done online these days, Flexi parking is a solution for MBAS.

“As top management, we monitor on a dashboard. For me, this implementation is for the latest coupons and monthly passes that all customers buy through apps.” (I2)

d) No Coupons

MBAS implements 'Flexi Parking', which is a smart parking payment system using smartphones as an alternative

method in addition to using scratch-off coupons and monthly passes. This was discussed by the participants in the interview:

“Management feels that the charge collection system through a smartphone application is more efficient than the conventional charge collection system.” (I2)

In addition to helping to reduce the use of paper, this system initiates towards improving more efficient and systematic parking management.

e) System control by Online – limited staffing requirements

Additionally, the MBAS may operate this smart parking payment system from anywhere because it integrates with the digital world. This implies that fewer officers will be required to deal with parking-related issues. Those who took part in the interview acknowledged this:

“MBAS wants to introduce a system with one-stop apps. For users not to be confused by installing many other apps when in Alor Setar. MBAS makes sure all facilities are in this flexi parking application.” (I2)

f) Tutorials in the system

Participants agreed that the public's awareness of mobile phone use and internet browsing had increased significantly since the COVID era.

“The majority of Malaysians use mobile phones. Our society has been good at using online since the COVID pandemic. It saves customers' time. Moreover, this app is easy to use, easy to understand, and customer-friendly as well.” (I2)

When Flexi parking apps are introduced, MBAS is pleased. The directions in the system are followed by the general public while learning how to utilize these flexi parking apps. They no longer offer justifications for their lack of comprehension. Participants happily reported that within two weeks of the program's launch, up to 10,000 customers had taken use of the flexible parking options.

g) Booking and Payment of summons online

Customers can utilize the smart parking payment system as a solution for issues pertaining to reservations, rentals, summons payments, or compound fees because all information is contained in the application. Clients only need to go to this flexible parking application from any location.

“In my opinion, this implementation is for the latest coupons and monthly passes, all customers buy through apps. If all the details are in the apps, the customer does not need to go to our office for the matter. The compound payment is the same. Simplify the work of customers and management.” (I2)

In addition to increasing the effectiveness of the service and raising customer and law enforcement satisfaction, the system fully utilizes smartphone technology.

4.3 Challenges faced by MBAS in implementing the Flexi Parking System

a) Selection of the appropriate company

The failure of MBAS to implement the payment of smart parking charges in 2017 serves as an example for them in choosing the right company today. This was acknowledged by the participant in his interview:

“The main challenge we face is to choose the right company to introduce Flexi Parking.” (I1)

The MBAS selected the LITS company to implement this flexi parking system in the Alor Setar area because of their four years of experience working with the Shah Alam City Council (MBSA) and their flawless record of collecting parking fees. This resulted in MBAS introducing flexible parking in the vicinity of Alor Setar.

b) Approval from council members

The next obstacle for MBAS comes directly from the council members. They initially objected to the introduction of this flexible parking in the Alor Setar region. This is evident from the participant interview:

“We face challenges in presenting and building the confidence of our council members so that the introduced method does not harm the council. Because we are trying to move from manual methods to digital methods.” (I2)

After all, a strong enough presentation convinced council members that the flex parking system would not hurt the council, and they finally decided to implement it in Alor Setar.

4. CONCLUSION

The purpose of this study is to examine how MBAS manages its parking charge collection system. Thus, this study attempts to investigate the issues affecting MBAS's ability to operate its parking charge collection system effectively and to provide ideas or recommendations for enhancing MBAS's parking charge collection system.

Significant inferences can be drawn from the study's results. First, a thorough identification of the issues with the administration of MBAS's parking charge collection system has been made possible by this study. It includes things like the inability of officers to begin monitoring on time, the slowness with which coupons are stocked, the mistakes made when scratching coupons, the high cost of operating machines, and the requirement that all summons, monthly passes, and parking slot reservations be made in person at the MBAS office.

Second, this study indicated that the Flexi Parking system's installation could address issues with the administration of MBAS's parking fee collection system. In particular, MBAS and users can save money and time with Flexi Parking. Coin shortages or insufficient coupon stock are no longer issues. The Flexi Parking system actually does not take a lot of labor to operate and monitor. Additionally, users can now get a monthly pass without having to visit the MBAS office thanks to the clever application.

Third, the study highlights the challenges encountered in implementing Flexi Parking into practice. The success of Flexi Parking operations is largely dependent on choosing the appropriate firm. Furthermore, the backing of the council members holds significance, as their trust is acquired just following an extensive presentation.

The study's conclusions, in summary, outline the issues with the MBAS parking charge collection system as well as potential solutions. Put another way, Flexi Parking can enhance both user pleasure and the parking system's service quality at MBAS.

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