

Perception of User on the Automated Smart Trolley at Klia2, Malaysia

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Abstract: Kuala Lumpur International Airport 2 (KLIA2) that located at Sepang is a hub for both local and international low cost airlines. KLIA2 is the new airport in Malaysia that operated since 2014 accommodate about 45 million passengers every year. KLIA2 was comprises of Main Terminal Building (MTB), Sky bridge, Satellite Building, connected piers and a gateway@KLIA2 shopping mall which is attached to the car park facility with retail space of 32,000 sqm to accommodate 225 retail outlets. With this size of area, passenger need trolley to make ease for them carry out their luggage. This study was carried out to determine the perception of user on the current trolley at KLIA2 and future Automated Smart Trolley. Twenty respondents has been interview based on the questionnaires that has been develop. The overall finding of this research indicate that the majority of the respondents agreed with the development of Automated Smart Trolley.

Keyword: smart trolley, KLIA2, interview

I. INTRODUCTION

Based on Cambridge Dictionary, airport is defined as a place where aircraft regularly take off and land. This building is equipped with facilities for the passengers inside the airport such as restaurants, marts, retail outlets, and other services like rail train and car rental services.

This airport is used for low cost domestic and international flight from all around the world. The capacity of passengers are different between these two airports (KLIA and KLIA2) and it has been proven in *Managing Airports: An*

International Perspective by Anne Graham. By 2008, KLIA terminal was expanded to have a capacity of 15 million. However, the new terminal KLIA2 has more capacity with 45 million of passenger.

This trolley can be used in other places too but it will focus at KLIA2 airport because the number of passengers in the airport is higher than KLIA and due to the size of the airport, passengers may require a lot of energy to reach to the departure gate. In *Managing Airports: An International Perspective* by Anne Graham, KLIA2 was covers an area of 257000 m² with 60 gates, eight remote stands and 80 air bridges, with 32000 m² area to accommodate 225 retail outlets. Passengers will feel exhausted to walk along the airport due to the size of landside area.

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The passengers used a lot of energy to push the trolley from the main entrance to the gate and other facilities at the airport or vice versa. This paper is to determine the perception of the public on the usage of the airport automated trolleys. This research focus on the trolley used by customers in KLIA2 airport.

II. LITERATURE REVIEW

Pandita et al., (2017) stated that by developing an automatic trolley using a sensor, it will be the ease for customers to shopping. The sensors will track the customers and keep moving to follow the customers. The trolley will stop in a maintain distance only when the customers stop moving. A billing system will be placed in the trolley to avoid long queue at the billing counter for payment. This system also consists of RFID card reader which will detect any products' code and will be display on LCD of the trolley.

An interview is a conversation between an interviewer and interviewee. M. Easwaramoorthy and Fataneh Zarinpoush (2006) stated that an interview is a conversation for gathering information in a research. It involves an interviewer, who arranges the process of the conversation and asks questions while an interviewee is a person who responds to those questions. Interviews can be conducted face-to-face or over the telephone. Besides, internet can be used as a tool for interview too.

A semi-structured interview is a qualitative research method that combines a pre-determined set of open questions with the opportunity for the interviewer to explore particular themes or responses further.

Automated Trolley at airport



Fig. 1 Trolley at KLIA2

Transporting passengers' luggage either in landside or airside is a need at the airport. Figure 1 above shows the provided current trolley used at KLIA2.

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To satisfy the customers and get a smooth running of airport daily operations, airports' trolley must be reliable, safe and easy for the customers to use. With the existence of this smart trolley at the airport, it will ensure that the user can easily access their trolley for transportation of their baggage to their respective terminals of the airport.

Based on Ravindaranaath et al., (2017) in their research, this smart trolley can get the destination and chooses the path according to the destination because each terminal has been set or decided with an unique RFID card which will be read by RFID card reader. This trolley is programmed with the predefined path, according to the destination like cargo, international terminal and others. It will move automatically to the destination. This system used IR sensor to detect any obstacle around it. If obstacle is found, the trolley will stop moving and buzzer will produce sound. It automatically stops when reaches the destination. If any one takes the luggage, there will difference in the weight (on LCD of trolley) and buzzer will alert it.

This technology is very useful and helps facilitate the passengers' business at the airport. This system has a predesigned route for each terminal so that the passengers can transport their luggage to their respective terminal automatically with ease and securely. Passengers do not have to worry about missing luggage or hesitate to shop and have coffee while staying at the airport.

III. RESULT AND DISCUSSION

Table 1 below shows the respondents' demographic information. The respondents consisted of nine men (45%) and 11 females (55%) with six (30%) aged between nineteen to twenty-nine, seven (35%) aged between thirty to forty and seven (35%) aged between fifty-one and above. Majority of the respondents which is nine (45%) seldom used the airport trolley, three (15%) never used the trolley, two (10%) used the trolley sometimes, three (15%) often used the trolley and three (15%) always used the trolley airport.

Table. 1 Demographic information based on Gender, Age and Frequency of using airport's trolley (n=20)

Gender	Male	9 (45%)
	Female	11 (55%)
Age	19 - 29	6 (30%)
	30 - 40	7 (35%)
	41 - 51	0 (0%)
	52 - above	7 (35%)
Frequency	Never	3 (15%)
	Seldom	9 (45%)
	Sometimes	2 (10%)
	Often	3 (15%)
	Always	3 (15%)

Question 1: Do you know what Smart Automated Trolley is?

Figure 2 shows that majority of respondents does not aware with this Smart Automated Trolley. 15 (15%) out of 20 do not aware with the technology of Smart Automated Trolley and only five (25%) of them know about the trolley.

This may be due to lack of exposure of new technology in our country. Furthermore, this Smart Automated Trolley have not been implemented in Malaysia.

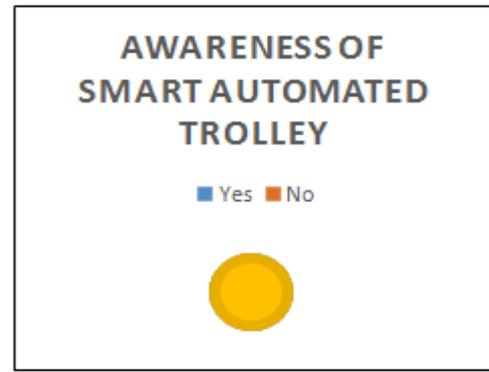


Fig. 2 Awareness of Automated Smart Trolley

Question 2: In your opinion, what is the weakness of the current airport trolley?

Figure 3 shows 11 (38%) of the respondents experience broken wheels when using airport's trolley while seven (24%) of the respondents said that the current trolley has less features. As can be seen, six (21%) respondents said that the current trolley is quite heavy to push and two (7%) of them said that the trolley has brake problem. Among all of the respondents, two (7%) of them said that the current trolley has no problem at all while another one (3%) said the provided trolley in airport is insufficient especially during peak time when there are huge crowd in the airport.

Based on the results, majority of the respondents said that the current airport trolleys have broken wheels. This is because the trolley provided has been used for a long time and there was no maintenance work has been done for the trolley. Besides, seven of them complained that the current airport trolley has less features. This is because, the space of the trolley was not enough for the travelers to put their stuffs and the airport trolley should have extra features like baby sitter to facilitate parents during their waiting period at the airport. Next, six of them agreed that the current airport trolley was heavy to push. This is because the trolley itself was heavy. When there are so many loads that have been put on the trolley, extra forces were needed to push it. This will be more difficult for elderly people to push the trolley with that amount of load.

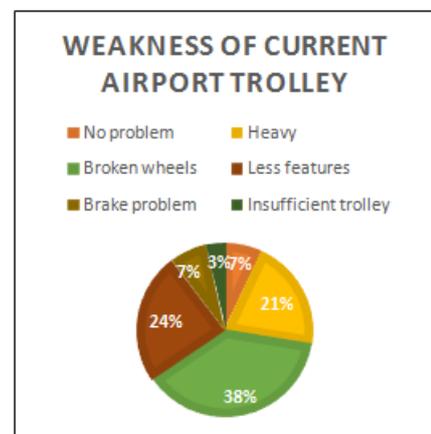


Fig. 3 Weakness of current airport trolley

Question 3: Would you agree if KLIA2 implement Smart Automated Trolley? Yes or no? Why?

Based on figure 4, majority of the respondents which is 18 (90%) of them agreed if Kuala Lumpur International Airport 2 implement the Smart Automated Trolley in their airport while two (10%) of them not agreed with the implementation of the trolley.

This is because, most of them believed with this development of Smart Automated Trolley in our airport, it will make their business at the airport become easier. On top of that the technology is easy to use.

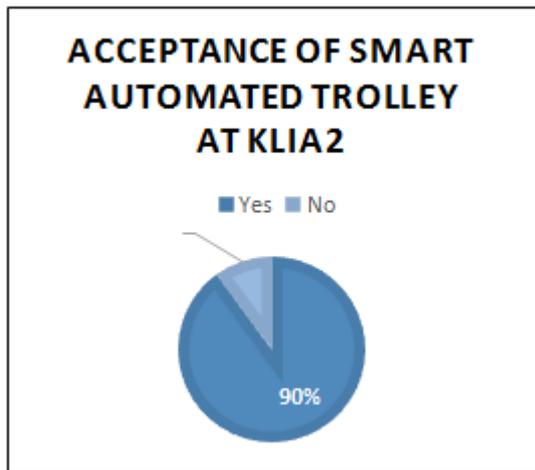


Fig. 4 Acceptance of Automated Smart Trolley in KLIA2

Figure 5 shows the main causes of accepted Smart Automated Trolley at KLIA2. From 18 respondents that have been accepted the development of Smart Automated Trolley, 15 (83%) of them agreed that this technology will facilitate their business in the future. This is because, their activities at the airport will become more easier with the existence of this trolley. User can enjoy their time at the airport with their loved ones without putting extra energy to push the trolley. Besides, three (17%) of the respondents agreed that this technology is easy to use. This may be due to the methodology of the trolley was application at smart phone which is most of the Malaysian people have nowadays. The combination of smart phone and this trolley were perfect because it was easy to use for everyone.

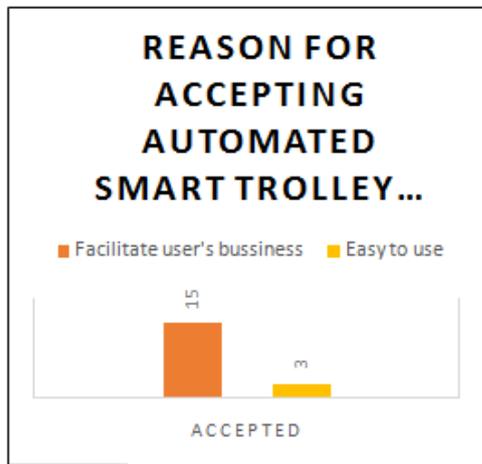


Fig. 5 Reason for accepting Automated Smart Trolley at KLIA2

Figure 6 below shows the causes on why people do not accept the development of Smart automated Trolley at Kuala Lumpur International Airport 2. One (50%) out of two respondents said that this trolley was not convenient for them. This is because, the Smart Automated Trolley use application of smart phone which is not all people know how to use it especially for elderly. It was only convenient for young generation who was knowledgeable in this technology.

Next, one (50%) out of two respondents do not confident with the system used in this Smart Automated Trolley. This may be due to their trust issues on something else. They might be more confident and comfortable if they push the trolley by themselves.

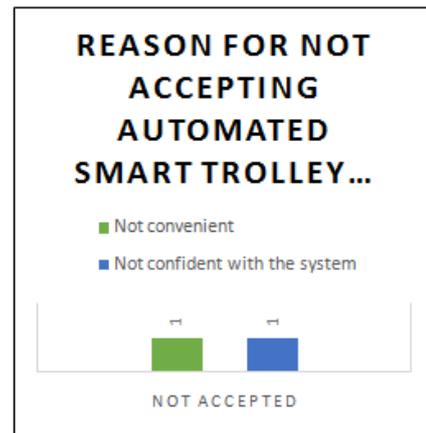


Fig. 6 Reason for not accepting Automated Smart Trolley at KLIA2

Question 4: Do you think that Automated Smart Trolley should be provided in small airport?

Figure 7 below shows that 13 (65%) of the respondents disagree with the development of Smart automated Trolley in small airport like in Subang Airport or Labuan Airport while another seven (35%) agree for the development of the trolley in small airport.

This may be due to the size of the airport and the distance for the user to push the trolley is quite short compare to the distance that they need to go through at KLIA2. Furthermore, most of the user at small airport especially at Subang travel for business purpose. So, most of them do not carry much items and rarely use the trolleys. It will be a waste if small airport implements this Smart Automated Trolley because this trolley need a lot of money to develop and maintenance work.

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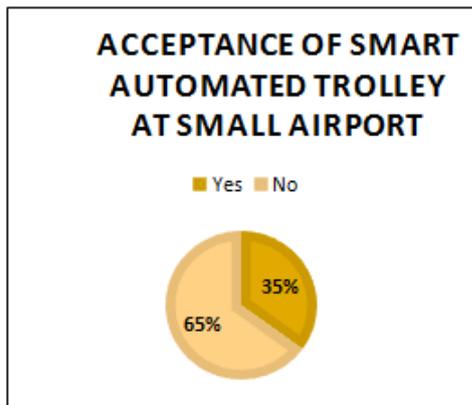


Fig. 7 Acceptance of Automated Smart Trolley at small airport

Question 5: Are you willing to pay for the service?

Based on figure 8, 12 (60%) out of 20 respondents, which is majority of them willing to pay if KLIA2 put charge to user before they use the Smart Automated Trolley while the other eight (40%) respondents not willing to pay for the payment charged.

This may be due to the technology used for the trolley is quite expensive which need to be maintained by the management of the airport. However, the price charged should reasonable and not burden on user.

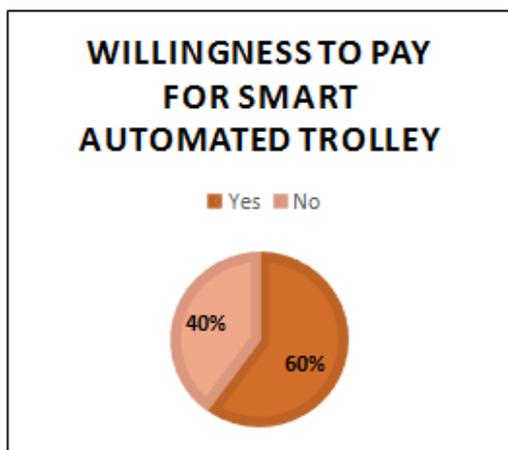


Fig. 8 Willingness to pay for Automated Smart Trolley

IV. CONCLUSION

There were 20 respondents that have been interviewed at KLIA2. From all of the respondents, nine were male and eleven were female which come from various range of age that have been participated in this semi-structured interview. Among these respondents, only five of them aware about the Smart Automated Trolley and majority of the respondents agreed with the development of this trolley at Kuala Lumpur International Airport 2 because of the advantage of the trolley. Majority of the respondents willing to pay for the service as long as the price charged is reasonable for them. From this result, it can be conclude that the objectives of this project were to determine the perception of the public on the usage of the airport automated trolleys at KLIA2 has been achieved.

For future recommendation, this interviewed can be done at KLIA which is the main Malaysia International airport.

Most of the airlines in the world currently having their operations running at KLIA such as Japan Airline, Air France, Air India and many more. Next researcher can develop new automated smart trolley with the lower cost and can be use by user at KLIA2 airport.

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