

# E-Charity Application to Help Poverty in Kuala Lumpur: Fundle

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**Abstract---** *The Malaysian economy has seen a significant growth ever since the independent in 1957 and has excellently changed the country from poor into a middle-developing nation. Therefore, this success has helped the country to combat poverty issues effectively throughout the year. Despite this success, there is still an existing group of poverty in Kuala Lumpur that are struggling themselves to survive. This paper aims to analyse and assess the characteristics of poverty group and donators in Kuala Lumpur, other current problems that relate to the poverty issue, charity organizations status in Malaysia and the proposed solution to reduce the poverty rate. Also, to help the hidden poverty group in Kuala Lumpur by encouraging people to donate more to charity houses. This paper explores a mobile based technology solution to perform donations more effectively using solutions like GPS and Cloud infrastructure in order to bridge donors and the needy in a more efficient manner.*

**Keywords---** *Poverty, Municipal Solid Waste (MSW), Non-Profit Organizations (NPOs), Global Positioning System (GPS), Cloud Database, Poverty Rate.*

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## I. INTRODUCTION

Poverty is a condition where people do not have enough necessities to sustain themselves. However, poverty also perceived as more than not having enough money according to (Hatta and Ali, 2013). (World Bank Group, 2015) defined poverty into several dimensions which are income, health, security and education poverty that affects one's life. Fortunately, the world has made great progress in reducing poverty as the countries are getting developed throughout the years.

In fact, in 2015, more than a billion has been cut down from poverty compared to 1990's poverty rate. The same success also achieved by Malaysia as the (Millennium Development Goals Reports for Malaysia, 2015) showed an absolute higher reduction of the poverty line in which from 16.5% in 1990 to 0.6% in 2014. However, poverty rate may not be a true reflection of the poverty status in the country as a study done by (Muhammed Abdul Khalid et al., 2018) found out that 1 in 2 urban area poverty children cannot afford to buy foods and 1 in 5 is having stunted issue due to malnutrition.

Ironically, Malaysia also currently having excessive solid and foods wastages. (New Straits Times, 2018) had reported that Malaysia generally produced about 8000 tonnes of food wastages (which refers to edible foods) and total up to 38,000 tonnes of solid waste daily. This clearly shows that wealth disparity between poorest and richest has significantly widened. Thus, as a solution, a mobile application named FUNDLE is made to reduce the gap between these two types of groups by helping and encouraging the community to donate more to poverty.

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The main concept of the project is to allow people to donate to the poverty group by advertising their donation items using the mobile application. Then, the volunteer from the charity organization will be able to notice the advertised items and claim the items from the user's doorstep. Then, only the collected item will be distributed to poverty. Besides, this project will suit perfectly to the Kuala Lumpur citizens who are majorly busy with daily works and do not have much time to do donation at the charity houses.

The main problems of the project and its impact on society are discussed throughout this research paper. Plus, several research backgrounds have been done as a reference to generate problem statements and a few research questions to conduct the research. Next, research methodology was also initiated to achieve accurate and reliable data information from the sample study.

## II. BACKGROUND OF THE RESEARCH

### 2.1 Poverty Issue in Kuala Lumpur

The fight against poverty is far from over as the number of poor people worldwide remains high even in some developing countries. This shows that the economic profits of the country have been unevenly distributed across the nation (World Bank Group, 2015). For instances, in the last several years, the Malaysian economy has seen a significant growth ever since its independence in 1957. In fact, recently, (Millennium Development Goals Reports for Malaysia, 2015) showed an absolute higher reduction of the poverty line in which from 16.5% in 1990 to 0.6% in 2014.

Even with this reduction success, 0.6% of the poverty group are still struggling to sustain themselves in this urban city. To strengthen this point, a research done by (Muhammed Abdul Khalid et al., 2018) on lowcost flats in Kuala Lumpur found out that stunted issue has been affecting about 15% children in total under the age of 5 and 22% of them are still underweight. Plus, lowcost flats also have the lowest Household Income (RM) compared to national and states Household Income as shown in the chart below.



Chart 1: Household Income Comparison in Kuala Lumpur in 2018

Source: (Muhammed Abdul Khalid et al., 2018)

This has proven that despite the national poverty rate is less than 1%, there are still hidden group of poverty especially the children that are not able to get enough necessities in life. Henceforth, this is where the objective of the project comes into play in which to minimize the poverty rate to the fullest in Kuala Lumpur.

2.2 Solid & Food Wastages in Kuala Lumpur Municipal Solid Waste (MSW) Management has become a great challenge for every country around the globe, especially in fast-rapid developing countries like Malaysia that still fighting with poverty issue. (Aja, Oseghale and Al-Kayiem, 2014) found out that due to the rapid population growth of the countries, the rate of MSW in Asia has been increasing to 7% per year if compared to the previous year (3%). For instances in Kuala Lumpur, the rapid urbanisation and industrialisation of the country have significantly increased the MSW produced throughout the years. As a prove, (Samsudin and Don, 2013) has shown the rate of MSW generated in Kuala Lumpur since 1998-2005.

Table 1: MSW produced in Kuala Lumpur [1998-2005]

<b>Year</b>	<b>Kuala Lumpur Population</b>	<b>Solid Waste Generated (tons/day)</b>
<b>1998</b>	<b>1 446 803</b>	<b>2257</b>
<b>2000</b>	<b>1 787 000</b>	<b>3070</b>
<b>2005</b>	<b>2 150 000</b>	<b>3478</b>

Source: (Samsudin and Don, 2013).

As a countermeasure, Malaysia has been implementing a waste hierarchy concept (3R) – Reduction, Reuse and Recycle which is made to minimize MSW. 3R is one of the Solid Waste and Public.

Cleansing Act 2007 that aimed to reduce the traditional practice of dumping 95% of MSW to landfills which many of them have reached their capacity according to (Aja, Oseghale and Al-Kayiem 2014).

However, this initiative does not give a huge impact as recent investigations by (Sabariah et al., 2018) recorded that 10.9 million tonnes of solid waste are still produced in the year 2012 and keep increasing in 2015 where 12.8 million tonnes of MSW was generated. This clearly shows that MSW will keep increasing parallelly to the population boom and fast economic growth in Kuala Lumpur.

As a result, the overall society might get affected by excessive MSW threats such as chemical exposure and severe air pollution along with environmental natures disruption. However, MSW could be significantly reduced if people are keen to recycle or donate their unused stuff to the needy instead of dumping it all in the bin. (Aja, Oseghale and AlKayiem, 2014) also stands that material becomes waste when there are no primary benefits to the people which implies that someone waste (primary function) might be another person useful material (secondary function).

Furthermore, (Ghafar et al, 2017) recognized that food waste is a major world problem especially in most developing countries. As our scope is in Malaysia, a study done by (Hamid et al., 2012), figured out that 60% of the waste are edible food and in fact, the statistics from (Lim et al., 2016) found that about 64% of food waste in MSW in Malaysia are recyclable and putrescible. Table 2 shows the MSW produced in Kuala Lumpur recorded by (Budhiarta et al, 2012).

Table 2: Waste Generation Rate in Kuala Lumpur (2012)

<b>Types of Solid Waste</b>	<b>Generation Rate / Person / Day</b>
Food Waste (and its mixtures)	0.6 kg /capita/day
Plastics (and its mixtures)	0.24 kg /capita/day
Paper (and its mixtures)	0.18 kg /capita/day
Others	0.18 kg /capita/day

Source: (Budhiarta et al, 2012)

In 2016, about 8000 tonnes of food waste were generated daily in Malaysia which had greatly increased from 930 tonnes of food waste daily in the year 2011. It is estimated that the graph will keep increasing to 6.54 million tonnes by 2020 (Lim et al., 2016). Therefore, people need to be more cautious and spend wisely on the foods that they buy and have the self-awareness to the consequences if they keep wasting foods.

2.3 Charity Organization & Behaviour in Malaysia According to (Cordery, 2015), there are four main charitable objectives which are to aid the poverty, religious teachings, education development and other social benefits. Organizations that have achieved these purposes will only qualify as a registered charity. Most of the charity organizations in Malaysia come from Non-Profit Organizations (NPOs) and is not subject to any market regulation. NPO usually receives profits from individual or corporations' donations, charity event's payments, government aids and returns from investment according to (Ridzuan et al., 2015).

(Ranganathan and Henly, 2009) also stated that charities organization must be independent and depends more on individual donors than government for raising fund to increase their financial stability. This means that NPOs need to stand by themselves in the society without relying on much to the government to help the needy like poverty group. Plus, it is important for the NPOs to not generating any revenue from the NPO activities as this will help them to remain transparent in the organization without any dishonesty from the members. Furthermore, NPO also needs to stay competitive with other NPOs in order for the organization to sustain among the community. This is necessary for them as they may need more funds from the donators before organizing any charity events in a community. The more popular the NPO, the more money will be funded to them. For instances, (Giving USA, 2017) reported that the number of charitable organizations amounted to 1.29 million in 2017 which a 4.0% increase over 2016 has created great competition for funds either from government or individuals. Meanwhile in, August 2018, Malaysia already have about 8,267 totals of newly registered NPO which is estimated will be higher than last year

registered NPO (10,696) (Hasnan et al., 2012). From this statistic, it shows the rapid of new and emerging NPOs are increasing throughout the years and NPOs need to be more competitive to sustain the organization.

The main reason why the sample study is aimed to the households is because the household residential are the biggest group in contributing to the NPOs. It has been proven by a study done by (Giving USA, 2017) that reported the individuals giving has the highest contributions to the charities as it is comprised of 70% of total giving in 2017 compared to corporations that only comprised of 5%. The chart below shows the sources of charitable giving in 2017 by (Giving USA, 2017).

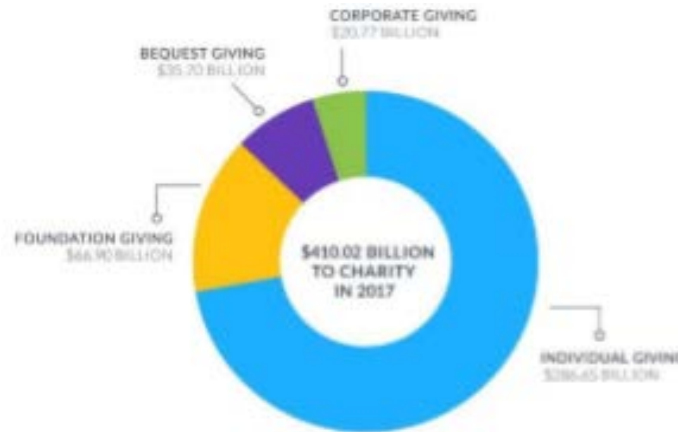


Chart 2: Sources of Charity Giving in 2017

Source: (Giving USA, 2017).

This has proven that individuals are donating more than the corporations and shows that individuals have more time to do donation compared to the corporation. However, in Malaysia's context, a framework of determinants of charitable giving behaviour was created by (Awan and Hameed, 2014) suggested that there are two major determinants that can be categorized as Intrinsic Determinants that includes of financial security, religious teaching and generosity (Psychological aspect) and Extrinsic Determinants that includes of age and gender (Demographic aspect) and income and education (Socio-Demographic aspect) which has affected the giving behaviour of Malaysians.

A research was done by (Ridzuan et al., 2015) on a total of 556 number of respondents which consists of 347 donors and 209 non-donors of individual in Malaysia. It has proven that gender gave the least influence on charitable donations and has been rejected as the factors that can affect donation behaviour. In addition, age has shown a big impact to the relationship as "31-40" category of age has donated more than the younger individuals and people who are having higher income are willing to donate more than people who are having low income.

Besides, significant value has shown that a high education makes people more inclined to give donations. Perceived generosity has not given a big impact on the behaviour towards charitable donation and thus the hypothesis of perceived generosity is rejected while religious teachings have influenced people to do charitable donations. Therefore, we can conclude that Malaysian charitable donation is affected by religiosity, education and income but not determined by gender and generosity. The table below summarizes the outcome of the study.

Table 3: Summary of the Results

<b>Hypothesis</b>	<b>Results</b>
Gender	Rejected
Age	Accepted
Income	Accepted
Education	Accepted
Perceived Generosity	Rejected
Financial Secured	Rejected
Religiosity	Accepted

Source: (Ridzuan et al., 2015)

2.4 Similar Projects on Market There are a few existing systems that have been proposed that are aimed to give more to charity and people in need. One of the systems was made by the Christopher & Dana Reeve Foundation aimed to do crowdfunding through mobile applications for organizing sports events like marathons or triathlons. Then, the collected funds will be fully donated to charity organizations. With the application, users can easily monitor their fundraising status, make updates to their personal information and requesting fundraising to all their contacts (Braiterman et al., 2011).

Furthermore, a mobile application named “Combating Waste App” was made by (Ishikawa, Perez and Avila, 2018) is aimed to reduce food waste by creating a charity community that allows people or restaurant to promote their food (donation) to the application and a volunteer rider will perform the process of collecting the foods and taking the donated food to the charity house or food banks. The architecture of the system is consisting of integrating Global Positioning System (GPS) technology to locate the user and SQL databases to store data information.

In addition, some charity project was also made for medical purposes. For instances, a project by (Diba, 2018) is to create a huge blood donation community through mobile application with the intention to allow people to donate and receive blood in the fastest way possible. It is a free and hassle-free mobile application that allows people to search, notifies and connect thousands of blood donors while maintaining the users’ privacy information. It is a unique application as it is implementing a real-time user mapping and machine learning algorithm for finding the best suitable donor.

The analyzation of the user’s profile information is done by the machine learning’s algorithm which helps the application to works faster and efficiently. The system architecture is using Firebase (Cloud-based Database) to store users’ personal information as it can update the data and synchronize it across many connected devices in milliseconds. Thus, it will help to provide a great user experience and increase the application’s efficiency.

### **III. PROBLEM STATEMENT**

Malaysia has made a great achievement in eradicating poverty in the last few decades. However, though Malaysian has experienced rapid economic development, poverty issue still continues to be a major concern in the country according to (Ghazali, Mohd Rafi and Mohamed Dahlan, 2012). This shows that the poverty rate may not reflect the true situation of poverty group in the country.

In the Kuala Lumpur itself, a research done by (Muhammed Abdul Khalid et al., 2018) on poverty group that lives in low-cost flats Kuala Lumpur figured out that stunted issue has been affecting about 15% children in total under age of 5 and 22% of the underweight children are still live under the poverty line even though Kuala Lumpur citizens have the highest income per capita among other states in Malaysia. This clearly shows that Kuala Lumpur still has some hidden poverty group that might be out of the government's poverty statistics or community's watch.

Poverty affects people in multiple ways. One could have a poor health condition due to the lack of foods and nutrition for the body. (World Health Organization, 2003) stated that the inadequacy of health and physical protection has caused the poverty to get involved with severe diseases which will lead to death. Therefore, the insufficiency of health care shows why the poor tend to die earlier than normal citizens. This illustrates that health is very important for them as their livelihoods depend on it. If one of the poor family members falls to sick, the chances for the other member get affected will be high as the family could not afford to have good health care.

Ironically, Malaysia is also having excessive MSW issue in Kuala Lumpur whereby (Sabariah et al., 2018) found that in 2012, about 10.9 million tonnes of MSW are generated and rapidly increased to 12.8 million in 2015. (Lim et al., 2016) also found out that Malaysian had produced about 8000 tonnes of food waste were generated daily in Malaysia which had greatly increased from 930 tonnes of food waste daily in the year 2011. This shows that the country's economic benefits are not equally distributed among the Malaysian since many of poverty does not get enough foods and nutrition.

### **IV. RESEARCH QUESTIONS**

1. How does the proposed project affect the quality of poverty life and how does it reach most of the poverty group in Kuala Lumpur? This question reflects on how the user's donation item could reduce the burden of the poverty group and how far the item could receive by them in Kuala Lumpur area.
2. Where are the common sources of solid and food waste in Kuala Lumpur come from and how does the proposed project could reduce the excessive food and solid waste in Kuala Lumpur? This research question reflects on the main area that produced most of the MSW wastages in Malaysia and how this problem can be reduced by the implementation of this project to society.

### **V. SIGNIFICANCE OF THE WORK**

Urban poverty has been an issue for many developing countries around the globe and unfortunately, many of them are hidden under the country's low poverty rate statistics which makes them to be isolated in society's minority group (Ghazali, Mohd Rafi and Mohamed Dahlan, 2012). The study of this urban poverty group in Kuala

Lumpur is very important because they are the group that often being left behind and neglected by the government's watch since the urban city has the lowest poverty rate in the country according to (Muhammed Abdul Khalid et al., 2018).

Besides, the excessive of food and solid wastages in Kuala Lumpur could lead to environment pollution as stated by (Hamid et al., 2012) shows that there is an unbalanced resources distribution that has created a significant status gap among the Malaysian. Therefore, to fill up this status gap, a mobile application is developed to act as a bridge that connects normal citizen and poverty group in Kuala Lumpur. The project is worth to be carried out because it could help society to donate easily to the poverty by advertising their donation item in the application even at their home as the donation item then will be taken by the charity organization at their home's doorstep.

This effortless donation is very helpful to the ones who always busy with works and do not have much time to do the donation. Other features like chatting with the charity organization, user's live location and upcoming charity events in the mobile application could help to ease the donation process and encourage people in donating more to the poverty group. Hence, the status gap between the poverty group and normal citizen can be gradually minimized.

## **VI. METHODOLOGY**

As the resolution to the research questions of this study, a research design was constructed to collect data from the respondent. Quantitative method is selected as the main method to collect data from the sample study. According to (Bryman, 2012), stated that quantitative is a method that emphasis on the collection of numbers, figures and analysis of data. The method gives more room and flexibility for the researcher to have more control of the study groups as well can save time and resources (Daniel, 2016). Thus, the data collected for this project would be more precise and reliable.

**Sample and Sampling Technique:** The study is conducted in a residential area in Sri Petaling, Kuala Lumpur with the sample size of 200 respondents which includes high and low-cost residence areas. The sample size allows the study to have a 95% confidence level with a 1.0% margin error of 4 faulty respondents according to (Israel, 2003) which offer more reliability of data. In order to avoid any bias and data imbalance, the random sampling technique is chosen to retrieve data from the sample study. This was also agreed by (Gaganpreet S, 2017) that believe that random sampling is a representative of a population while providing an unbiased random selection. Therefore, the sample is separated by youngsters (10-19 years old), middle-age (20-29 years old) and elderly (3850 years old) and their types of job.

**Data Collection Technique:** The online survey is used as a data collection technique. It is a method to collect data from a selected sample group using standardized questionnaires (The Penn State University, 2006). The benefits of the online survey are it can cover a wide geographical spread sample with minimum efforts in a short time period (Mathers, Fox and Hunn, 2004) and mainly consists of closed-ended questions. As a result, the online survey could help the study to get speedy responses and more efficient as the samples are spread to some different residential areas.



Besides, the closed-ended questions help the respondents to understand the directed questionnaires and makes it easy for the study to analyse the collected data. To conduct this technique, the online survey will be distributed via Google Form. According to (Djenno, Insua and Pho, 2015), Google Form is a web application that eases the data collection process from surveys and polls that can be distributed via the internet. Plus, Google Form also helps to tabulate the data in numerical or graphical form in Microsoft Excel which ease the next analysis process. Hence, the collected data will be more precise with minimum errors.

Data Analysis: The collected data from the online survey then will be analysed in a statistical analysis. It is a method that refers to value or quantity which consists of the collection, analysis and presenting quantitative data from the sample group according to (De Smith, 2018). Plus, the method could help the study in achieving more accurate and useful information without any bias. Then, Microsoft Excel is used as a tool to interpret the collected statistical data. It is a software that enables mathematical calculation of data in a tabular form and commonly used to analyse data (Scott, 2000). The software allows the study to use conditional formatting on the collected data which involves filtering, sorting and can even translate the data into a graphical graph easily to get a better view of the results.

## VII. OVERVIEW OF THE PROPOSED SYSTEM

FUNDLE is a mobile application that is based on Android OS and IOS which will be developed by Xamarin development software that consists of several functionalities. The main function is it allows the user to advertise their donation item via the application and on the other hand, the volunteers from charity organizations will be notified to claim the advertised item at the user's doorstep. Then, the item will be taken to the charity houses. Firebase Cloud Database is used in this feature as it can store all donation information and provide a fast synchronization between users and the servers. The interfaces are shown below.



Figure 1: Add and Advertise the Donation Item via FUNDLE

Moreover, the GPS technology that is integrated with Google Maps helps the application to locate the user on the Google map which will ease the process of claiming donation item. The interface is shown below.

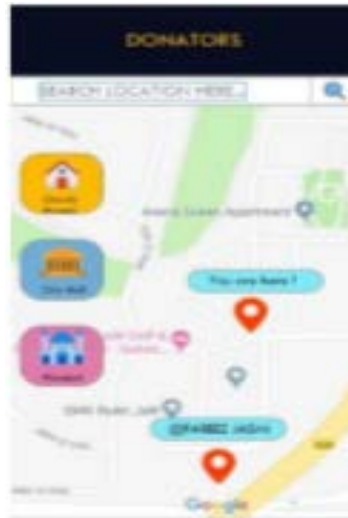


Figure 2: Volunteer can Track the User's Home via FUNDLE

Therefore, this feature also comes with the chatting functionality that helps the user to make a deal with the volunteer easily before taking the donation item. Fire chat is used as the core technology in this feature as it is capable to provide a real-time chat with minimum network disruption from the servers. Thus, this will help in increasing overall user's experiences. Chat interface is shown below.



Figure 3: Chatting Feature in FUNDLE

To conclude, the application has a various feature that help to enhance the usability and functionalities of the users in giving more to the poverty group in Kuala Lumpur.

## VIII. CONCLUSION

In conclusion, the poverty issue in Kuala Lumpur is a problem that needs to be concerned about. The implementation of FUNDLE is an alternative to reduce the poverty rate in Kuala Lumpur by encouraging people towards donating to poverty. The features of the application also help the donation process to be faster and more efficient. As a result, not only this could reduce the burden of the poverty group, but it also helps the country in minimizing the excessive MSW issue where eventually the poverty issue in Kuala Lumpur can be minimized with FUNDLE.

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