GOODGIVE: FLEXIBLE AND INTEGRATED CROWDFUNDING PLATFORM FOR CHARITY

MOHAMAD ALIF FIKRI BIN MUKHTAR

A thesis submitted in fulfilment of the
requirements for the award of the degree of
Master of Science (Information Technology Entrepreneurship)

Faculty of Computing
Universiti Teknologi Malaysia

JANUARY 2017

My humble efford, I dedicate to

My parents,

Hj. Mukhtar & Hjh. Patimah, family
For the support & prayers every day that keeps me going.

My dedicated supervisor,

Assoc. Prof. Dr. Nor Azman and Dr. Umar Haiyat
For your guidance & assistance till I can complete the thesis.
Your enthusism and words of wisdom that inspire me.

To the kindest souls that I ever met,

Asyraf, Riduan, Fakrul, Hana, Syukriah & Dr. Iskandar
I'll never forget the supports & laugh together.
Aren't I so lucky, to know you amazing people.
May the bitter sweet memories will never fade away.

The Great GoodGive Team Members ,

Izzudin, Ahmad Zaidi, Raja Norizqan & Aisya Hatta
Thank you so much for making time to participate in this research.
Keep going & be change the world!

May everyone I love and know always in Allah's care.

ACKNOWLEDGEMENT

I wish to express my sincere appreciation to my supervisors, Assoc. Prof. Dr. Nor Azman Ismail and Dr. Umar Haiyat , for facilitating, encouragement, guidance, critics and mentorship. Without these people, my project would have no leg. I owe a huge debt of gratitude to them all.

I am also indebted to Universiti Teknologi Malaysia (UTM) for providing high quality knowledge during my master degree study.

My fellow postgraduate students should also be recognized for their support. My sincere appreciation also extends to all my colleagues and others who have provided assistance at various occasions. Their views and tips are useful indeed. Last and most, to my beloved family for their endless support and encouragement.

ABSTRACT

Nowadays, it is hard for a non-governmental organizations (NGOs) to collect fund when they organizing a charity event or a community services. The traditional ways which require funder to go to the automated teller machines (ATM) to transfer their fund or directly go to the NGOs offices makes people hard to donate. People also tend not to donate because they are not convinced by the advertised news and worried it might be a scam. By using GoodGive, the NGOs and society need not to worry anymore because GoodGive provide a platform for NGOs to advertise the charity or community services they held and enable society to make fund via Internet banking, debit card, credit card and Touch N Go card. GoodGive also practice integrity and transparent basis while handling the donations. Waterfall model has been selected as the system methodology to be used for this proposed system development. The result shows this platform has been proven to be able to help the NGOs in raising funds.

ABSTRAK

Mencari dana adalah bukan satu perkara yang mudah buat NGO untuk membantu golongan yang memerlukan. Secara tradisionalnya, pemberi dana perlu ke pejabat NGO untuk membuat sumbangan atau penderma perlu ke bank untuk memindahkan wang ke akaun NGO. Hal ini menyukarkan orang awam untuk membuat dermaan. Selain itu, keraguan orang ramai terhadap iklan atau maklumat mengenai kempen juga menyukarkan NGO untuk meraih dana. Dengan menggunakan platform GoodGive, NGO dan masyarakat tidak perlu risau lagi kerana platform ini memudahkan orang ramai membuat dermaan dengan pelbagai cara seperti Perbankan atas talian, Kad Kredit, Kad Debit dan juga Kad Touch N Go. GoodGive mengamalkan integriti dan ketelusan dalam pengurusan dana. GoodGive telah menggunakan metodologi "Waterfall" dalam kitaran hayat pembangunan perisian. Hasil kajian, GoodGive didapati mampu membantu NGO untuk meraih dana dengan lebih berkesan.

TABLE OF CONTENTS

CHAPTER	TITLE	PAGE
	DECLARATION	**ii**
	DEDICATION	**iii**
	ACKNOWLEDGEMENT	**iv**
	ABSTRACT	**v**
	ABSTRAK	**vi**
	TABLE OF CONTENTS	**vii**
	LIST OF TABLES	**xi**
	LIST OF FIGURES	**xii**
	LIST OF APPENDICES	**xiv**
1	**CHAPTER 1 INTRODUCTION**	**1**
	1.1 Overview	1
	1.2 Background of the Study	2
	1.3 Problem Statement	4
	1.4 Objectives	5
	1.5 Scope of Study	6
	1.6 Significances of This Study	6

2	**CHAPTER 2 LITERATURE REVIEW**	7
	2.1 Overview	7
	2.2 Definition of Crowdfunding	7
	2.3 Existing System	9
	2.3.1 Hati.my	9
	2.3.2 PitchIN	10
	2.3.3 100% Project	11
	2.3.4 Skolafund	12
	2.4 Comparison of Existing System	12
	2.5 Proposed Crowdfunding Platform	13
	2.6 Summary	14
3	**CHAPTER 3 METHODOLOGY**	**15**
	3.1 Overview	15
	3.2 System Methodology	15
	3.2.1 Waterfall Model	16
	3.2.2 Spiral Model	17
	3.2.3 Rapid Prototyping	18
	3.2.4 Rational Unified Process	19
	3.2.5 Extreme Programming (XP)	20
	3.2.6 Justification on System Methodology	21
	3.3 Research Methodology	24
	3.3.1 Discussion with Supervisor	24
	3.3.2 Do Literature Review	24
	3.3.3 Interview	25
	3.3.4 Survey	25
	3.4 Summary	25

4	**CHAPTER 4 ANALYSIS AND DESIGN**	**26**
	4.1 Overview	26
	4.2 Survey Result Analysis	26
	4.3 Interview Analysis	31
	4.4 Functional Requirement	32
	4.5 Non-Functional Requirement	32
	4.5.1 Usability	33
	4.5.2 Performance	33
	4.5.3 Reliability	33
	4.5.4 Maintainability	34
	4.5.5 Security	34
	4.5.6 Software Requirement Specification	34
	4.5.7 Hardware Requirements Spcification	37
	4.6 System Design	37
	4.6.1 Use Case Diagram	38
	4.6.2 Use Case Description	39
	4.6.3 Complete Package Design	42
	4.6.4 Data Design	43
	4.7 Graphical User Interface (GUI) Design	45
	4.7.1 Low Fidality	45
	4.7.2 High Fidality	46
	4.8 System Architecture	47
	4.9 Summary	49

5	**CHAPTER 5 DEVELOPMENT AND TESTING**	**50**
	5.1 Technology Platform	50
	5.1.1 Website	50
	5.1.2 Mobile Apps	50
	5.1.3 Kiosk	51
	5.2 Content Management System	51
	5.2.1 Wordpress	51
	5.3 Web Features	52
	5.3.1 Homepage	52
	5.3.2 Causes	53
	5.3.3 GoodShop	54
	5.4 System Testing	55
	5.4.1 Unit Testing	56
	5.4.2 White Box Testing	61
	5.4.3 Integration Testing	62
	5.5 System Testing	63
	5.5.1 Performance Testing	64
	5.5.2 Regression Testing	65
	5.6 User Acceptance Testing	65
	5.7 Conclusion	70
	5.7.1 Problem Encountered and Solution	70
	5.7.2 System Strenghts	71
	5.7.3 System Weakness and Limitation	72
	5.7.4 Future Enhancements	72
	5.7.5 Conclusion	73
REFERENCES		**74**
APPENDICES		**75**

LIST OF TABLES

TABLE NO.	TITLE	PAGE
Table 1	Comparison of Existing System	13
Table 2	Comparison of Five SDLC	21
Table 3	Database Comparison	35
Table 4	Programming Language Comparison	36
Table 5	Hardware Requirements Specification	37
Table 6	Register Use Case Description	39
Table 7	Login Use Case Description	40
Table 8	Seacrh Campaign Use Case Description	40
Table 9	Select Campaign Use Case Description	41
Table 10	Donate Campaign Use Case Description	41
Table 11	Print Receipt Use Case Description	42
Table 12	User Table	43
Table 13	Campaign Table	44
Table 14	Donate Table	44
Table 15	NGO Table	44
Table 16	Equivalence Partitioning 1 (Register Account)	57
Table 17	Test Cases Derived 1	58
Table 18	Equivalence Partitioning 2 (Login)	59
Table 19	Test cases Derived 2	59
Table 20	Equivalence Partitioning 3 (Donate)	60
Table 21	Test Cases Derived 3	60

LIST OF FIGURES

FIGURE NO.	TITLE	PAGE
Figure 1	Categorization of Crowdfunding	8
Figure 2	The main view of hati.my website	10
Figure 3	Display examples of campaigns carried out.	11
Figure 4	Some of the campaigns in 100% Project website	11
Figure 5	An Example of a successful campaign	12
Figure 6	Waterfall Model	16
Figure 7	Spiral Model *(Boehm,B.,1988)*	17
Figure 8	Rapid Prorotyping process	18
Figure 9	Rational Unified Process (IBM,2006)	19
Figure 10	Extreme Programming model	20
Figure 11	Question about respondents age	27
Figure 12	Question about respondents gender	27
Figure 13	Question about charity frequency	28
Figure 14	Question about information channel	28
Figure 15	Question about response to donation campaign	29
Figure 16	Question about donation amount	29
Figure 17	Question about online donation	30
Figure 18	Question about online donation platform	30
Figure 19	Use Case Diagram of GoodGive	38
Figure 20	Complete Package Diagram of GoodGive	42
Figure 21	GoodGive Low Fidality Design	45
Figure 22	GoodGive High Fidality Design	46
Figure 23	Component Model of GoodGive	48

Figure 24	GoodGive Homepage	52
Figure 25	GoodGive Causes Page	53
Figure 26	GoodGive GoodShop Page	54
Figure 27	GoodGive FAQ Page	55
Figure 28	Hierarcy of GoodGive	62
Figure 29	Bottom-Up Testing Strategy on GoodGive	63
Figure 30	User evaluation on system user-friendliness	66
Figure 31	User evaluation on application user interface	67
Figure 32	User evaluation on causes description contents	67
Figure 33	User evaluation on application instruction	68
Figure 34	User evaluation on system features	68
Figure 35	User evaluation on system colour combination	69
Figure 36	Evaluation of response performance	69

LIST OF APPENDICES

APPENDIX	TITLE	PAGE
APPENDIX A	QUESTIONNAIRE (User Requirement)	76
APPENDIX B	QUESTIONNAIRE (User Feedback)	78
APPENDIX C	BUSINESS PLAN	81

CHAPTER 1

INTRODUCTION

1.1 Overview

NGOs in Malaysia are one of the key players in the building of a civil society. The term NGOs here is understood to refer to those organizations that are officially established, run by employed staff (often urban professionals or expatriate), well supported (by domestic or, as is more often the case, international funding and that often relatively large and well-resourced). NGOs played an important role in raising social concerns, developing awareness of social issues and promoting sustainable campaigns . The development of NGOs has witnessed increasing involvement and exposure in recent years.

Such organizations must operate as a non-profit group, in that respect, NGOs are meant to be financially independent. Ranganathan and Henley (2008) have reported that charities have to depend on individual donors and less on the government for fundraising in order to survive in the competition In reality it is a difficult task, they must raise funding from businesses and/or from private sources such as public donor.

In challenging economic conditions today, raising fund is not an easy mission for them. Various ways have been done by NGOs in raising funds . As the programs and projects of NGOs expand, the need for money to run their operations becomes all the more critical.

Today, with the fast development of the computer science and IT, especially the Internet, a new way of funding arose: crowdfunding. Crowdfunding platforms could be seen as intermediaries between donors and beneficiaries. . With crowdfunding becoming more popular as a successful alternative to traditional funding methods, it becomes crucial for NGOs to use this platform.This research takes an initial step towards filling in this gap.

1.2 Background of the Study

In the recent years, when disaster occurs such as floods,tsunami, or a plane crash, many authorities such as NGOs will lend a hand to the victims of the disaster. When dealing with big disaster such as tsunami, they need the help from everyone as well from the authorities and even citizen,combined together to cooperate in helping the victims.

One of the main problem in raising funds is people find it hard to give donation in cash as they did not bring enough cash to donate. It is because people often bring money in cash to spend for a week or less, usually most of them is used to buy food or others necessities. So, for only that amount of money, do you think it is enough to get more fund from an individual? Because sometimes we don't know when the donation will be held and for that reason, we didn't prepare enough money to donate. Taking aside the possibilities to transfer fund online and etc, we will discuss it in the next point.

Secondly, in this modern era, apart from organising campaign at the school, university, mosque, and others attractive spot to raise fund, the NGOs have started to use other alternative, such as media sosial to spread the messages for increasing the donation to help the victim that needing all the help that they can get from us. In the messages, usually its states that to donate a fund, people can bank-in or making online money transfer to certain bank account to perform the donation. The problem is, people in the society might feels afraid to donate because of they fear fraud or scam may happen. In these days, there are many scamming occurs in the social media from people that want to take advantages by using the same messages spread from the NGOs, but changing the account number to the scammer's account number for own self-interest. For the lots of efforts from NGOs and others authorities that spreading the messages for society to have awareness, have come to strain because of this scammers. When the people in society know the scammers true intention, this will make them lose their trust to believe in the messages from the true NGOs that needing our funds for their campaign. This is one of the problem we want to highlight in this proposal. Where are the policies to spread the messages for asking donation? What are aspect that the sender of messages need to have for the society to believe that the messages is comes from trusted agency? The solution from this problem is, we need a platform, that are reliable and authorised to deal with the trust issue. To solve the trust issues is one of our research aim for this project.

Next, regarding the trust issues discussed in the earlier paragraphs, people will curious to know where their fund will be distributed or used for the campaign. Even donating is all about the sincerity from the heart to help others who are in trouble, but we also need to know that our donation is spread to the right source, so that the donation will not be abused.

After a disaster occur, there will be many NGOs and other authorities that will help victims. Because the disaster is happened suddenly, we didn't prepare physically and mentally to face this tragedy. Some of us maybe losing our loved one, our property and others. So, to help them, we need to give our help as soon as possible. When the NGOs organise a campaign to raise fund, its usually takes

sometimes to get enough fund to be distributed to the victims. Usually to collect a donation, for an example like a massive flood, we need quite a large amount of donation funds to cover all the victims involved in the incident. So, this makes the victims late on receiving funds and make it difficult for them to live after the disaster that caused them to suffer.

Also, from the campaign organised from the NGOs, we can see the problem arise from this method is there are maybe a probability of fund misappropriation to happen in higher chances. This is because sometimes there are too many person in charge for a campaign and one of them have bad intention to use the donating fund for their own selfish self-interest. Yes, this is volunteering activities, people that volunteer themselves to help others, but we don't know what really in their head, what really their true goals and intentions in doing this volunteering jobs.

Moreover, legitness on certain campaign is unclear or unknown. This is leading us back to the trust issues. Many campaign organised by the NGOs is legit and can be trusted, but there are some of them is still unclear or as we see, is hard to put our trust at that campaign. For example, maybe the information for the disaster is outdated or lack of evidence, that makes us to doubt their legitness. This make us difficult to give donation because of the trust issue. We want to help the victim but at the same time, we worried that our donation might be abused for other purposes.

1.3 Problem Statement

There is a lot of people who really needs help neglected. Some of them not exposed to the social media. Besides, some of people take an advantage on social media for their interest. So, to counter both problems we need a legit site for only registered NGOs can access and advertise their charity or community activities in order to gain fund.

The major problem is people find it hard to donate because they need to go to the ATM machines in order to transfer the fund or even go to the NGOs office to make fund. This is such a nuisance and time consuming. Other than that, society also afraid to donate to unknown campaign held by individuals because worry that the campaign is actually a scam.

Next, advertising campaign in the media social may urge danger. Irresponsible individuals may change the details of the campaign by changing the account number to theirs' or use the old campaign poster in order to scam people. Usually, donors do not know what happen to the donations that they had donate. This might raises a question mark how did the donations is spent on.

Problem that always faced by NGOs is to raise fund on time. If this happens, the campaign may not be a success and the objective of the campaign will not be achieved. Misappropriation issues also unavoidable if there are too many people in charge in campaign held.

1.4 Objectives

The objectives of this project are as follow:

1.4.1 To develop prototype of crowdfunding platform for NGO to fundraising.

1.4.2 To proposed a business model of flexible and integrated crowdfunding.

1.4.3 To evaluate the effectiveness of the platform to help NGO in fundraising.

1.5 Scope of Study

The main focus of the study is to use approach of crowdfunding to raise funds from donors apart from :

- Provide a platform for non-governmental organization(NGO) to advertise community activities or campaign held in order to raise fund.
- Categorize the campaign according to the level of urgency required funds.
- To simplify donation affairs.
- Offers a policy of transparency and integrity in the management of donations.
- Diversities of ways to donate (online banking, credit card, etc).
- Encourage more people to donate and increase society awareness on the importance of donating to people who in need.

1.6 Significances and Original Contributions of This Study

Fundraising is important in order to make the charity activities a success. GoodGive intend to help NGOs in order to collect fund efficiently and achieved their target within the period of time. Other than NGOs, we also hope that we can provide a one stop center for community to make donations.

REFERENCES

Aderman, D., S.S. Brehm and L.B. Katz (1974) 'Empathic Observation of an Innocent Victim: The just World Revisited.'.

Averill, J.R. (1973) 'Personal Control Over Aversive Stimuli and its Relationship to Stress.', Psychological bulletin 80(4): 286.

Bagozzi, R.P. (1975) 'Marketing as Exchange', The Journal of Marketing: 32-39.

Banerjee, A.V. (1992) 'A Simple Model of Herd Behavior', The Quarterly Journal of Economics 107(3): 797-817.

Skågeby, J. (2010) 'Gift-Giving as a Conceptual Framework: Framing Social Behavior in Online Networks', Journal of Information Technology 25(2): 170

Wortman, C.B. (1975) 'Some Determinants of Perceived Control.', Journal of personality and social psychology 31(2): 282.

Sherry Jr, J.F. (1983) 'Gift Giving in Anthropological Perspective', Journal of Consumer Research : 157-168.