Literature Review on Zakat applications

Anas Tawalbeh and Nurulhusna Abdullatif

Faculty of Science and Technology, Fatoni University

anas.tawalbeh@ftu.ac.th

Abstract. The rise of connectivity and smartphone applications made it possible to shift everyday activities to the digital world, including zakat calculation. Research on the development of zakat calculator has done by multiple authors, yet there is no study highlight the similarities between these works and suggest a future move for the development of such an application. The aim of this study is to review the volume of research on Zakat to provide guidelines for researchers and developers who use results from previous research to further study Zakat application or to find practical applications. In our conclusions we make a plea for more research on Zakat application development, and we discuss the implications of our findings for further research.

Keywords: Literature Review, Zakat application, Application development method, zakat calculator, web application, smartphone application, applications feature.

INTRODUCTION

As one of the five bases or pillars of Islam [1], Zakat is defined as a mandatory donation for all wealthy Muslims equivalent to 2.5% of their annual savings, and it is given to the needy people [2]. It is estimated in year 2010 to be equal $600 billion for member countries in the Organisation of Islamic Cooperation (OIC) [3]. Zakat itself is paid for several kind of wealth including but not limited to cash, livestock, precious metal; gold and silver, business, agricultural products which include crops and fruits for Zakat [2][4]. The objectives of doing Zakat are classified into 3 main categories social, religious and economical goals as described by Muslim scholars [4]. The more developed the country in collecting zakat, the higher the percentage of collected money form eligible Muslims [3].

The development of zakat calculator application has empowered Muslims to calculate and sometimes pay Zakat amount online via an interactive platform. As Zakat is a financial matter, Zakat calculation recognized as financial technology (Fintech) [5]. Due to the fact that the calculation of Zakat for various annual saving [2], Muslims always go to the judge or jurists to calculate the amount of Zakat to be paid [4]. Nowadays, such activity is replaced by the use of zakat calculator platforms (ZCP). ZCP is used here similar to [6] as a term that describe any type of zakat calculator whether it run on the web, smartphone, or any other platform. Implement Information technology (IT) to develop tools that ease the calculations of zakat have been done by researchers and countries alike. Malaysia [2], Bahrain, Brunei Darussalam, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates [3] are some of many Muslim countries that develop their own Zakat calculation system.

Humans are not perfect that’s why application testing is needed, however that does not guarantee better quality [7]. Similarly, there is still no perfect zakat calculator that can give
users full satisfaction, as well as many applications created by the programmers in this field are still evolving. Additionally, an effort is needed to create quality into ZCP's that make an application meet users' needs, run fast, and safe to use [4].

This paper is structured as follows: Section II the methodology to conduct this. This is followed by Zakat application design principles and Zakat application design principles in Section III and Section IV. Section V discusses ZCP Requirements analysis. ZCP user interface discussed in the following section. And related application discussed in section VII. A discussion carried on the section VIII. Lastly, Section IX concludes the paper.

METHOD

To discover the effort has been done on ZCP, this research tries to investigate ZCP work done by both countries and academics. This study begins by scanning a doctoral thesis written by [4] and published in English language about Zakat for further understanding of the topic. Next the researcher search about the latest publication about the topic as listed in the academic search engine Google Scholar [2][3]. The researcher implements the following keywords to look for publication on the topic: Zakat system, Zakah application, and Zakat calculator. Researcher moved after that to explore the ZCP's mentioned in these works for further understanding and awareness of the available features for each. Additional works have been added later by looking for academic paper published in IEEExplore website.

ZAKAT APPLICATION DESIGN PRINCIPLES

ZCP is an interactive application that allows the user to key-in data then process it and show the output to user. Data that user input are mainly two 1) numerical values represent personal amount of wealth 2) the type of wealth [1]. As discussed earlier, there are several types of wealth and ZCP is supposed to ease the understanding and calculation of such a complex task, thus it is essential to consider the implementation of these different type of wealth into the application as well as the application to handle each one of them as an independent unit. Back-end of a ZCP thus must instrument the different calculation for different category of wealth in an independent block of code, i.e., function or class. Each block of code to be designed to process the inserted values and validate it considering Zakat assessment, rate, and base [2]. The platform then makes the proper calculation to inform the user whether or not he/she requested to pay zakat in the current time, exactly the same way an expert scholar would do [2]. All of this constitute the main features of a ZCP as discussed by [8]. Another feature for a ZCP is to offer online payment, which saves users time and effort [9][10].

ZCP's are many as the many authorities managing it. This variety doesn't mean different applications, yet there could be different features added to a specific ZCP beside the main features that are mutual among all ZCP's. The main feature of any ZCP is Zakat calculation. Additional features include information about Zakat as proposed by [11], it is a feature used to educate Muslims about Zakat. Geo-location feature is another one proposed also by [11], which help users of the ZCP to find the nearest authorized office for them to pay Zakat. Educate self about Zakat is a not an easy task, thus additional feature is to makes ZCP act as an expert system mimic Muslim scholar to assets the user to gain knowledge about Zakat for their specific case [1]. As in the example of Zakat system developed by
authorities in Muslim countries, another feature can be an online payment for Zakat after the completion of calculation step. An advance step is to utilize the ZCP to distribute Zakat to those in need by having a database included their details [12]. ZCP design should consider log and summary of Zakat payment [8]. A ZCP can be a comprehensive system that act as scholar who is knowledgeable enough to answer users' questions and capable of calculating Zakat amount for each individual user [2], it can be a system that support online payment of Zakat, as well as a platform to distribute Zakat to those who are in need [13]. Users of ZCP can be categorize into the following categories: administration staff, operational staff, financial staff, amil, asnaf and director [12].

ZCP REQUIREMENTS ANALYSIS

Requirement analysis is a stage in software development lifecycle (SDLC) [14]. It is the process of specifying the needed functionalities of a system. Developers of any ZCP need to realize both functional and non-functional requirements [12]. Various approaches taken by developers to elicit the requirements of a ZCP. In their study [11] concluded that the use of activity theory is an alternative way to analyse system requirements for smartphone application running on Android operating system (OS). Another approach for ZCPs' requirement collection is by conducting an in-depth interview with parties involved in Zakat management [13][1], such a method let developer gain comprehensive knowledge about the developed application and strengthen the system of the it [13]. [1] added reviewing literatures, websites, and available systems are essential step in ZCP system development. After review existed ZCP application [5] developed their own ZCP application that perform better and combine multiple application in one. In a recent study, [16] used the waterfall approach of the SDLC to go from analysis to testing of their developed ZCP.

ZCP USER INTERFACE (UI)

User Interface is crucial part of any system, it enriches user experience of the application [17]. After the completion of requirement analysis, the design stage of ZCP development beings [11]. The researched titles "E-Zakat: Redesign the Collection and Distribution of Zakat" gone through planning, analysis and business design, and finally implementation to build an application with proper design for the user [13]. The using of usability engineering is one possible way to utilize in the designing of a ZCPs' UI [8]. One way to design a robust ZCPs' UI is to consider user experience (UX), in alignment with this [17] used three metrics to measure UX of Zakat application including: usability, look, and feel.

RELATED APPLICATIONS

Muslim authorities worldwide develop zakat application to for use within a specific region (country). Understanding these applications and their current performance help in identifying the future move for zakat application development. Some of these applications are Zakat Collection Center (ZCC) in Malaysia [18] Islamiyat Bahrain, e-Zakat in Oman, Zakat Fund’s websit in Qatar, Zakat Fund’s website in UAE, [19]. A review for these systems found the following:

a. All these ZCP's are provided by the authorities of Zakat management in each country
b. All these ZCP's are capable of doing the calculations for Zakat for different type of wealth

c. All ZCP's support online payment of Zakat to the authorities to distributed later for those in need

Most of the developed ZCP's are web based, except in the case of Bahrain, and Qatar who provide a feature to calculate and pay Zakat within a smartphone application available for both Android and iOS operating systems (OS's), Islamiyat Bahrain, and Zakaty consecutively. Additional point to highlight is when calculating zakat for type of wealth other than cash, mostly users need to key-in the price of gram/kilogram manually.

DISCUSSION

It is seen that there are several works and systems developed regarding Zakat. These ZCP's are rich with features, specifically main features of Zakat calculator, yet some features have to be improved such as getting the price of a specific type of wealth from the internet same as [20] did, instead of entering the price manually. Requirements emerged over time via software engineering (SE) which need consideration from researchers and developer [6].

Several studies conducted on ZCP's, as well as several countries implement their own ZCP. Countries develop their own ZCP's without any academic publications sponsored by authorities. On the others hand, there are academic research conducted on the filed does not receive authorities' recognition [6] nor it is enough to be compatible ZCP that run via multiple platforms incorporate web, Android, and iOS together. In his work [18] suggested a collaboration between all Malaysian stated to create a centralized database for Zakat in Malaysia that contain information about state-based Zakat and charitable institutions, and beneficiaries of state or federal welfare system. Collaboration is needed not only within states of the same county but also between all Muslim countries, specifically those the member of OIC [3]. Additionally, governments are required to set legal guidelines for the development of a ZCP [5].

Countries can sponsor a huge project to develop such an application, researchers in the field and experts in software developments are capable of producing high quality ZCP, and a combination of both make will not reinvent the wheel but realign it. Additionally, the no perfect software made challenge for developers, and researchers as they achieve short term goals during the development of a ZCP, yet this never come at end as human still need to use such an application. Accordingly, this work suggests a collaborative work that include huge cooperative between various parties that might be involved in ZCP development, on top of that countries level, followed by collaboration between countries and researchers as well as developers who are specialized in the industry of software development. The purpose of such collaboration is to achieve the level of quality software of ZCP and keep up with technology advancement every day. Researchers make plea for a continuous effort of supporting researchers who are interested in ZCP development.

CONCLUSION

Zakat is obligatory to all Muslims which make it obligatory to Muslim leaders to facilitate the calculations and the collection of it. ZCP can be designed, developed, and used for managing Zakat calculation and payment. It is worthy considering that different
users of technology use different devices which operates different operating systems (OS), thus ZCP's must be developed to meet users need and become available for use on different platforms. ZCP's functionalities are drawn from the features of ZCP itself. Basically, the main feature of ZCP's are calculation and payment of Zakat. The advancement of technology support adding new functionalities to ZCP's, and thus further research and government financial support are needed to keep it up to date.

ACKNOWLEDGMENTS

The author(s) would like to thanks to all members of this work including the research team.

REFERENCES

8. Tawalbeh, A., & Hama, I. ZAKAT APPLICATION DEVELOPMENT: THE NEEDED FEATURE AND EVALUATION METHOD.