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by I Ketut Gede Sudiartha

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Design And Implementation of Mobile Finance Application For Micro Small and Medium Enterprises (MSMEs)

I N E Indrayana[1], I K G Sudiartha, I P Sutawinaya, N G A P H Saptarini
Electrical Engineering Department
Politeknik Negeri Bali
Denpasar, Indonesia
[1]eddyindrayana@pnb.ac.id

N M Wirasyanti D P[2]
Accounting Department
Politeknik Negeri Bali
Bali, Indonesia
[2]dwi.pratiwi@yahoo.co.id

***Abstract*—This study aims to design and build a software to help micro and small business in making financial statements. The built software is a combination of web-based and mobile-based. Mobile-based software allows businesses to register financial transactions in various places and require relatively little electricity. So, the cost of investment in the field of information technology can be suppressed. This is appropriate for business owners who have small capital such as micro and small businesses. While the web-based display is required to display monthly reports that are done at the end of each month or the end of the year. The research methodology selected is the method of making software using Object Oriented Analysis and Object-Oriented Design. While the accounting standards used in the system using Financial Accounting Standards-Entities Without Public Accountability (FAS-EWPA). This application is designed using UML diagrams and MYSQL databases. The use of mobile financial has facilitated the actors of Micro Small and Medium Enterprises in doing bookkeeping and produce financial statements.**

Keywords— Mobile Accounting Software, Mobile Finance Application, Micro Small and Medium Enterprises;

I. INTRODUCTION

MSMEs are the main pillars of a country economy, especially within developing countries [1] like Indonesia. MSMEs in starting their business, tend to use their capital in the business operational process. In general, they start a business with a relatively small capital. The business capital is prioritized to purchase raw materials, transport for the distribution of goods or services and introduce its business to the public. MSMEs are often handled directly by their own owners and are only assisted by one to three employees only[2]. This is intended to reduce operating costs at the beginning of his business. So financial bookkeeping is often ignored and even the use of information technology investments is far from their thinking. The use of information technology in their thinking is something that requires resources and high costs so it become second opinion.

In 2009, the Financial Accounting Standards Board established the Financial Accounting Standards - Entities Without Public Accountability (FAS-EWPA). Micro Small and Medium Enterprises (MSMEs) including business enterprises are expected to use this standard in preparing financial statements. In 2011, FAS-EWPA officially applies to MSMEs through Ministerial Regulations of Cooperatives and MSMEs.

There are still many MSMEs that do not have financial report in accordance with FAS-EWPA standard, and in their research stated that MSMEs which have good financial record have more rapid development compared to MSMEs which do not have record finance, although MSMEs who have such financial records younger age of establishment. MSMEs with good financial records are also easier to obtain business capital credit to expand their business.

The implementation of ASEAN Economic Community (AEC) 2015, promote the business competition for MSMEs. If not understand by themselves, it is feared that MSMEs business actors will lose from business actors from ASEAN countries which enter into Indonesia. With the utilization of information technology in the field of finance, MSMEs are expected to compete and expand its business and ready to face the EAC 2015 which is planned to come into force early in 2016.

Utilization of information technology through mobile software can be one alternative for MSMEs in making business bookkeeping. Especially micro and small businesses that have less capital than medium enterprises [3]. Android-based mobile software requires a relatively small and flexible resource. The hardware uses less power used than using a PC (personal computer). The hardware uses a hand phone with android operating system. The mobile phones, in addition to use communications media can also be used for running financial software. Financial recording with this software can be used anywhere, provided there is internet network. Business owners do not need to invest a lot in terms of human resources who master accounting to make financial statements of his business. Business owners can input data through this mobile software, which is then processed to produce financial statements according to FAS-EWPA [4].

More recently mobile phones are increasingly used for business activities. Many MSMEs operate from home or do not

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have a fixed place to do their business, for example street hawkers [5]. Mobile phones allow instant exchange of information and provide significant business opportunities to increase MSMEs productivity [6-8]. The impact of using handphone was very positive for their business development. Particularly in rural and semi-urban areas, MSEs' are often the primary economic players [5][9][10], providing employment to a large portion of the population.

M-Commerce provides commercial services and solutions to address some of the challenges faced by MSMEs. Application creation for MSEs in developing countries needs to focus on the usability aspect of the interface. Data collection and socialization to build software is needed from the low educated community to the higher. Especially in developing countries whose human resources still have little formal business education [9]. The built application should be usable for people with low incomes or non-fixed income and requires low amounts of data transfer.

II. METODOLOGY

This Stages of making mobile software (android) in this study as follows:

- *System Analyst*. In this step, the system comprehension activities use FAS-EWPA accounting standards, the preparation of tools for the development of mobile systems such as eclipse devices, android emulators, web hosting, web servers, web domain names, MySQL databases and stake-holder parties). At this stage there is also a survey of user views (interface) by using a prototype of mobile software. This project use Object Oriented Analysis (OOA) [11][12], with several step there are define the object, define the Organizing object by creating an object model diagram, define internal objects or object attributes, define the behavior of the object, that is, the action of the object and describes how objects interact [13] [14].
- *Database design*. At the database design stage, the identification of entities involved in the financial information system for MSMEs was made. Each entity has an attribute that elevates the entity itself. The identified entity was linked to form a relation tailored to the processes to form the financial statements with FAS-EWPA standards.
- *Mobile System Design (android)*. System design starts from user input format, user input validation, interface design android based, dialogue in case of user error, database access techniques and financial process according to FAS-EWPA standard. The design process and interface based on android to be built include interface design to manipulate basic data such as user data, chart of account data and user permissions, interface design to receive data entry of financial transactions such as general journal and cash flow transactions and interface design to display the ledger process, balance sheet and profit and loss process.
- *Coding Mobile System (android)*. After the mobile system design stage is completed, followed by the coding. Coding stage to build this mobile system using eclipse compiler that is equipped with Android Development Tool (ADT). ADT is a plugin for building mobile software. Also done coding on the database side by creating a trigger for the update and delete data.
- *Testing*. Testing was done to ensure the system built is running as expected. Mobile software testing done in laboratory then conducted field testing on the user. In the testing phase in the laboratory checks for unexpected errors when the software was running. If an error occurred, then the system was repaired. Testing in the laboratory, using 10 pieces of mobile phone hardware that has 5 different brands with android operating system to ensure whether the system can run in multi user and can run on several brands of different mobile phones.

III. RESULT AND DISCUSSION

A. Use Case Diagram

There are two actors in this system. The actor is the administrator and user. Administrators and users have different access rights to the system.

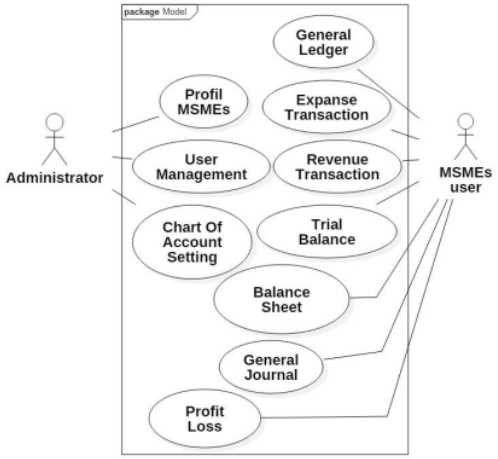


Fig. 1. Use Case Diagram Sistem

- *Use Case Profile MSMEs*. This use case allows Administrators to add and update MSMEs data. In this profile there is a data name of MSMEs, Address, telephone number and contact person.
- *Use Case User Management*. This use case allows the system administrator to add, edit and delete user data that will use the system. For one MSMEs can have more than one user. User data consists of user id, user name, password and full name.
- *Use Case Chart of Account Setting*. This use case allows administrators to make additions, updates and delete charts of accounts from MSMEs companies. Chart of Account is made first before the transaction. Changes to chart of account data are not permitted when the transaction already exists.

- *Use Case General Journal*. This Use Case allows users from MSME to conduct journal transactions by selecting the account involved. List of accounts can be selected from the Chart of Account. Users enter amount of transactions both in Debit and Credit. Debit and credit must be balanced. Data cannot be saved to the system if the debit or credit side is not balanced. The choice of the account involved must follow basic accounting principles.
- *Use Case Revenue Transaction*. This use case allows the user to make transactions where the journal will automatically be created by the system. User chooses the type of transaction revenue that consist of Receipt Funds from Sales, Credit Sales Receipt Funds from Receivables, Receipt Funds from Bank Loans, Receipt Funds From Individual Loans, Receipt Cash Goods, Receipt Credit Goods, Receipt Funds and From Owner Capital.
- Users only choose the type of transaction, input date and amount transaction, then the system automatically conducts journal transactions with accounts that have been set according to the type of transaction
- *Use Case Expense Transaction*. Same as use case revenue transaction, but used for expense transaction. Journal will automatically be created by the system that user chooses in expense transaction type. Expense transactions consist of Purchase Product, Salary, Rental Fee, Transportation, Fuel Cost, Water Cost, Electricity, Phone pulse, Bank Loan, Individual Loan, Other Expense.
- *Use Case General Ledger*. This use case allows user displayed general ledger report. User may enter month, year and account number to display the report. General ledger has 5 column attributes to displayed, that are date, description, loan, credit and balance.
- *Use Case Trial Balance*. This use case allows user displayed trial balance report. User may enter month and year report, then real balance report would appear. Trial balance report consist 4 column attributes to displayed, that are date, description, loan and credit.
- *Use Case Balance sheet*. This use case allows user displayed balance sheet report. Balance sheet report just have 3 column attributes, that is account number, account name and balance. Account Classification that involved are assets, liability (debt) and capital.
- *Use Case Profit Loss*. This use case allows user displayed profit loss report. Profit loss report same displayed as balance sheet report, but different account classification. Profit loss involved revenue and expense account classification.

B. Activity Diagram System

Here are some activity diagrams contained in the system

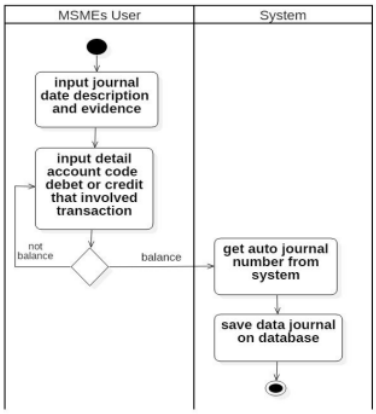


Fig. 2. Activity Diagram General Journal

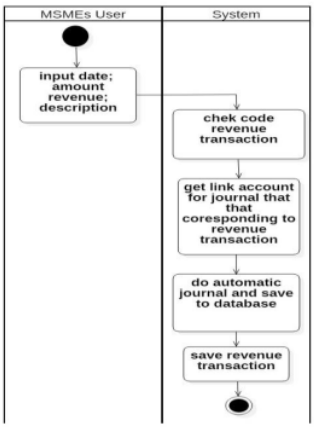


Fig. 3. Activity Diagram Reveneu Transaction

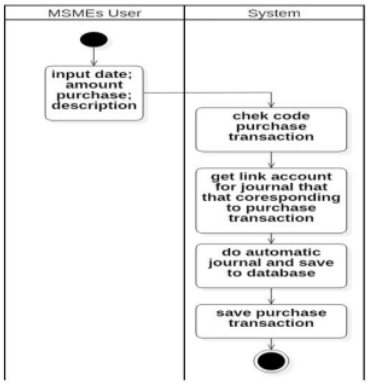


Fig. 4. Activity Diagram Purchase Transaction

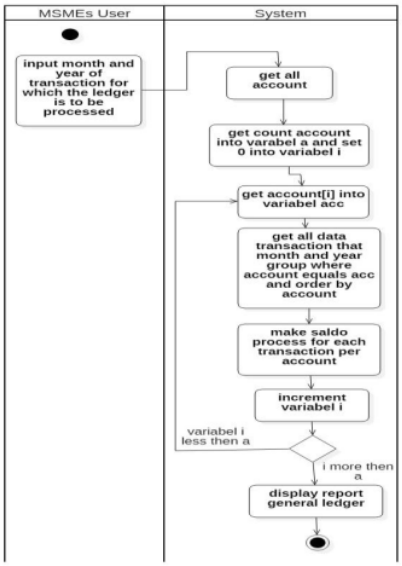


Fig. 5. Activity Diagram General Ledger Process

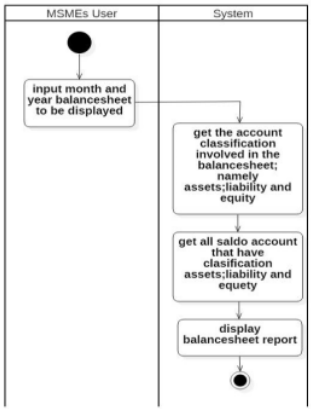


Fig. 6. Activity Diagram Balancesheet Report

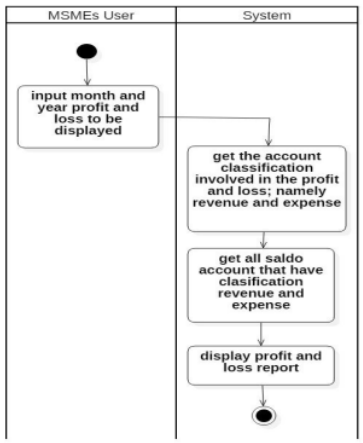


Fig. 7. Activity Diagram Profit Loss Report

C. Class Diagram System

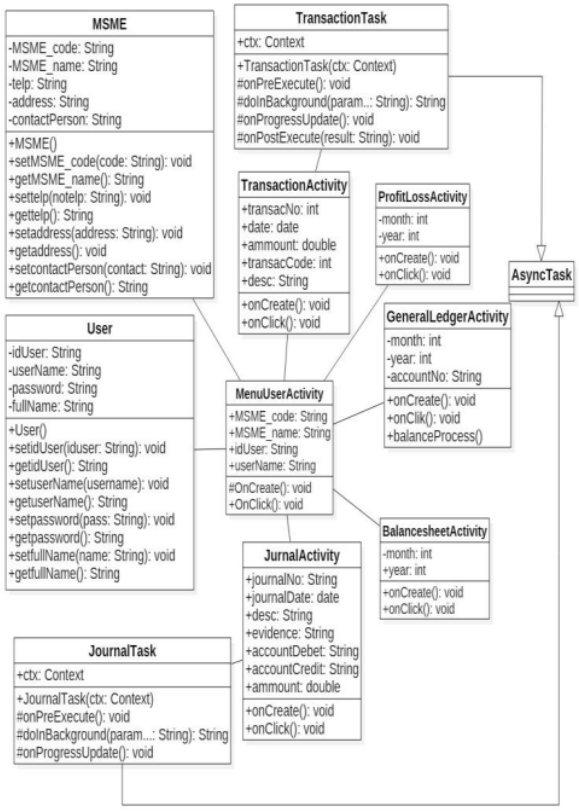
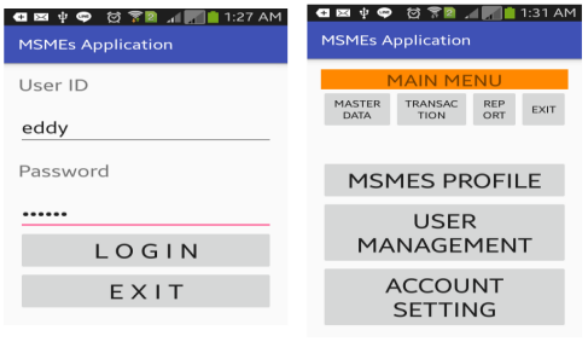


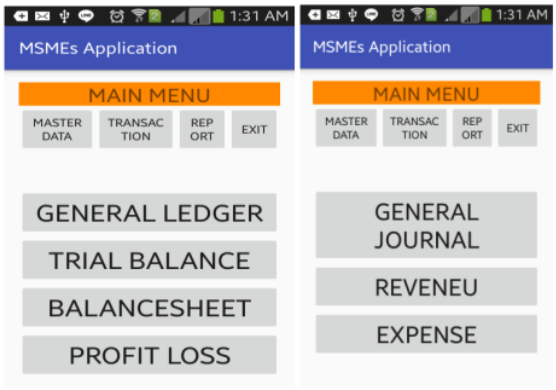
Fig. 8. Class Diagram System

D. User Interface Implementaion



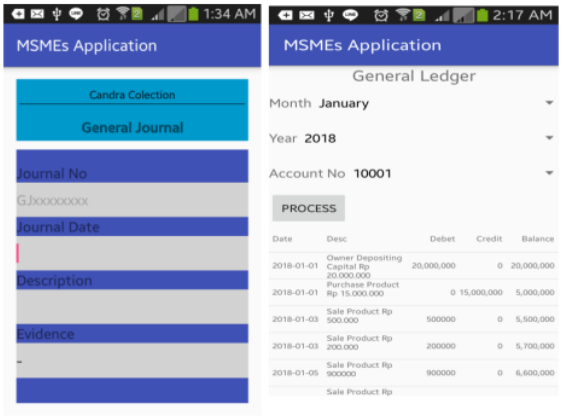
(a) (b)

Fig. 9. (a) Form Login and (b)Main Menu Master Data



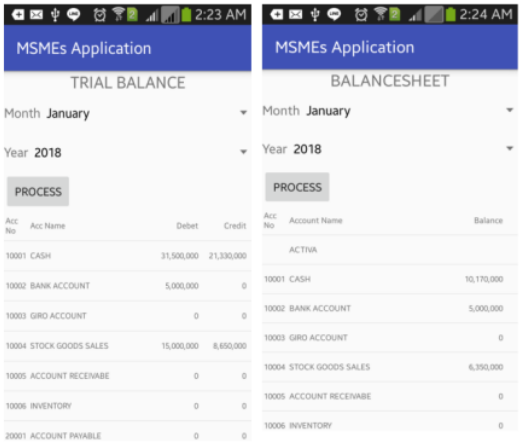
(a) (b)

Fig 10. (a) Main Menu Transaction and (b)Main Menu Report



(a) (b)

Fig 11 . (a) General Journal Form and (b)General Ledger Report



(a) (b)

Fig 12. (a)Trial Balance Report and (b) Balancesheet Report

IV. CONCLUSION

Mobile Finance Application for Micro Small Medium Enterprises has 2 main actors, namely Administrators and Users. The administrator can manage company profiles, users and chart of account settings. User actors can make transactions in journals. Transaction journals in this application are grouped into two group. First group was journal transactions by choosing the account involved. Second, automatic journal transactions are generated by the system. Automatic journal transaction consists of Revenue Transaction and Expense (purchase) transactions. The reports generated in this application are general ledger, trial balance, balance sheet and profit loss report.

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