Web Application To Monitor Logistics Distribution of Disaster Relief Using the CodeIgniter Framework

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I. Introduction

Disaster is an event or series of events that threaten and disrupt the life and livelihood of the community caused either by natural factors and / or non-natural factors as well as human factors resulting in the occurrence of human casualties, environmental damage, property loss, and psychological effects [1]. Disaster management is the responsibility of the central government and local governments. The principles of disaster management, among others, are quick and precise, priorities, coordination and cohesion, efficient and effective manner. Help that is needed by most societies are logistical assistance, such as the assistance covers people's everyday needs, such as food, instant noodles, fast food, blankets, mattresses etc. Logistical assistance is needed for disaster management, especially in times of disasters. The support of logistical assistance must be timely, to the right location, target, quality, quantity, and needs. The purpose of this study is to make a web application to monitor logistics distribution of disaster relief using CodeIgniter framework. Through this application, the mechanisms of aid delivery will be easily controlled from and heading to the disaster site.

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ABSTRACT

Disaster management is the responsibility of the central government and local governments. The principles of disaster management, among others, are quick and precise, priorities, coordination and cohesion, efficient and effective manner. Help that is needed by most societies are logistical assistance, such as the assistance covers people's everyday needs, such as food, instant noodles, fast food, blankets, mattresses etc. Logistical assistance is needed for disaster management, especially in times of disasters. The support of logistical assistance must be timely, to the right location, target, quality, quantity, and needs. The purpose of this study is to make a web application to monitor logistics distribution of disaster relief using CodeIgniter framework. Through this application, the mechanisms of aid delivery will be easily controlled from and heading to the disaster site.

Keywords: Application Disaster Monitoring Web Framework

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Lucky Feliciano Waha in his research argued that the lack of disaster-related information that occurred cause the process of distributing aid to the community is not on target[5].

Nicky Nia Gustriani in her research argued that the success of government in tackling the disaster that occurs depends on how the implementation of disaster management system information. Because to make the right decision, the government needs fast and accurate data shortly after the disaster occurred.[6]

The mechanism of aid distribution that has occurred so far has not been fully organized. As reported in the electronic media news.okezone.com “hundreds of refugees victims of eruption of Mount Gamalama, Ternate, North Maluku, rampage. They protested because they did not get the distribution of food, drink and medicine aid by the authorities that handle the refugee issues. This can occur due to weak management of aid distribution during upnormal conditions. Upnormal conditions and the needs of the community that is immediately fulfilled make the procedure request for assistance cannot run smoothly.

The hierarchical procedure demands a process that should be able to run quickly but become a bit slow because the upnormal condition. Therefore, the procedures that can be processed quickly, accurately, can be accounted for and ensure that public services relating to the management of mechanisms of aid distribution can be channeled well and well targeted is required. One the ways is to develop a monitoring application of logistics assistance distribution web-based with the concept of framework.

A simple framework can be defined as a collection of functions / procedures and classes for a particular purpose that is ready to be used so as to simplify and speed up a programmer's work, without having to create a function or class from the beginning [7].

One of the concepts adopted by the framework is MVC (Model, View, Controller). MVC separates application development based on major components that develop an application such as data manipulation, user interface, and parts that become application controls.

Based on the description of existing problems, then in this research the researcher will make a Monitoring Application of Disaster Logistics Aid Distribution using codeigniter framework. It is expected that this research will be able to assist the community and also related offices in distributing and monitoring logistic support from and to disaster location more quickly and on target.

II. Research and Method

One of the method used in this research is waterfall model. It is called linear sequential model or software life sequence sequentially or sorted starting from analysis, design, coding, testing, and maintenance [8]. There are 5 stages: needs analysis, system design, programming stage, implementation and evaluation.

The first stage is the analysis of system requirement phase. The requirements are divided into 2 ie functional and non-functional requirements. Functional requirements include user-level sharing and the classification of system capability such as logistics requests and logistics approvals. Non-functional requirements include devices that support the application.

The second stage is the system design. System design includes interface design and the design of program workflow. The focus at this stage is the creation of interface design that facilitates users in using the system.

The third stage in this research is the programming stage. At this stage, the process of translation of the system workflow into the PHP programming language into the codeigniter framework is conducted.

The fourth stage in the development of this system is the implementation stage. Here, the implementation stage is at the level of testing according to the needs of existing systems in the monitoring application of distribution of logistics aid for disaster. From this stage, it can be known whether the results shown by the tool is in accordance with the initial plan so that in this stage the researcher can simultaneously run the evaluation phase.
III. Results and Discussion
The system design aims to find the optimal form of the system that will be developed by considering the problems and needs. This application is designed on PHP programming by using codeigniter framework. In testing this application, it runs on localhost with local server XAMPP 1.6.7

A. Data flow Diagram
- Data Flow Diagram Level 0

DFD Level 0, describes the system globally, contains only one system process that is connected to two entities which aims to provide an overview to the analyst systems and program maker about the input into a process that finally produce an output. As for DFD level 0 designs the monitoring application of logistics distribution of disaster relief can be seen in figure 1.

![Figure 1. DFD Level 0 Monitoring Application of Logistics Distribution Of Disaster Relief](image)

b. Flowchart Design
The flow of flowchart system design is very important in making a computer program. There are several ways to implement a program, one of them is by using flowchart.

![Figure 2 Flowchart System](image)

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c. Database Design

Database design is a series of specific statements that relate to various data processing, such as data objects that will be processed by the system, the composition of each data object and attributes that describe and how the relationship between each data object [9].

d. Menu Structure Design

The menu structure for the admin is described in Figure 4. The admin manages the system user and its permissions with multiple menus. The menu consists of Webadmin (manage the user), Menu Manage, News, Village/Subdistrict, District/City, Help, Logistics and Logout.

e. Implementation System

- Login User Page

When a user enters the system, the user is confronted with a display of system index of the login page. On the login page, the user is asked to enter a username and password. This page acts as the verification for the incoming user. This login system also has permissions automation based on the user level who login to the page.

- Administration Page

The administrator page is a form of page used to manage all the existing data in the monitoring application of disaster relief distribution.

- Page for Help Approval

The page to input the help approval is a page form used to see the approval process for help.

IV. Conclusion

Based on the tests that are conducted on the application, it can be concluded that the monitoring application of logistic distribution of disaster relief is designed with codeigniter framework that can help the process of disaster data management and the distribution of disaster relief to the destination location can be monitored and managed properly. This system is ready to be implemented in BPBD of North Maluku Province and Social Service of North Maluku Province.

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References


