

Design of E-office system in vocational school Diponegoro University using code igniter framework

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Submission date: 13-Dec-2020 10:38AM (UTC+0700)

Submission ID: 1473461019

File name: Subari_2020_IOP_Conf._Ser.__Mater._Sci._Eng._801_012141.pdf (661.71K)

Word count: 2122

Character count: 11666

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To cite this article: A Subari *et al* 2020 *IOP Conf. Ser.: Mater. Sci. Eng.* **801** 012141View the [article online](#) for updates and enhancements.

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Design of E-office system in vocational school Diponegoro University using code igniter framework

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Abstract. E-Office is an administrative and centralized component of the organization where data, information and communication are stored and disseminated through several forms of telecommunications. The main advantage of the E-Office system is that it can reduce paper usage. The other advantages are centralized data store, quickly data access, accurately and real time using the internet network and can make reports quickly based on existing data. With all the advantages of E-Office system, Vocational School of Diponegoro University is committed to using its services, especially in the process of managing correspondence documents. It is necessary to design and create an application based on E-Office that is used at Vocational School of Diponegoro University. This research is intended to build an application or information system based on E-Office system to handle the management of correspondence documents at the Vocational School of Diponegoro University by utilizing web-based applications. Information system design uses MVC concept on code igniter framework. With E-Office system, management of correspondence documents can be done more quickly and can be done anywhere. The impact is that service time for stakeholders is becoming faster.

1. Introduction

The concept of E-Government emerged as various forms of transformation of conventional business processes into the process of automation in the field of public services [1]. E-government is defined as a way for governments to use the most innovative information and communication technology, especially web-based internet applications, to provide access to information and services to citizens and businesses better, to improve service quality and to provide greater opportunities to participate in democratic institutions and processes [2].

There is a service called E-Office in E-Government, which is used to support office activities especially administration activities [1]. E-Office is an administrative and centralized component of an organization where data, information, and communication are stored and disseminated through several forms of telecommunications [3][4]. The advantages of the E-Office system are data stored centrally, can access data quickly, accurately and real time using the internet network and can make reports quickly based on existing data. In addition, one of the main advantages of the E-Office system is that it can reduce paper usage.

With all the advantages possessed by the E-Office system that makes Vocational School of Diponegoro University committed to using its services, especially in the process of managing correspondence documents. Thus, it is necessary to design and make an E-Office based application used for the process at Vocational School of Diponegoro University.

This research is intended to build an application or information system based on the E-Office system to handle the management of correspondence documents at Vocational School of Diponegoro

University using web-based applications. The design of the information system uses code igniter framework as a framework that is quite popular and easy to customize.

2. E-Government and E-Office

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E-government is the use of information technology by the government to provide information and services to its citizens, business affairs, and other matters relating to government. The most expected advantage of e-government is an increase in efficiency, comfort, and accessibility that is better than public services[1].

E-office is a term created to cover the increasing use of information technology-based computers for office work. The introduction of e-office increases the accuracy and efficiency of organizations and thus increases their service levels, while theoretically reducing costs and drastically reducing paper consumption [1].

3. Model-view-controller (MVC Architecture)

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MVC concept introduced by the inventor of Smalltalk (TrygveReenskaug) that divide code into three layers [2] i.e. model, view and controller. The main idea is divides our code into functions in different classes. Model use to encapsulate data along with processing, controller use to save the process and view to be represented on a user interface [3]. As a result, an application model component is easier to implement, test, and maintain, as all access to the model runs through this component [4]. The main advantage in this approach is the reusability of the code[5][6]. Figure 1 illustrates basic relationship between Model-View-Controller [7].

A. Model

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Model is used to manage information and notify observers when there is a change in information[7][8]. Only models that contain data and functions related to data processing.

B. View

View is responsible for mapping graphics to a device. View usually has a 1-1 connection with a screen surface and knows how to make it. View is attached to Model and renders its contents to the surface of the screen. In addition, when Model changes, View automatically redraws the affected part of the screen to show the change[7][8].

C. Controller

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Controller receives input from the user and instructs Model and View to take action based on that input. So, Controller is responsible for mapping end-user actions to application responses. For example, when a user clicks on a button or selects a menu item, Controller is responsible for determining how the application should respond[7][8].

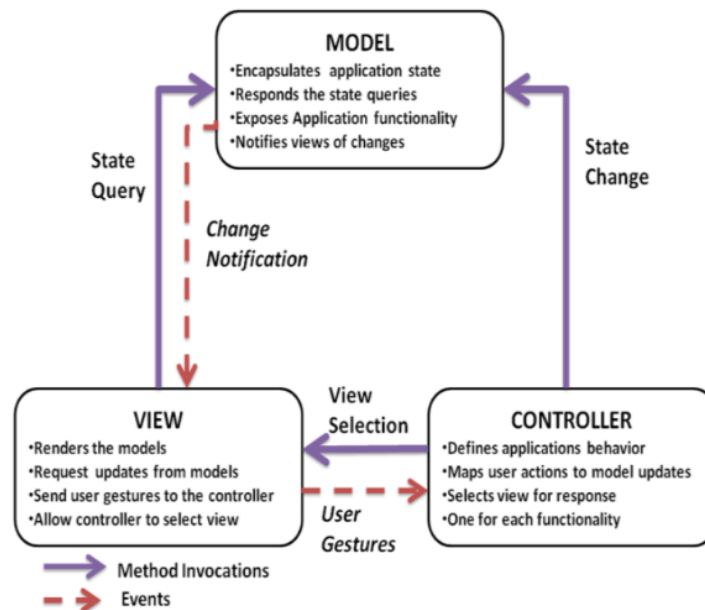


Figure 1. Relationship between Model-View-Controller.

14 4. Code igniter

Code igniter is framework that is used to build dynamic PHP applications [6]. That is an open source web application. Code igniter is built using the concept of Model-View-Controller (MVC) development pattern [6]. The browser interacts through Controller. Controller will receive and reply to all requests from the browser. When Controller needs data, it will ask to Model. As for the view to the user will be handled by View. So, the brain of the application is in Controller, the advance application is in viewed a data is in Model.

5. Experimental Results

5.1 Database design

In an application, Database is useful for managing the existence of data needed by the application. Settings include storing, updating, deleting and managing data access by the user [9]. Data is stored in predetermined tables. In this system, some tables were made used to store data on the system. There are t_admin, t_letter_in and t_disposition.

5.2 Software design

Software design of E-Office system shown on Figure 2. There are two group on information system, operator and official group. Operator group can entry, view, update a document and view disposition and then official group only can view document, make and view disposition. Both user need login to access e-office information system.

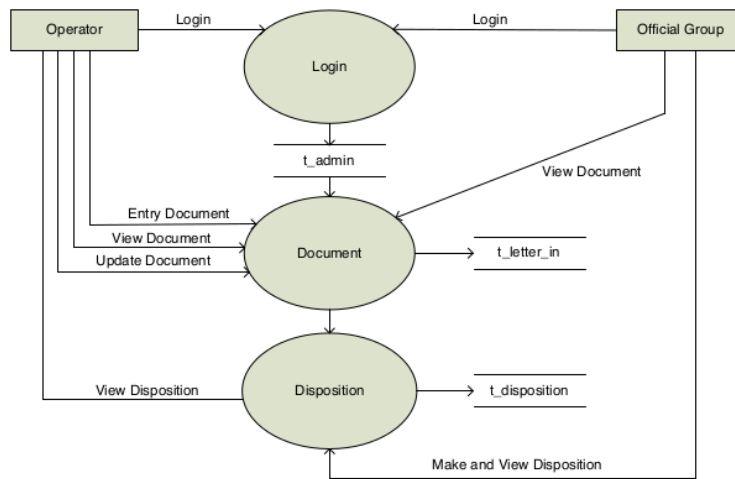


Figure 2. Software design of E-Office system.

Flowchart of the system shown on Figure 3. Process starts with the operator receiving the letter. Then the operator will scan the letter and enter it into the system along with the letter data, including to whom the letter is addressed, from whom the letter, letter number, date of the letter and a brief description of the letter. The next process follows the flow diagram.

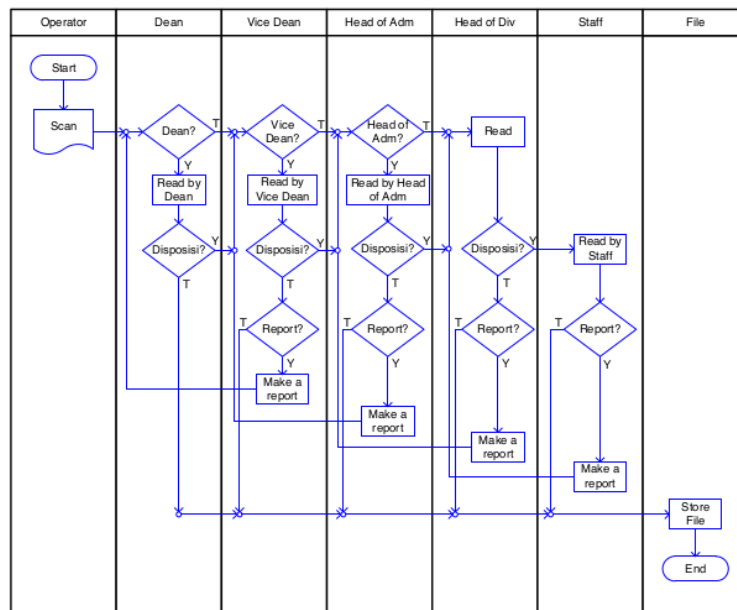


Figure 3. Flowchart of the system.

5.3 *Interface design and result page*

Interface design is one of the important steps in application development. The main purpose of interface design is to build a user friendly interface for users, but still provide the function as desired[10]. Interface design for the main page of the system shown on Figure 4,5 and 6.

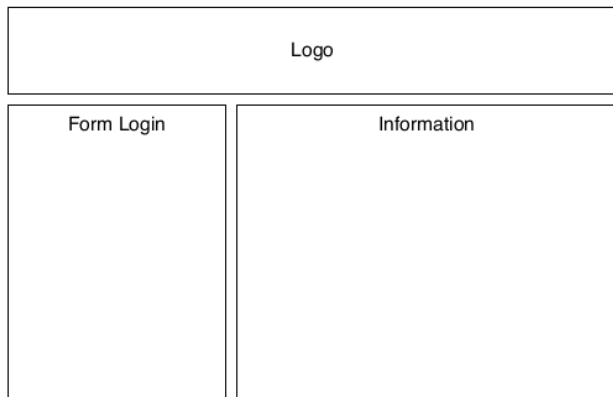


Figure 4. Interface design of login page.

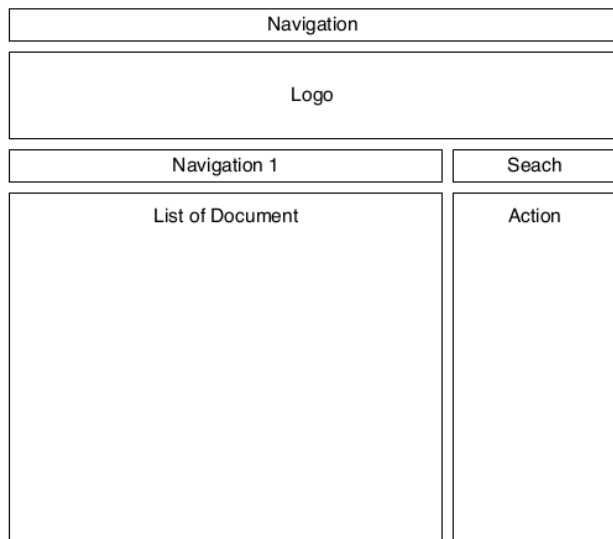


Figure 5. Interface design of document page.

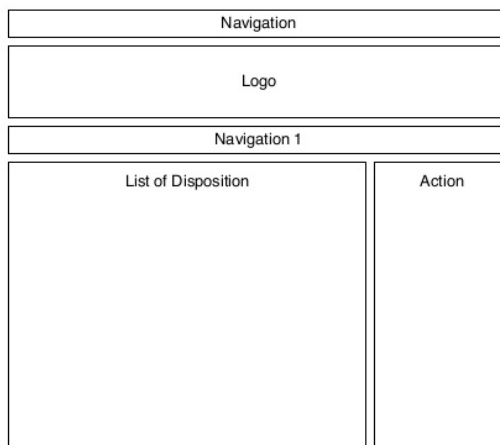


Figure 6. Interface design of disposition page.

Figure 7 shown the result page of document list. The page shows some letter data, including to whom the letter is addressed, from whom the letter, letter number, date of the letter and a brief description of the letter.

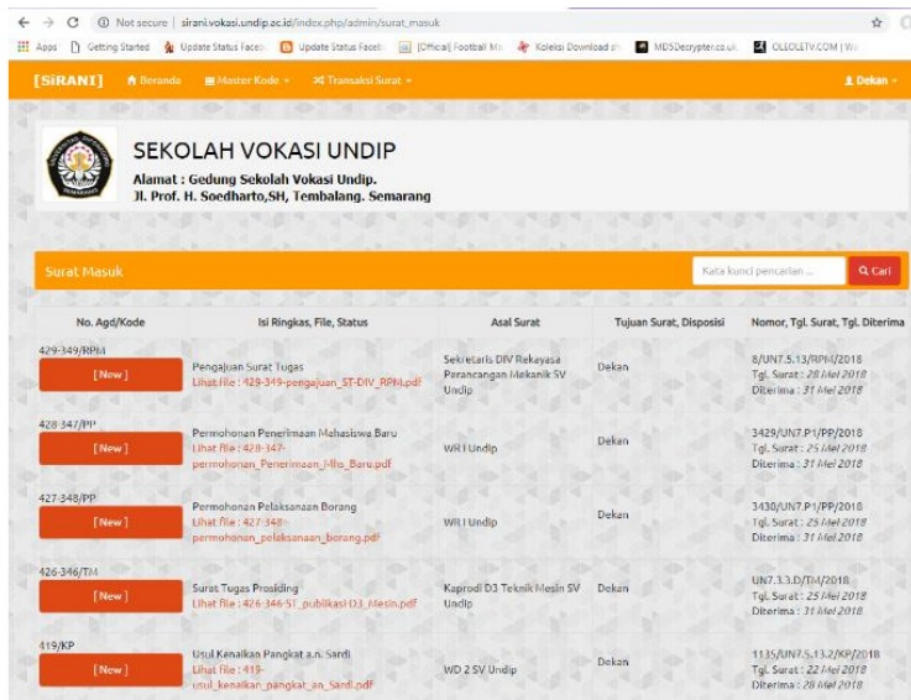


Figure 7. Result page.

5.4 Functional testing

Functional testing is done to test whether the functions in the system work accordingly. Table 1 shows the results of tests performed on the functions contained in this e-office system.

Table 1. Result of functional testing.

No	Function Tested	Testing Form	Expected Result	Result
1	Login page	Open login page	Login page viewed	Done
		Entry username and password	Data entered save on form	Done
		Username and password verification	If verified, the application's front page is displayed according to access rights. If not verified, the login page will appear again	Done
2	Incoming document page	Select incoming document menu	The list of incoming document is accompanied by the attributes and status of the letter displayed	Done
3	Disposition page	Select disposition menu	Disposition data of the intended letter is displayed along with the attributes and features that accompany it	Done

6. Conclusion

The e-office system application is several user groups, namely deans, vice deans, section heads, sub-section heads and operators. Each group of users has access rights according to what has been set. Application testing shows that all functions contained in this application can work as expected. By using e-office, managing incoming mail documents can be done online anywhere using the internet network. Thus, the use of physical documents can be reduced, so that paper use can also be reduced.

Acknowledgments

This work was supported in part by Electrical Engineering of Vocational School of Diponegoro University.

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