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The Use of PowerApps to Design Archive Management for Internal Quality Standard Audit in Quality Control Group (GKM) of Department of Agricultural Product Technology, Faculty of Agricultural Technology, Andalas University

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ABSTRACT
PowerApps is a low-code platform from Microsoft that enable user to create a simple mobile application for business use. Here, we tried to design an application named SiData THP to manage evidences for internal quality standard audit on Department of Agricultural Product Technology, Faculty of Agricultural Technology, Andalas University. The application contains six menus which record several data ranging from data of new students, student body, graduates, human resources, lecturer publications and student/ lecturer achievements. The result shown that SiData THP is successfully created.

Keywords: *PowerApps, Data Management, Mobile Application, Internal Audit, Education Quality*

1. INTRODUCTION

Quality of higher education is conformity to National Higher Education Standard and University Standard. The process is done systematically, well planned and sustainably. Evaluation is one of the steps that played an important role. Its objective is to control and increase quality. The process is done through internal quality audit. Records of actual activities are needed as an evidence or object of evaluation [1]. Archive in higher education institution is an evidence of policies, decisions, procedures, activities and others that correspond to it. Archive helps organization to act effectively in activity such as an audit [2].

Department of Agricultural Product Technology has a quality assurance unit named Gugus Kendali Mutu (GKM). GKM helps head of department to prepare and evaluate academic and non-academic activities. During internal audit, GKM helps head of department to prepare the document of quality standard and involve in the meeting with the auditor.

Evidence collection involved several staffs from lecturer, administration officers, and faculty staffs. The documents collected are in paper form in each of the staff folders. This affecting the collecting time since it has to be done manually. Paper form made it inefficient in saving and collecting due to its volume. It is also prone to deterioration. Thus, electronic archive is more preferable for now.

Electronic based Archive Management is supported by government of Indonesia through regulations such as President instruction (Instruksi Presiden Nomor 3 Tahun 2003) about National Policy and Strategy of E-Government Building, and Indonesia Law (Undang-Undang Nomor 43 Tahun 2009) about archives. To increase speed of access and archive sustainability are the aim of electronic archive based on the rules [3].
Electronic archive has a different cycle than paper based

archive. Process of creation and storage of electronic archive is done in a single step and so the distribution and keeping. Archive keeping is the next most important step. There is a potential to deteriorate due to hardware problem or saving instability. [4]. One of the option is to use cloud storage. Cloud storage is an integrated storage service, synchronized through internet and accessible for use in various platform such as iOS, Windows, Windows Mobile, Android, Linux, etc. Cloud storage is easy to access, integrate and share. [5].

Enabling mobile based application to record the data is one of the possible option in providing the data for internal audit. This application has to support easy access, integration and sharing, and also cloud-based storage. Thus, the application has to be made based of the GKM needs. One of the platforms to create basic application is PowerApps by Microsoft. PowerApps is a web based service to build mobile application. The application created is compatible to most of devices and work fine in cellular phone and tablet. The application is connected online with source of data including details and editing page. Such application commonly used to facilitate business activity [6].

Applications designed using PowerApps provide rich business logic and workflow capabilities that can transform manual processes into digital and automated processes. The application design is responsive, can run well on browsers and mobile devices. PowerApps can help in designing custom applications without writing code [6].

The key characteristic of PowerApps is the use of the cloud. This tool can access data from OneDrive, Dropbox, Salesforce, Dynamic 365 and other cloud service providers. Another feature is that it is easy to operate. PowerApps has a lot in common with Microsoft Office. This includes the visual design and use of Excel logic and formulas for [6].

This research objective is to build the data management system in GKM named SiData THP that minimize the time and source to collect data prior internal audit.

2. METHODS

Materials used are hardware (notebook and cellular phone) and software (Windows365). The research is done in three steps.

1. Collecting Data
   Data collections were done by literature study and observation.
2. Designing Application
   The application were done by Rapid Application Development (RAD) based on [7]

3. RESULTS AND DISCUSSION

3.1. Collecting Data

The result was list of data needed and actors that have it in hand (Table 1). The list was defined based on internal audit manual and source of evidence.

3.2. Designing Application

Designing application consist of actors identification. The result of identification is in Table 2. Use Case Identification is in Table 3. While the result of defining Use Case Scenario is in Table 4. The Interface Design of Main Page, Sub Main Page, Details Page and Edit page are in Figure 1 to Figure 5, subsequently.

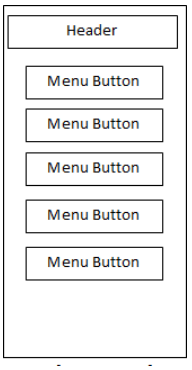

Figure 1 Interface Design of Main Page

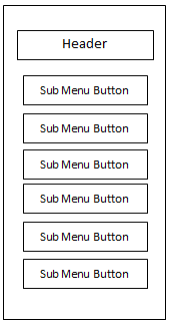

Figure 2 Interface Design of Sub Menu Page

Table 1. List of Data needed and actors

No	Standard of Evaluation	Styles	Actors
1	Student	Total of New Student	Faculty Staff
2		Total of Active Student	Faculty Staff
3		Means GPA	Faculty Staff
4	Extracurricular	Academic Achievements of Students	Student Organization Supervisor
5		Non Academic Achievements of Students	Student Organization Supervisor
6	Graduates	Total of Dropped Out Student	Faculty Staff
7		Total of Resigned Student	Faculty Staff
8		total of Transferred Student	Faculty Staff
9		Total of Unregistered Student	Faculty Staff
10		Means GPA	Faculty Staff
11		Total of Graduates on time	Faculty Staff
12		Average of Waiting Time for Job	Faculty Staff
13		Graduate Field of Work Suitability	Faculty Staff
14		Profile of Graduates Workplace	Department Staff
15	Human Resources	Trainings or Seminars held by Department	Department Staff
16	Academic Condition	Guest Lectures	Department Staff
17		Department acknowledgement of Lecturer Achievement	Department Staff
18		Department Acknowledgement of Lecturer Achievement	Department Staff
19	Research	Research Scheme	Lecturer
20		Research Funding	Lecturer
21		Research Output	Lecturer
22		Article Citation	Lecturer

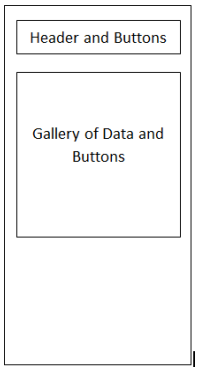

Figure 3 Interface Design of Gallery of Data

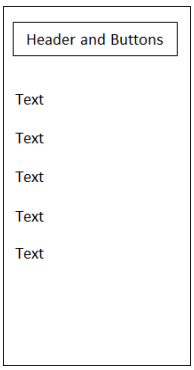

Figure 4 Interface Design of Details Page

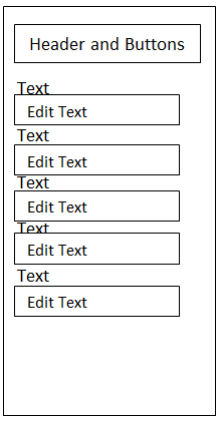

Figure 5 Interface Design of Edit Page

Table 2. Identification of Actors

No	Actors	Details
1	Admin	Users are able to manage all features and retrieve user-entered data in Microsoft Excel
2	User	A faculty staff, a department staff and lecturers. Users can enter, edit, and delete data

Table 3. Identification of UseCase

No	Styles	Shortcuts
1	Data	To see all data, able to add, edit and delete data

Table 4. UseCase Scenario

Use Case Name : Manage Data	
Scenario	
Actors Action	System Reaction
1. The user selects the menu	
	2. Displays the sub menu page
3. The user selects the sub menu	
	4. Displays the data gallery page
5. The user selects the data	
	6.Displays the detail page
7. The user selects the pen icon	
	8. Displays the edit page
9. The user selects the tick icon	
	10. Displays the data gallery page
11. The user selects garbage bin	
	12. Delete the Data and Displays the data gallery page

PowerApps is basically coded by functions as Microsoft Excel. List of functions used for designing SiData THP is in Table 5.

After logging in into PowerApps mobile application with institutional email, users are able to choose SiData THP on the list of application. By choosing SiData THP, users connected directly into Main Page as in Figure 6.

Table 5. Identification of UseCase

Page	Details	Functions
Menu	BrowseGallery-Items	SortByColumns(Search([@Jlhmhs]; TextSearchBox5.Text; "Tahun"); "Tahun"; If(SortDescending1; Descending; Ascending))
	BrowseGallery-OnSelect	Navigate('detail jlh mhs';ScreenTransition.None)
	Right Arrow Icon- OnSelect	EditForm(EditForm5);; Navigate('detail calon mhs'; ScreenTransition.None)
	Refresh Icon-OnSelect	Refresh(Jlhmhs)
	Sort Icon- OnSelect	UpdateContext({SortDescending1: !SortDescending1})
	Plus (+) Icon-OnSelect	NewForm(EditForm6);;Navigate('jumlah mahasiswa'; ScreenTransition.None)
Detail	Detailform-Item	BrowseGallery5.Selected
	Circled arrow Icon – OnSelect	Navigate('galeri calon mahasiswa';ScreenTransition.None)
	Garbage Bin Icon –OnSelect	Remove([@calonmahasiswa]; BrowseGallery4.Selected);; If (IsEmpty(Errors([@calonmahasiswa]; BrowseGallery4.Selected)); Back())
	Pen Icon – OnSelect	NewForm(EditForm6);;Navigate('jumlah mahasiswa'; ScreenTransition.None)
Edit	Editform-Item	BrowseGallery4.Selected
	X Icon -OnSelect	ResetForm(EditForm5);;Back()
	V Icon - OnSelect	SubmitForm(EditForm5);;Navigate('galeri calon mahasiswa';ScreenTransition.None)

Note : underlined part is the name of the corresponded document

Implementation result is shown in Figure 6 to Figure 10.

Figure 6 Main Page View

After logging in into PowerApps mobile application with institutional email, users are able to choose SiData THP on the list of application. By choosing SiData THP, users connected directly into Main Page as in Figure 6.

Figure 7 Sub Menu Page View

Users are able to choose any submenu that displayed on Main menu as in Figure 7.

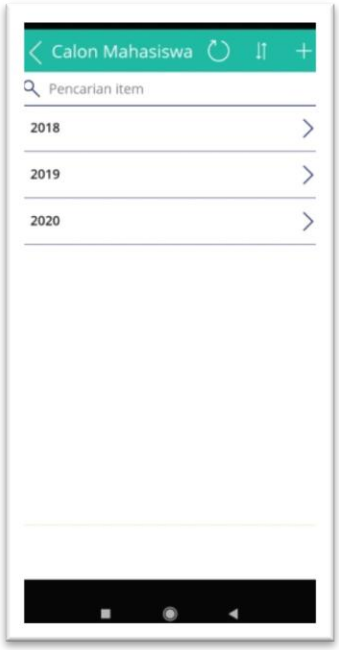

Figure 8 Data Gallery Page View

Collections of data were displayed on gallery format as in Figure 8. The gallery was equipped with search tab and refresh icon.

Figure 9 Details Page View

Users can view details of correspond data in Detail Page as in Figure 9.

Figure 10 Edit Page View

In detail page, users can order deletion or editing of the information by clicking garbage bin icon or pen icon. For editing, users will connected to edit page as in Figure 10. The result of testing is in Table 6.

The application strengths are:

1. SiData THP was made specifically for archive management in corresponded study program, and created with low-code by user.
2. The application also easy to use by cellular phone and only need to log in to institutional email of user. Prior use, administrator will add those email to gain permission.
3. SiData THP record list of documents for internal audit use. Data in the application were extracted from cloud in Microsoft Excel.
4. Every user is permitted to input data without the need to collect hardcopy of evidence and offline meeting. Thus, it is reducing space and cost to gain evidence for audit. The disadvantages of this application are

The application weaknesses are there are no restrictions on the function of each actor in editing data. Users who can access SiData THP only those who have institutional email accounts, while some actors were temporary workers.

Table 6. Result of Testing

No	Step of Testing	Expected Results	Test Results	Application Responses
1	User Selects the main menu	Displaying the details of the next menu	Application Displays the details of the next menu	Success
2	User select arrow icon	Displaying the chosen details page	Application Displaying the chosen details page	Success
3	The user selects the circle icon	Refreshing gallery page	Application Refreshing gallery page	Success
4	The user selects the up and down arrow icon	Sorting data based on chronological order	Sorting data based on chronological order	Success
5	User selects plus icon	Displaying new form page	Displaying new form page	Success
6	User selects pen icon	Displaying edit page	Displaying edit page	Success
7	User selects garbage bin icon	Deleting the chosen details page	Deleting the chosen details page	Success
8	User selects tick icon	Saving data	Saving data	Success
9	User selects cross icon	Displaying previous page	Displaying previous page	Success
10	User selects house icon	Displaying main menu	Displaying main menu	Success

4. CONCLUSION

Based on the results, it can be concluded that the use of the PowerApps platform has successfully created an application of archive management for internal quality audit needed in the department of Agricultural Product Technology . By using the application, collecting data from multiple actors in short amount of time and resources is possible.

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ACKNOWLEDGMENTS

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