

ANDROID-BASED AIRSIDE FACILITY CHECKLIST APPLICATION USING SMARTPHONES AT UMBU MEHANG KUNDA WAINGAPU

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ABSTRACT

Umbu Meheng Kunda Airport Waingapu is an airport located in East Nusa Tenggara Province. This research is the creation of a prototype application to conduct an airside facility inspection checklist. Prototype application is a system development process to create new systems, as well as improve or develop existing systems either in whole or in part. With the creation of an android-based air side facility inspection checklist application which will be able to report inspection results quickly and efficiently and increase maximum security and service through smartphones, which previously used handwriting to archive the results of air side facility inspections. It is expected that when the aircraft moves, the runway, taxiway, and apron conditions are clear or free of FOD (Foreign Object Debris). Airside facility checklist inspection guide in accordance with KP 94 Year 2015 regulation. The research method used in making this application is a prototype method. Prototype can be said to be the initial form or model of a system or device that can later be developed in the future by explaining the concept and appearance of the application. Based on this research, the results obtained in the form of an application to facilitate the inspection checklist of air side facilities using a smartphone, and can facilitate data collection because after the file has been uploaded using the air side facility inspection checklist application in the form of a pdf document.

Keywords: *Inspection, App, Android, Airside Facility, Prototype*

INTRODUCTION

In the On the Job Training activity, Umbu Meheng Kunda Airport has carried out routine inspections every day. Until now, the notification of inspection results still uses a checklist system for manual inspection or inspection of airport facilities with photos sent to the runway construction team and manually written on checklist sample paper. In this manual checklist, its use has some disadvantages, such as paper damage when writing, wetness when writing, and handwriting that is difficult to read.

This is a manual method in the digital age, not accurate and fast due to increasing competition and complexity. You need communication tools and technologies that can quickly communicate the results of inspections or routine inspections, especially off-airport facilities. Developing an Android-based aircraft checklist application is one of the cool ways in this digital era.

This encourages optimization by developing an Android-based airport daily checklist application. In addition to racing with regulations, the development of

this application is also carried out based on current regulations, especially KP 220 Year 2017 concerning technical guidelines for civil aviation safety regulations The use of article 139-01, Certification and Registration and Airport Operations Security Supervision (Staff Instruction 139-01). Designing a checklist application with features that can facilitate the work of supervisors while supporting monitoring activities. Android is the most widely used operating system by smartphone users today.

METHOD

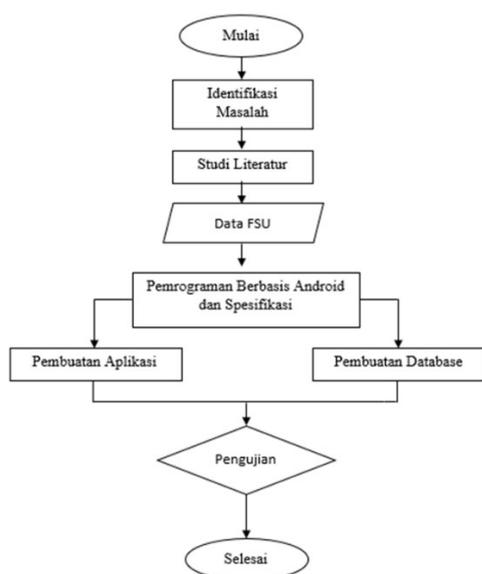


Figure 1 Reaserch flow chart

The development of this application uses a prototype or evolutionary development procedure based on the idea of developing an initial implementation, then showing the early system to users for comment, and improving it until the desired system is obtained. This procedure can share a complete reflection of the application that has been created, the form of development, and the user experience.

The routine inspection checklist for airside facilities at Umu Mehang Kunda Airport in Waingapu still uses a manual checklist. This use still does not take advantage of the growing technology and from some manual checklist results there are some inspection results that are lost tucked away or damaged due to wetness and so on. So an inspection checklist media is needed that can solve several problems and can make the implementation of routine inspections easier, more effective, faster and more practical when used.

Data Collection

The design of the airside facility checklist application at Umu Mehang Kunda Airport Waingapu, has data. Includes the following:

1. *Manual inspection data form*
2. *Basic rules of inspection*

RESULTS AND DISCUSSION

In this research will explain that what is done in this application is:

1. *This Android-based Happy checklist application is useful to facilitate users in conducting routine inspections of airside facilities.*
2. *This application consists of user and admin.*

3. *This app can connect the camera on a smartphone to take pictures of damage and repairs.*
4. *There are 4 user menus in this application that are adjusted to the manual checklist and 3 menus for the admin.*

APP VIEW

1. *User login page*

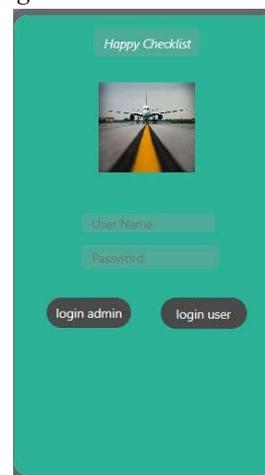


Figure 2 User Login Page

The login page functions for application security, each user has an account to log in, user accounts can be created according to employee needs. User menu page

2. *User menu page*



Figure 3 User menu page

The user menu page is the page to specify what you want to do, such as checking inspection inputs, performing checklist reports, viewing history, and logging out.

3. Employee profile page

Figure 4 Employee profile page

The user profile page serves to display user information which includes user name, gender, and NIP to show user identity.

4. Checklist page

Figure 5 Checklist page

In the picture above is a view of the routine inspection checklist form for the Uumbu Meheng Kunda Waingapu airport picket officer. When one of the options on the display is clicked, it will change color to green and be given a description of the local conditions and given a description command to provide a detailed explanation.

5. Final checklist page

Figure 6 Final checklist page

In the picture above is a view of the routine inspection checklist form for the Uumbu Meheng Kunda Waingapu airport picket officer. When one of the options on the display is clicked, it will change color to green and be given a description of the local conditions and given a description command to provide a detailed explanation.

6. User history page

Figure 7 User history page

In the picture above there is a user history display after taking a test or daily checklist to see the daily test results and on the history page there is an edit view after clicking upload documents to make it easier when an error occurs during data entry or when working on a checklist.

7. Admin login page

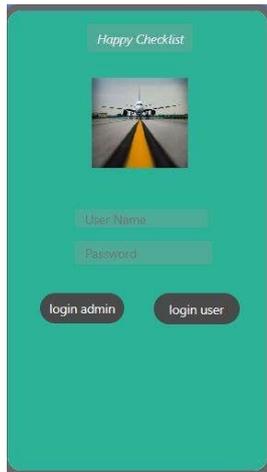


Figure 8 Admin login page

The admin login page functions for application security, each admin has an account to log in for an admin account there is only 1 account to be better controlled by the person in charge or the head of the unit related to air side facilities.

8. Admin menu page

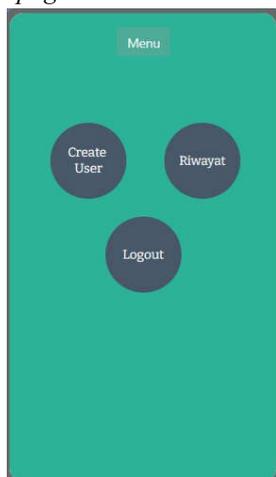


Figure 9 Admin menu page

The admin menu page is a page to determine what you want to do such as creating an account for the user, viewing the results of user input in filling out the daily checklist, and logging out of the account.

9. Create user page

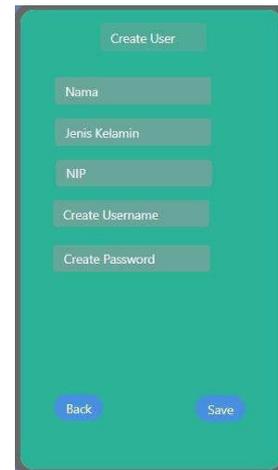


Figure 10 Create user page

In the picture above is a display of create user to create a user account because it makes it easier for the admin to check the inspection results and is more controlled by the admin if something goes wrong.

10. Admin history page

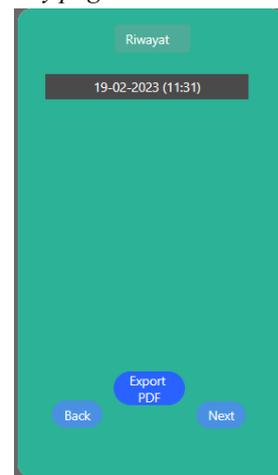


Figure 11 Admin history page

In the picture above there is a history view from the admin after conducting inspections or daily inspection checklists to see the results of daily inspections and in the admin history there is an export to pdf to print the results of inspections carried out by user accounts. For the admin history display, there is no command to edit the report results because the task of the admin himself is only to extract to pdf and enter it into the air side facility report archive.

11. Example of output results from the airside facility inspection checklist

NO	Area	Kondisi										Informasi
		Permukaan		Marka & Rambu		FOD		Rubber Deposit		Water Ponding		
		S	US	S	US	CLR	UNCLR	CLR	UNCLR	CLR	UNCLR	
1	Runway											Baik
2	Taxiway											Baik
3	Apron											Baik
4	Shoulder											Baik
5	Pagar											Baik
6	Drainase											Baik
7	Obstacle											Baik
8	Wildlife Hazard											Baik

Figure 12 Example of output results from the airside facility inspection checklist

The picture above is the result of the daily checklist input of airside facilities for green indicates clear and red indicates unclear or there is damage.

CONCLUSION

To design an airside facility checklist application is to collect the shortcomings of the manual checklist and create the advantages of making an airside facility checklist application. By collecting the data needed to create an application with an application creation website and manual checklist form. Display equations should be flush left and numbered consecutively, with equation numbers in parentheses and flush right. First, use the equation editor to create the equation. Then, select the equation, and set the "Equation" Style. Press the tab key and type the equation number in parentheses.

To design and build a database in making applications is to use firebase by connecting firebase apikey to thinkable with the help of making checklist forms using google spreadsheet.

ADVICE

This application still has shortcomings, so further refinement and development is needed so that this application can be good for the future. This application in general can be used, but for better performance results it is necessary:

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