APPLICATION FOR BOOKING HANDYMAN SERVICES USING WEBHOOK AND GOOGLE EVENT CALENDAR TECHNOLOGY

Rifqi Muhammad Nafis¹, Eko Budi Setiawan² ^{1,2} Program Studi Teknik Informatika, Universitas Komputer Indonesia Jl. Dipatiukur No. 112 Bandung, Jawa Barat 40132 E-mail : <u>rifkynafis07@gmail.com¹</u>, <u>eko@email.unikom.ac.id</u>²

ABSTRACT

Handyman services is a public service wich is a person who has expertise in a particular job, is also an activity and benefits offered by the service provider to the service user. There is no easy solution to the ordering process for handyman services that matches the expertise and demand required. Therefore we need a system in this case software to overcome these problems, there is an idea to build an Android-based application Jakang which is the most widely used mobile device. The Jakang application has a function to make it easier for service users to order handyman services according to their expertise and according to the required requests that will be recommended by the system. The technology used is webhook as an automatic notification before the work schedule, and also the google event calendar is used for the scheduling process, a recommendation system to give a handyman recommendation using a collaborative filtering method with the slope one algorithm, Jakang applications are built with an object oriented approach. The Jakang application that is built is expected to simplify the process of ordering craftsman services from service users to service providers that match their expertise and on demand, and is also expected to facilitate the scheduling process.

Keywords : Handyman Service, Jakang, Webhook, Google Event Calendar, Recommendation System, Collaborative Filtering, Slope One.

1. INTRODUCTION

1.1 Background

Handyman services is a public service which is an activity or benefit offered by a service provider to the service user [1].

The problem faced is still difficulties in the ordering process or making an appointment with a trusted handyman service in accordance with the request of the service user based on the skills, needs, and a predetermined schedule.

Based on the results of the questionnaire that was distributed to 30 respondents who used the service conducted on February 7, 2019, the average service user who uses the services of a handyman at a particular expert based on the nearest place of residence there are only 49.2% of respondents who believe in the professionalism of their work, also there are 81.7% of service user respondents have difficulty in making an appointment to order a handyman service as needed, according to expertise, and on schedule.

The need for technology that can help users who normally use the services of a handyman in ordering an artisan partner who can determine the schedule, and determine the handyman services according to the user's needs, so the authors intend to create a mobile application that can help handyman service users to order handyman services according to their needs, according to expertise, and according to Android-based schedules. Android was chosen because it is an operating system with an open source license so that it can be freely developed by everyone to support daily activities and work [2].

Based on the explanation of the problem above, this research was conducted to try to solve the problems of the handyman service users in ordering the handyman services as needed, according to expertise, and on schedule. With this application it is expected that service user problems can be solved.

1.2 Webhook

Webhook is an API concept that is very useful for applications because it provides other applications with real-time information. Webhook is also a URL link that is added to the application so that the data sent can be directly received at the same time as the URL link that has been determined. [3]. Webhook is different from the long polling method which requires that the desktop used to access the system must remain on [4].

1.3 Google Event Calendar

Google Event Calendar is a free calendar service provided by Google for its customers. A Google account owner can create calendars, create events and invite other people to the event. Google Event Calendar users are unlimited so it makes it more efficient. All application users who have calendar events can receive reminders. Also able to remind as a group. Google event calendar is an application in the form of a digital calendar that is useful as a scheduling and reminder system for its users [5]. Also supports several kinds of programming for developing applications based on calendars, such as Java, PHP, Python, Ruby [6].

1.4 Collaborative Filtering with Slope One

Recommendation system is a program that predicts an object, such as food recommendations, videos, books, news, etc., according to the desired topic. This system works by collecting data from users [7]. Collaborative filtering is a recommendation system method, proven to give good results [8]. The Slope One algorithm is one of the Collaborative Filtering techniques, which is based on ratings. This algorithm is also one algorithm that functions to make a recommendation system. Slope one provides predictive value based on previous search results that have been compared [9].

1.5 Purpose and Objectives

The purpose of this research is to build an application ordering service handyman using the webhook and google event calendar technology. The purpose of this research are:

- 1. Facilitate service users in determining the
 - handyman according to expertise and needs.
 - 2. Facilitate service users to make an appointment or make a schedule with a service provider.

1.6 Research Methods

The research framework to be conducted can be seen in the following image 1:



Image 1. Research frameworks

1.7 Software Development Method

The method used in making this software is the Waterfall model. The stages of the process can be seen in Figure 2 below [10].



Figure 2. Software Development Method

2. RESEARCH CONTENTS

2.1 Systems Architecture Analysis

System architecture analysis is designed to describe a system sending data requests and how the system sends responses to the requested data so it reaches the system user. Users use smartphone hardware as a medium to access applications. An overview of the system architecture that is being studied can be seen in the following figure 3:



Figure 3. System Architecture

2.2 Problem Analysis

Analysis of the problem needs to be done before designing the system with the aim of evaluating existing procedures, formulating the objectives to be achieved with the new system and preparing a system development plan.. Analysis of the problem can also make it easier to describe every problem that is in the running procedure. The results of the analysis of this problem can be used as a reference in designing the system to be built. The problems that occur in the process of ordering a handyman service partner are :

- 1. Difficulty of service users to get handyman service partners that match their expertise and needs. This is because service users order handyman services around the house who do not have the expertise in accordance with the project to be done so that the project being worked on is abandoned, but the wages must still be paid to the services of the handyman.
- 2. Service users and handyman service providers have difficulty determining the project work schedule. This is because the builders do not have a fixed schedule in their work so that the scheduling system encounters problems, therefore in the system built there will be a scheduling system using Google Event Calendar to try to solve the scheduling problem.

2.3 Analysis of the System

Analysis of the system built is a complete picture of the system to be built. Analysis of the system built in the construction of this application is as follows:



Figure 4. Analysis of the System

2.4 Technology Analysis

Technology analysis aims to describe what technologies will be implemented in a system that is being built. The following technologies are used in this study:

1. Webhook

Webhook in this study serves to push notifications on the application before the project works.



Figure 5. How Webhook Works

2. Google Event Calendar

This application also uses Google Event Calendar for the scheduling process to make it easy for service users and service providers in terms of the scheduling process.



Figure 6. Cara Kerja Google Event Calendar

2.5 Functional Requirements Analysis

Functional requirements analysis is a requirement that contains what processes should be provided by the system. Functional requirements analysis in the development of this application includes use case diagrams, use case scenarios, activity diagrams, class diagrams, and sequence diagrams.

2.5.1 Functional Requirements Specifications

explanation of functional requirements specifications in tabular form.

Table 1. Functional Requirements Specifications

SKPL Code	Functional Requirements				
	Specifications				
SKPL-F-001	The system provides registration				
	features for service users to access				
	the system.				
SKPL-F-002	The system provides a login				
	feature to enter the system.				
SKPL-F-003	The system provides features to				
	order handyman services and				
	scheduling using google event				
	calendar and webhook.				
SKPL-F-004	The system provides a feature of				
	choosing the artisan partner				
	recommendations using				
	collaborative filtering.				
SKPL-F-005	The system provides features to				
	see detailed profile of handyman				
	partners who have been				
	recommended.				
SKPL-F-006	The system provides features to				
	view service orders that have been				
	ordered by service users.				
SKPL-F-007	The system provides features to				
	give handyman partner ratings by				
	service users using collaborative				
	filtering methods.				

SKPL-F-008	The system provides profile				
	managing features for service				
	users				
SKDI E 000	The system provides profile				
SIXI L-1-009	aditing features for service users				
CKDL E 010	The state of service users.				
SKPL-F-010	The system provides profile				
	managing / job services features				
	for handyman.				
SKPL-F-011	The system provides features to				
	add expertise to service work for				
	handyman.				
SKPL-F-012	The system provides features to				
	add workdays for handyman.				
SKPL-F-013	The system provides profile				
	editing features for handyman.				
SKPL-F-014	The system provides features to				
	view service orders for handyman				
	that have been ordered by service				
	users				
SKPL-F-015	The system provides features				
	managing service orders for				
	handyman that have been ordered				
	hundyman that have been ordered				
SKDI E 016	The system provides a service				
5IXI L-1-010	history feature handyman so they				
	instory reature nandyman so they				
	can see what work has been done				
	by handyman.				

2.6 Use Case Diagram

Use cases provide a way to describe the external view of the system and its interactions with the outside world. Use case diagram for Jakang application :



Gambar 7. Use Case Diagram

2.7 Use Case Scenario

The use case has a scenario where each part of the use case shows what processes occur in each part of the use case. The user gives commands to each part and what response is given by the system to the user after the user gives commands to each part of the use case.

Table 2. Use Case Scenario Place an Order

Use Case Name	Place Order Services		
Related	-		
Requirements			
Goal Context	Service users can order		
	services and choose a		
	handyman partner.		

Preconditions	The s	ervice user has	
	successfully logged in and		
	entered the system.		
Successful End	The service user has		
Condition	successfully placed a service		
	order.		
Failed End	The service user failed to		
Condition	order	the service.	
Primary Actor	Service users		
Trigger	The service user selects the		
.00	type of service menu.		
Main Flow	Step	Action	
	1.	The service user	
		presses the project	
		button.	
	2.	The system displays	
		the project menu.	
	3.	The service user	
	0.	chooses the type of	
		service.	
	4.	The system displays	
		the order form.	
	5.	Service users fill out	
	-	the service order form.	
	6.	The system displays	
		the order of	
		recommendations of	
		artisan partners who	
		have schedule	
		availability.	
	7.	The service user selects	
		a handyman partner.	
	8.	Order validation.	
	9.	The system stores	
		order data.	
Extension	8.1	Back to the menu	
		choose the	
		recommendations of	
		the handyman partners	
		if there is no agreement	
		between the service	
		user and the handyman	
		partner.	

2.8 Class Diagram

Class diagrams are models of several classes that describe the relationships between classes, including associations and generalizations. Here is a class diagram of the system being built.



Figure 8. Class Diagram

2.9 Sequence Diagaram

Sequence Diagrams depict objects that interact with each other where messages are sent. Sequence diagram is also a dynamic model that describes the behavior of objects, in this study sequence diagrams are divided into 2 parts, namely service user sequence diagrams, and handyman partner diagrams. The developed Jakang application sequence diagram can be seen in the following image.



Figure 9. Sequence Diagram Place an Order

2.10 System planning 2.10.1 Menu Structure Design

The menu structure is the arrangement of menus which are then applied into a system built with the aim of making it easier to see menus that can be accessed in the application. The following is a menu structure that has been built. image which is the menu structure of the service user system.



Figure 10. Service User Menu Structure

2.10.2 Interface Design

The design of the user interface is part of the displays that are expected to be applied to the built Jakang application. The following is an overview of the services user interface displays which will later be used as an overview of the system being built.



Figure 11. Main Page Interface



Figure 12. Service Order Interface

Jose tr		- Klik salah satu rekomendasi tukang untuk menuju T05.
Item One Item Two Item Three	Páh Páh Páh	
	acuaikan.	<u> </u>
- Ukuran Layar : Meny - Waran : Menyesua	resuaikan Jikan	

Figure 13. Handyman Recommendation Interface

3. CLOSING

Based on the results of the design that was made, then the Design of Tukang Service Order Application using Webhook Technology and Google Event Calendar is in accordance with what is expected for further testing.

BIBLIOGRAPHY

 K. Danela, L. dan H. N. Palit, "Pembuatan Aplikasi Crowdsource Untuk Jasa Rumah Tangga Berbasis Android," *Jurnal Infra*, pp. 1-6, 2017.

- [2] E. B. Setiawan dan R. Herdianto, "Penggunaan Smartphone Android sebagai Alat Analisis Kebutuhan Kandungan Nitrogen pada Tanaman Padi," *ISSN*, vol. 7, no. 3, pp. 273-280, 2018.
- [3] A. P. dan N., "Bot Permainan Tebak Gambar Pengenalan Adat Istiadat Riau pada Aplikasi Line dengan Metode Webhooks," *Jurnal Teknologi Terpadu*, vol. 6, no. 2, pp. 161-167, Oktober 2018.
- [4] L. N. Gunawan, J. Anjarwirawan dan A. Handojo, "Aplikasi Bot Telegram Untuk Media Informasi Perkuliahan Program Studi Informatika-Sistem Informasi Bisnis Universitas Kristen Petra," Jurnal Infra, vol. 6, pp. 1-3, 2018.
- [5] U. Raharja, N. Lutfiani dan W. S. Wardana, "Penjadwalan Agenda Pelaksanaan Tridharma Perguruan Tinggi Secara Online Menggunakan Google Calendar," *ISSN*, Vol. %1 dari %212, No. 2, pp. 66-71, 2018.
- [6] M. I. W. Mustika dan N. A. Setiawan, "Perancangan Sistem Penjadwalan untuk Manajemen Penggunaan Ruangan Berbasis Google Calendar," *Prosiding Seminar Nasional ReTII ke-10*, pp. 1-6, 2015.
- [7] J. Fadlil dan W. F. Mahmudy, "Pembuatan Sistem Rekomendasi Menggunakan Decision Tree dan Clustering," *Kursor*, vol. 3, no. 1, pp. 45-66, 2007.
- [8] E. A. Laksana, "Collaborative dan Aplikasinya," Jurnal Ilmiah Teknologi Informasi Terapan, vol. 1, no. 1, pp. 36-40, 2014.
- [9] D. Pratama dan S. Hansun, "Aplikasi Rekomendasi Tempat Makan Menggunakan Algoritma Slope One Pada Platform Android," *ISSN*, vol. 11 No. 1, pp. 11-20, 2017.
- [10] M. C. Utami dan Y. T. Hutomo, "Penerapan Waterfall dalam Analisis dan Perancangan Sistem Informasi Manajemen Dokumen Surat Menyurat pada Bank BJB Kantor Cabang BSD Tanggerang," *Jurnal Sains*, vol. 12, no. 1, pp. 129-135, Desember 2014.