APPLICATION MONITORING THE COURIER ON PETSHOP UTILIZING WEBSOCKET AND FLUTTER

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ABSTRACT

Petshop veterinary clinic is engaged in services such as animal care and veterinary care (grooming), not a few people who use these services because many owners of pets like dogs and cats to be maintained and treated as well mungkin[1]. monitoring application creation in a pet shop that the owner pet store staff can monitor the working of the shuttle in service to maximize customer satisfaction and analysts, software development is using a waterfall method and application testing. In sataff shuttle monitoring the WebSocket technology implementation needed to be able to provide real-time location information so it can display the location of a point, not only is it in these applications pet owners can make a reservation at the pet store services ranging from Grooming,android mobile application development services and monitoring courier pickup on Petshop is in conformity with the expected goals.

Keywords: Petshop, Animal, Websockets, Flutter, Monitoring,

1. INTRODUCTION

1.1. Background

Petshop is a veterinary clinic in the field of services such as animal care and veterinary care (grooming)[2], not a few people who use these services because most owners of pets like dogs and cats to be maintained and treated as well as possible. animal care services in the process involves a pet store employee in charge of maintaining and overseeing the animals when deposited and veterinarians who are willing to examine the health, where the staff shuttle duty to pick up and deliver the pet.

Procedures at the pet store to pick up animals that will be entrusted the major steps that pet owners call the parties to
shuttle serviceability booking process and the animal care staff from pet shops shuttle will pick

the animals to the address given from the pet store. In doing pick-up or delivery of animals usually

bounded ie for every one staff shuttle is only allowed to bring one pet, where the cost per day for each animal is determined from the weight of the animal, for animals with weight 0 s / d 5kg - charged Rp 50.000, - / head / day.

Results for distributing questionnaires to 30 respondents, shows that pet owners are very interested and require shuttle service grooming for pets to get the desired service from a pet shop. As well as interviews with some of the pet store owner almost 100% is obtained a statement of the need for staff supervision pickup at the time of delivery or pick-up animals feared shuttle staff is not appropriate to expect the owner of the pet store at the time of employment resulting impact on customer service.

Build applications for staff shuttle, pet owners can choose the pet store and ordered the shuttle service grooming so as to facilitate the treatment and pick up the animal, the WebSocket owner of the pet store will receive location staff shuttle in real time know the whereabouts of Staff shuttle at the time of the service took place where the latter this application will facilitate a pet store owner in monitoring employee shuttle staff at the time of the service takes place.

1.2. Identification of problems

After translation in the background] above obtained a kesimpulkan and some problems such as:

1. Pet store owner needs to use the shuttle service in monitoring the presence of staff during the shuttle service takes place.
2. Pet owner needs to efficiency in the use of time grooming services ..

1.3. Purpose and objectives

Pursuant to the above issues, then obtained intents and purposes as follows:

1. With the application monitoring the courier at the pet store staff can monitor the presence of pickup at the time of the service took place,
2. With the application monitoring the courier at the pet store can choose Atar shuttle service for grooming and animal care

The aim of this thesis is:

1. In order for the pet store owners to know the location where staff pick-up in real time
2. Pet owners can do with animal care grooming service order via smart phone

1.4. Scope of problem

In this discussion the necessary restrictions on the problem which aims to mengidektifikasi factors included in a scope of the problem.

The boundary problem of the development of this monitoring application for the program is more conical and achieve the goals that have been determined, it will be limited to the following issues:

1. Applications will be built based on mobile android
2. This application is public
3. Users who will use the application is a pet store owner, Staff shuttle, and pet owners
4. Utilizing the WebSocket technology as a means of communication to get the full duplex shuttle staff location in real time
5. This application can only be ordered dipetshop existing services and monitoring staff shuttle

1.5. Research methodology

The method used in this study, using descriptive analysis is a method that aims to get a clear picture of the things that are needed in the research, by going through the following stages:

1.5.1. Method of collecting data

Methods of data collection which is a process used in this study are as follows:
1. Study of literature
   Namely data collection by collecting supporting data such as journals, and readings that are to do with the title of the research in question in preparing the report.
2. Observation
   Techniques of data retrieval by way of dating the place of study and direct observation of the problems taken to search the data you want to use in the process of observation in a pet shop.
3. Interview / questionnaire
   Data collection techniques by providing questions and answers to beberapoa owner petshoip related to what the research

1.5.2. Software Development Methods

In doing this the application development software development method that has been used is the waterfall model as the stage of development or the Development of a software, The waterfall model is a classic model that is systematic, sequential in setting up a software [3]. Here below is a picture of a waterfall which includes several processes, namely, As for the process include:
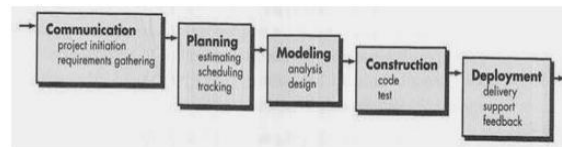

Figure 1. Method Waterfall

a. *Communication*
   At this stage of communication is to provide questionnaires to users of the system to be built.
b. *Planning*
   In the planning stage is made and explain the task and schedule of activities to be carried out in stages during the construction of the application.
c. *modeling*
   This modeling Ditahap translating needs on a planning a software that can be expected for the coding process.
d. *construction*
   In the construction phase is done coding and testing keaplikasi who have successfully made to ensure that the application has been made in accordance with the needs of the user desired application.
e. *deployment*
   In this Deployment stages: stage deployment of the application to the user.

2, RESEARCH
2.1 *Petshop*
A pet store that serves a kelinik animals such as medical services, grooming, kennel and also the sale of various types of food, drugs - drugs. Pet accessories and pet breeding, keeping animals At the moment a few things that should be prioritized in kesahatan attention, but animals also need to be the optimal treatment in order to grow up healthy. Pets such as cats and dogs in particular to be aware of health conditions ranging from, food, cages. Cleanliness become one of the most important things that need to be noticed because of the cleanliness of our pets can escape from various diseases caused by viruses and bacteria, animal hygiene condition if not addressed then the pet will be stressed and high kematianpun level, some illnesses suffered by pets can also cause harmful effects to humans. Veterinary hygiene conditions also affect our pets, if left unchecked then the pet will die. Care in order to maintain cleanliness and their pet's health can be done by way of bathing, trimming fur and nails, drug delivery, and others. Pet care is often called. Grooming means taking care and caring for animals. Pet owners can use Grooming techniques to help maintain and improve pet health Care in order to maintain cleanliness and their pet's health can be done by way of bathing, trimming fur and nails, drug delivery, and others. Pet care is often called. Grooming means taking care and caring for animals. Pet owners can use Grooming techniques to help maintain and improve pet health Care in order to maintain cleanliness and their pet's health can be

done by way of bathing, trimming fur and nails, drug delivery, and others. Pet care is often called. Grooming means taking care and caring for animals. Pet owners can use Grooming techniques to help maintain and improve pet health [4]

2.2. LBS (Located Based Services)

LBS (location based service) is a provider of information facilities to be accessible through the network and can display the geographic presence of the device in the system is run. LBS serves as a tool to identify the location of a person or object that is desired on an object atu google maps marked by the satellite, such as finding the building, shopping, and places nearby. Accessing LBS can diperangkat moving like Android and others [5].

2.3. Google map

Google Map API is a tool or service provided by a technology called Google to its users in order to take advantage of Google Map when developing an application that is built. Google Map API also provides a variety of features to get the data and add context through various types of service providers who belongs and allow multiple users to build enterprise sistemi within the website [6].

2.4 GPS

GPS is a navigation application by utilizing satellite tenologi and can receive signals from the satellite to get directions and point location.
There are five steps in the workings of the GPS, the first to use the calculation "triangulation", for the calculation of "triangulation" GPS control a distance using the travel time signal on the radio, to be the direction and distance of travel time GPS for bias can be the accuracy of the time, to know for sure satellite positioning and should check the delay in the satellite signal to the track in the atmosphere [7].

2.5. Websockets

WebSocket is a new rule for communication in realtime on a site along android mobile application or the like. WebSocket is also intended to be implemented on a web browser and the server, and can be applied as well a client or server. WebSocket is also a protocol that can provide full duplex realtim channel through a separate TCP connection. WebSocket protocol has also been standardized and on the Web IDL WebSocket API standardized by the W3C.
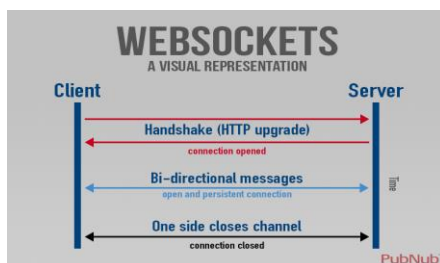

Figure 2. Websockets

2.6. flutter

Flutter is a device or an SDK for developing iOS applications in both mobile or developed and administered by Google in order to create applications that have a very high performance and can be published to the Android and iOS platforms from a single codebase. Flutter can also easily dipelajar for beginners because the Dart programming language, which certainly feels familiar takjauh different with java if already accustomed to using Java or JavaScript then I learn to be a little easier. Flutter also have and are able to manage reactive-functional framework, 2D rendering engine, ready-made, and developer tools for development. [8]

2.7. analysis of Openness

Analisissystem which aims for identify the issues contained in the system and determine what will be required by a system built. In the analysis includes some analysis of problems, the analysis of the system running, including the analysis of system architecture analysis, analysis of non-functional requirements, functional requirements analysis.[9]

2.8.　Problem analysis

A problem analysis is intended as identification problems will be solved. Analysis of the problem is also the first step in the analysis phase system.This problem which resulted in a goal of the system is not reached. Therefore, the main steps to be performed on the stage of problem analysis is the identification of the problem first problems occur:Here is a description of the problems that exist are as follows:
1. The owner of the pet store requires an application to provide information such as status and presence services staff during the shuttle service takes place so as to reduce anxiety in a pet owner to use shuttle services and boost confidence in the shuttle service provider
2. With this service, pet owners gain several benefits that the efficiency of time and terawatnya pet health.

2.9 Analysis System Running

Analysis system runs against the pet store to get a complete picture of the current system when the service takes place which can then be drawn into the activity diagram form in accordance with the activity going on. Activities undertaken include Grooming Service Registration and Delivery Pick-up.

The scenario of the shuttle service procedures performed on Petshop namely:

1. Pet owners contacted the owner of the pet store about the availability of quota shuttle service.
2. Petshop staff will check schedules and quotas service
3. If there are quotas the pet store staff will provide the date of the owner of the animal

4. If there is no quota of the party responsible will propose another day to the owner of the animal.
5. If pet owners agree with the proposed schedule will be registered.
6. Staff petshop registering the identity of animals and animal owners.
7. After the registration staff will pick the animals pelihraan introduction.
8. After arriving at the location of the pet store pet has to be carried out health checks, fungi, etc.
9. Once completed the introductory roundtrip staff will take back pets.
10. Payment is done on-site pet owners, staff will provide a receipt introductory roundtrip

2.10. Analysis Recommendation tighty Petshop

Analysis of recommendation is a recommendation that is provided to the customer in the form of recommendations which will be selected at the pet store when the search search the desired service. Next step - a step of determining recommendations:

1. The coordinates of the pick-up location in the capture order data will be calculated within keterdekatannya with pet owners pick-up location.
2. Once get keterdekatannya distance and will find tighty smallest distance.
3. Data time of booking with tighty smallest distance will be a recommendation.

Users will book shuttle service with pickup location Jl. Purbasari 39, Sukamiskin Arcamanik, Bandung, West Java 40 294 location coordinates -6.913590, 107.681356

Table 1. Sample Data bookings

Petshop	Coordinated	
	Latitude	**Longitude**
1	-6.91403	107.68107
2	-6.91228	107.68005
3	-6.922426,	107.670202
4	-6.925077,	107.672327
5	-6.927366,	107.682523
6	-6.918827,	107.683022

Having obtained the data above, it will be calculated tighty distance between the pickup location and method Haversine Formula pet store. Formula Haversine method to calculate the distance as follows:.

Δlat = lat2- lat1
Δlong = long2- long1
a = sin2 (Δlat / 2) + cos (lat1) .cos (lat2) .sin2 (Δlong / 2)
c = 2 atan2 ($\sqrt{a}$, $\sqrt{1-a}$)
d = R. c
Information :
R = a large radius with 6371 (km)
Δlat = look for the amount of latitude
Δlong = longitude
C = the intersection of the axes
d = untukmencari a distance (km)

1 degree = 0.0174532925 radians

As an example of the calculations set out recommendations for the distance nearest pet store recommended:

lat1 = -6.913590
long1 = 107.681356
lat2 = -6.91403
long2 = 107.68107
Δlat = -7,67945E-06
Δlong = -4,99164E-06
a = sin (-7,67945E-06/2) 2 + cos (-0.120664909) * cos (-0.120672588) + sin (-4,99164E-06/2) 2 = 2,0759E-11
c = 2 salted (2,0759E-11) = 9,1124E-06
d = 6371 * 9,1124E-06 = 0.05805511

Table 2.distance calculation tighty

Petshop	Kordinat		Jarak keterdekatan
	Latitude	**Longitude**	
1	-6,91403	107,68107	0,058 km
2	-6,91228	107,68005	0,205 km
3	-6.922426,	107.670202	1,577 km
4	-6.925077,	107.672327	1,621 km
5	-6.927366,	107.682523	1,538 km
6	-6.918827,	107.683022	0,611 km

Based on the above test results data tighty smallest distance is on Petshop 1 at a distance of 0.058 km, the system will show pet store recommendation No. 1.

2.11. analysis Mobile System Architecture

Analysis of system architecture ditujuakan for illustrating how a system sends a request data as well as how the system send a response to the data requested up to the user. Users use the smartphone as a media hardware to access the application.
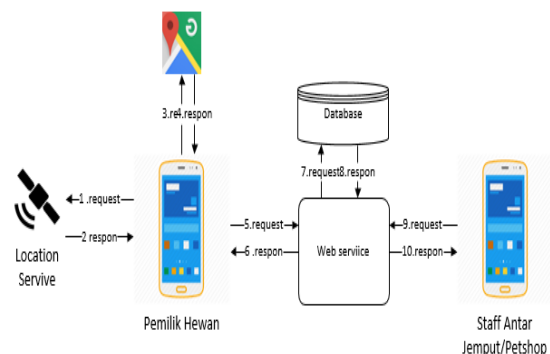
Figure 2. Mobile System Architecture

Below is a description of the system architecture of applications built:

1. Request to Location service to determine the location of the animal's owner bookings are taken from a gps device is a smart phone
2. The response of Location services such as location points reservations pet owners
3. Applications make requests to google maps to get an idea of the location of the point of pickup staff
4. Response to google maps continued to applications
5. Pet owners make requests to the webservice address to connect pet owners and pet shops.
6. Getting a response to the request to the web service to connect to the pet store and meneampilkan service of the order in the pet shops.
7. If you are connected to the web service then booking request data from animal melik will be forwarded to the database
8. Database respond to orders by storing data
9. If the data has been stored then the orders will continue to shuttle staff for the order in peroses
10. Staff shuttle pesnan respond to requests from pet owners shuttle staff Communicating with the pet store owner to know the position of courier using webservice to obtain location data in real time following his way of working:
   a. The server must run in order for the client to connect
   b. Client1, connect to a WebSocket.
   c. In index.html, add the source of a javascript:

```
// <script //
src = "/ jquery.min.js"> </
script>
<script src = "/ WebSockets /
fancywebsocket.js"> </ script>
```

   d. The next step to call on a WebSocket server to determine the location reltime:

```
Define WebSocket server var
server;
Server = new
Server.bind ( 'message',
function (payload) {
switch (Payload) {
 case 'Grid':
myGrid.clearAndLoad ( "pet
shop");

Server.connect ();
```

Then add this section to be client who mengaksesdapat an information against serveryang relating to the client who has made the turn status data, so the server will provide information to a client other than the client that changes the record[10]:

```
Server.senddart    (    'message',
'grid');
```

2.12.Hardware Requirements Analysis

Device needs analysis is a requirement for a description of non-functional requirements related to hardware requirements. Table specification minimal hardware requirements to run the hardware smartphone android can be seen in Table 2 Specs Minimum Hardware Requirements Android.

Specifications Table 3. Minimum Hardware Requirements

Type	Specification
processors	Quad-core, 1.2GHz
Ram	minimum 1GB

2.13. Software Requirements AnalysisSoftware requirement analysis is

explanation of non-functional requirements relating to the specification of a software. Table specification minimal software requirements to run the software used to create the application can be seen in Table 3. Software Requirements Specification.

Table 4. Software Requirements Specifications

Type	Specification
Android Operating System	5.0 Lollipops

2.14. User analysis

Analysis of system users aims to determine which users are involved in running this application, so that can know and comprehension level of the user.
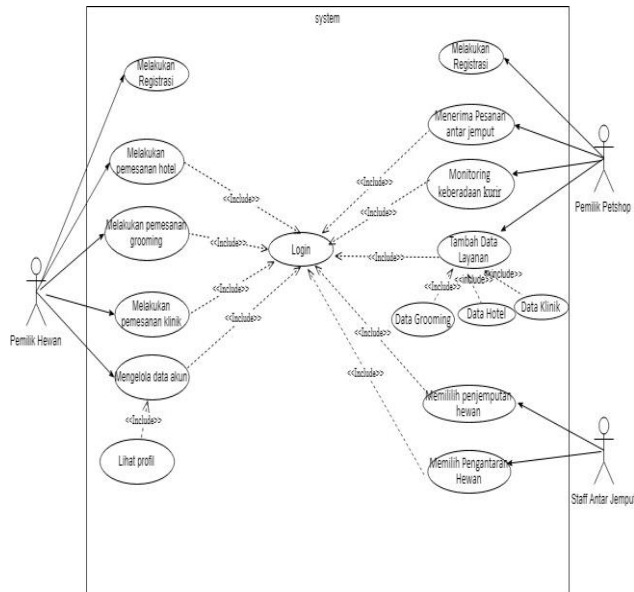
Table 5. User Analysis

No.	users	characteristics	
1	Own Pet	a. Understand using smartphones b. Have a smartphone	
2	Staff Pick	a. Understand using smartphones b. Have a smartphone	
3	owner Petshop	a. Understand using smartphones b. Have a smartphone	

**Figure 4. Class Diagram**

2.15. Use Case Diagram

Here is the use case diagram is designed for applications that will be built:

Figure 3. Use Case Diagram

2.16. Class Diagram

Class diagram describing a collection of classes contained in a system, in which each class consists of a class name, attributes and methods used in class. Below is an overview of the class diagram is used:
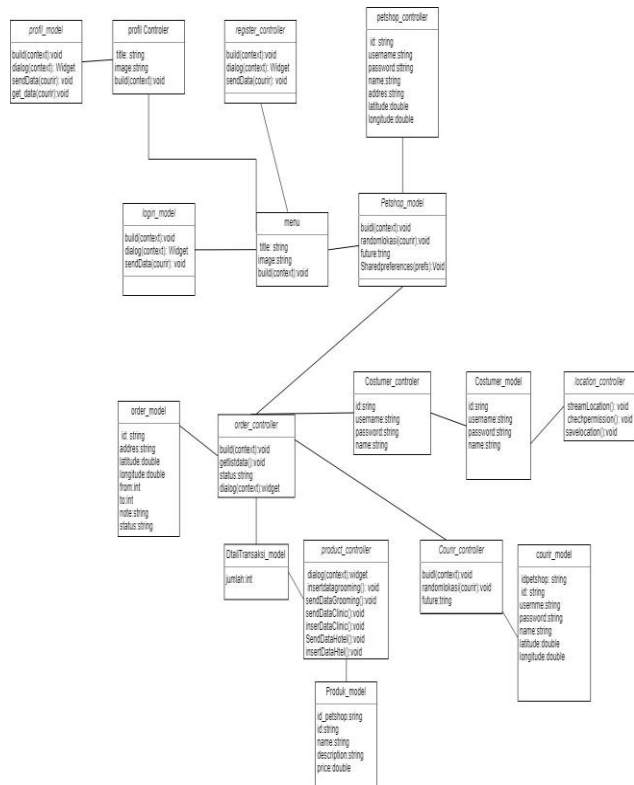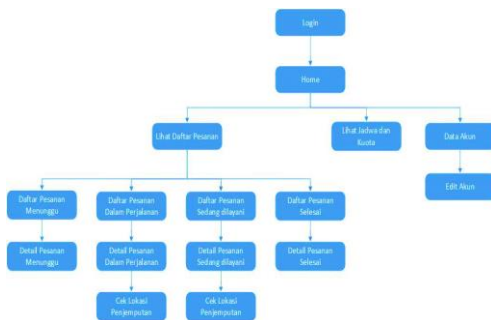
2.17. Menu Structure Design

The design of the menu structure is the explanation to facilitate the operator of the application .. The design of the menu structure can be seen in Gambar6,7, and 8 Menu Structure Design Application:
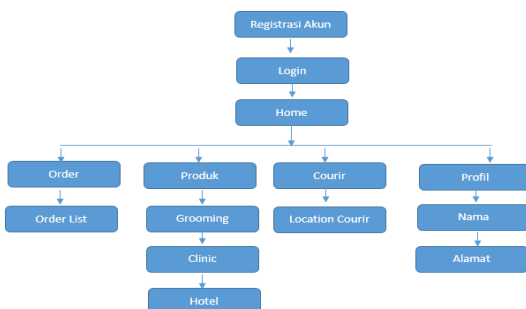
1. The menu structure pet owners:
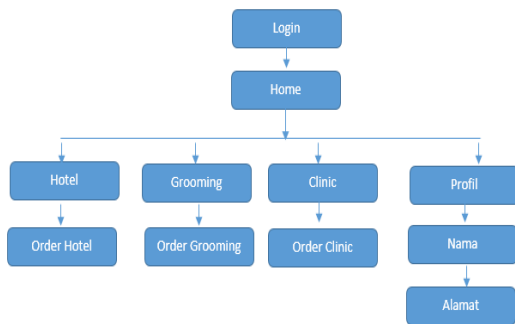
Figure 6. Menu Structure Design Application Owner Animals

2. Menu Structure Staff Transfers

Figure 7. Menu Structure Design Application Staff Pick

3. Menu Structure Owners Petshop

Figure 8. Menu Structure Design Application owners Petshop

2.18. Implementation And Testing System

Implementation of the system is the stage of development and design based on the results of the analysis have been resolved earlier in Chapter programming language into a form that has been adjusted and a software application that will be built in the real environment. Implementation and testing to be performed aims to determine some of the results of the analysis system in the wake. Then the implementation of the system starting from the creation of applications by users and used by the user to be able to book shuttle services and monitoring staff at the pet store.

2.19. Beta testing

Beta testing is a technique that digiunakan in data processing which is a step in processing the data that has been obtained to be used so that the research results can be concluded. The following is a questionnaire that will be submitted to the three types of correspondence that pet owners, staff shuttle, and admin or pet store owner who will use this application. The question is as follows:

table 6.Kuisioner

No.	Question
1	What is with this application allows you to do a shuttle service?
2	Whether the application is able to provide information about treatments and shuttle service animal?
3	Are you able to easily follow the instructions given by this application?
4	Are you able to understand the information provided by this application?
5	Does the existence of this app you have more confidence in using the shuttle service to the pet store?

Kategori Jawaban	Skor	Frekuensi Jawaban	Total Skor	Nilai Prsentase(%)	Keputusan
Sangat Setuju	5	2	10		
Setuju	4	1	4		
Kurang Setuju	3	0	0	(14/(3*5))*100=93,3%	Sangat Setuju
Tidak Setuju	2	0	0		
Sangat Tidak setuju	1	0	0		
Jumlah		3	14		

9.Scale Image Rating Questionnaire

2:20. Implementation Appviews

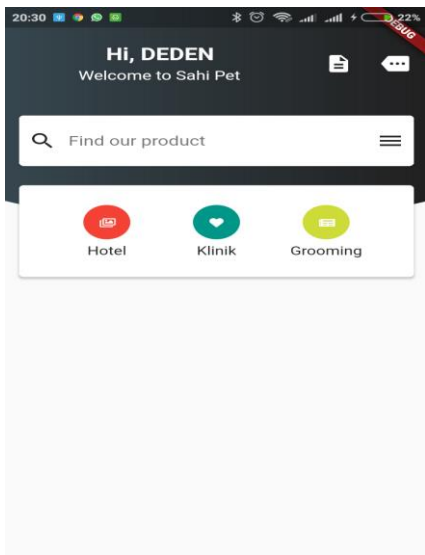Here is the implementation of a design that has been created previously :
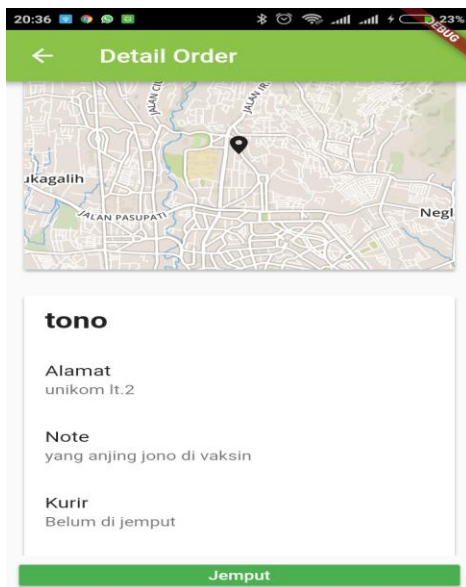

Figure 10.Tampilan Petshop Service Menu

Figure 11.Tampilan Monitoring Courier

3. CLOSING
3.1. Conclusion
Based on the test results in the previous chapter, it could be concluded that:
1. Applications are built to provide convenience to pet owners who will do the grooming
2. Applications built provides ease of monitoring staff at the time of pickup to pets.

3.2. Suggestion
Application Monitoring courier at a pet store application that allows customers dpat pet owners to book shuttle services. Therefore, given the advice that can be used as a further development of this application is that these applications can be developed by adding features that the purchase of products related to pets.

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