DEVELOPMENT APPLICATION SEARCH AND BOOKING PHOTOGRAPHER PORTFOLIO BASED ON UTILIZING THE API CLARIFAI AND LBS ON ANDROID SMARTPHONE

Ardianzah Rukmana[1], Rangga Gelar Guntara[2]

[1,2] Universitas Komputer Indonesia
Jalan Dipatiukur No. 112 Bandung, Jawa Barat 40132
E-mail : Ardyan171995@gmail.com[1], Ranggagelar@email.unikom.ac.id[2]

ABSTRACT

The existence of a photographer is quite difficult to find by the community that fits the desired criteria, it can be proven based on the results of the questionnaire 75% of the 30 respondents had difficulty finding the desired photographer, while 81.3% of the same number had difficulty ordering photographers who fit the criteria. Motogenic is an application that is built to make it easier for people to find and order photographers who fit the desired criteria based on the results of portfolio recommendations. The recommendation process will use data sources in the form of the results of photo analysis tags from the clarifai API. Based on the results of the final questionnaire from beta testing, 73.3% can make it easier for people to find photographers, while 88% can make it easier to order photographers. The conclusion of this study is that the Motogenic Application can make it easier for searchers and buyers to find a photographer, and also can make it easier for photographers to find customers by uploading portfolios in Motogenic applications. In addition, users and photographers can communicate on the chat features in the Motogenic application so they can negotiate prices.

Keywords: clarifai API, Android Application, Web Service Programming Technology, Google Maps API, Photography

1. INTRODUCTION

The phenomenon of photography today is an interesting thing, how people who initially did not have the background of photography knowledge plunged and became part of the world of photography, especially modeling photography that uses humans as their photographic objects, this is a big attraction for some people who chose to be a photographer.[1]

The existence of photographer services is also quite difficult to find by the seeker and ordering photographer who fits the desired criteria, it can be proven based on the results of the questionnaire 75% of the 30 respondents had difficulty finding the desired photographer, while 81.3% of the same number had difficulty ordering photographer in accordance with the criteria.

Based on the results of interviews with 5 photographers in the city of Bandung, there are obstacles in finding customers who need their services. Another obstacle is the difficulty in finding customers in the nearest location. This of course will take a long time for photographer seekers to find photographers.

From the above problems, researchers have ideas to help photographers so that the search and ordering process of photographer seekers becomes easier, faster and more efficient by utilizing technological advancements. Solution The use of technology is welcomed by photographers because it is very helpful in finding customers.

Applications that are built will provide photo services that connect between photographers and searchers at a location. Searchers can order photographers based on surrounding locations using GPS sensors. Equipped with photographer's recommended features from its portfolio. Search can be done by determining the desired criteria such as photos on the beach, with a partner or at sunset. Then the system will look for photographers who have a portfolio according to the desired criteria. The recommendation process will use data sources in the form of tags from photo analysis using API Clarifai. Other features are equipped with a chat feature between the buyer and the photographer, and a photo spot recommendation feature somewhere based on the history of other users and to prove the validity of the photo by looking at the type or brand of the camera used by the photographer.

Based on these thoughts, it was raised the idea to conduct a study entitled "Development of Photographer Search and Ordering Applications Based on Portfolios Utilizing the Clarifai API and Location-Based Services on Android Smartphones".

2. LITERATURE REVIEW

2.1 Photography

Photography comes from the word photo which means light and graphics which means image.

With the development of digital technology that is very rapid nowadays, even almost everyone. Literally, photography can be interpreted as a technique of painting with light. Photography is a combination of science, technology and art. A harmonious blend of the three can produce an amazing work. Of course with the skills and art of the photographer, a photo can be meaningful.[1]

2.1.1 History of the Development of Photography in Indonesia

The first photographer in Indonesia that was acknowledged by many parties was Kassian Cephas who was born in Yogyakarta, January 15, 1845. Some photographer photographers in Indonesia are of Dutch descent. Kassian Cephas who lives and has a studio in Yogyakarta is also an official photographer of Yogyakarta Palace. In addition, there is also Ansel Adam, the greatest American "fine art photographer" in the 20th century. [2]

2.1.3 Clarifai

Clarifai is an artificial intelligence company that is very superior in terms of Visual Recognition. Clarifai was founded by Matthew Zeiler in 2013, a leading expert in Machine Learning, Clarifai has been a market leader since winning the top five in image classification at the ImageNet 2013The competition 'Food Model'.[3]

Clarifai is a tool that can recognize videos and images that will automatically tag objects and categories by taking input as a pixel. Clarifai uses semantic libraries and visuals for Artificial Intelligence or Artificial Intelligence. [4]

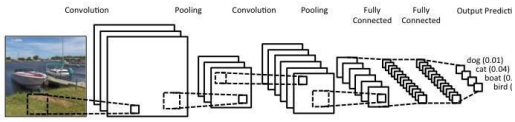


figure1. How the clarifai works

2.1.4 *GPS (Global Positioning System)*

Global Positioning Sytem (GPS) is a tool or system that can be used to inform users where he is (globally) on the surface of the satellite-based earth. Data is sent from the satellite in the form of radio signals with digital data.[5]

2.1.5 Definition of *Global Positioning System*

GPS (*Global Positioning System*) is a navigation system based on interconnected satellites that is in its orbit. The satellites belonging to the United States Department of Defense were first introduced starting in 1978 and in 1994 had used 24 satellites. To find out the position of a person, a tool called a GPS receiver is needed to receive signals sent from GPS satellites. The position is changed to a point known as Way-point, it will be in the form of points of latitude and longitude coordinates of a person's position or location, then on the screen on an electronic map.[5]

GPS is the only global navigation satellite system for determining location, speed, direction and time that has been fully operational in the world today.[6]

2.1.5 Android

Android is a collection of software for mobile devices to cover information systems, middleware and major applications and major mobile applications.[7]

Android is fully built by Google Inc. and make it open (open source) so that developers can use android without paying for a license from Google and can build Android without any restrictions.

The Android Software Development Kit (SDK) provides tools and Application Programing Interface (API) needed to start developing applications on the Android Platform using the Java programming language.[7]

3. RESEARCH METHODS

3.1 Method of collecting data

The method used in data collection in this study is with two methods, namely the method of collecting data and software development, namely:

1. Study of literature, namely methods by collecting references such as reference books, journals and other readings related to the application title.
2. Interviews, is one way to collect data in a face-to-face manner by giving a few questions to 5 photographers.
3. Questionnaire, is a technique of collecting data by holding several questions to users to get results that can be a reference to this research.

3.2 Metode Pembangunan Perangkat Lunak

Regarding the method used in the software development process, namely by using the Classical LifeCycle method, also known as Waterfall. The process of the waterfall diagram is as follows:

1. Software Engineering (Engineering System)
Is part of the largest system in
2. Analysis of the Software (Analysis System)
3. Software Design (Design System)
4. Software Implementation (Coding System)
5. Software Testing (Testing System)
6. Maintenance System

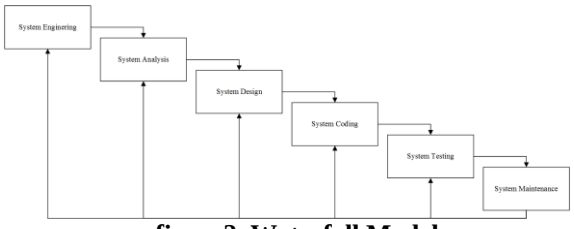


figure2. Waterfall Model

4. RESULTS AND DISCUSSION

4.1 System Analysis

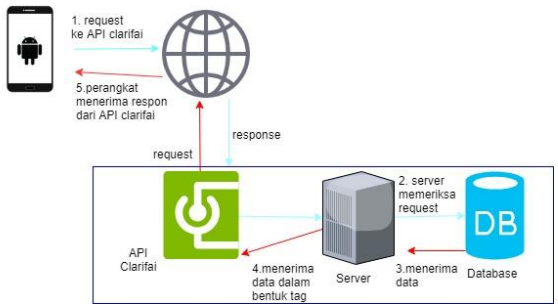
System analysis can be defined as the decomposition of a whole system into its component parts with the intention of identifying and evaluating problems, opportunities, constraints that occur and expected needs so that improvements can be proposed. Analysis can also be interpreted as research on a new or updated system. In the process of making a system, research and analysis of the system to be built is absolutely necessary.

4.1.1 Technology Architecture

Technological analysis is an explanation of the technology and methods used for the construction and development of an application that will be made and the research being carried out. This technology analysis aims to explain in more technical detail the things used in making application systems.

4.1.2 System Architecture Analysis

System architecture analysis aims to identify the architecture to be built. Next is the application system architecture that will be built :



1. The device requests a clarifai API via the internet.
2. The server checks the request.
3. The database receives data.
4. API receives data in the form of tags.
5. The device receives a response from the clarifai API.

4.1.3 Analysis of Current Procedures

Analysis which is a sequence of activities from the stages that explain the processes that are done, who works on those processes and what documents are needed. In doing this, photographers are required to register with the application service community. Photographers register themselves by visiting the application service provider community by bringing the registration requirements files specified by the application service provider.

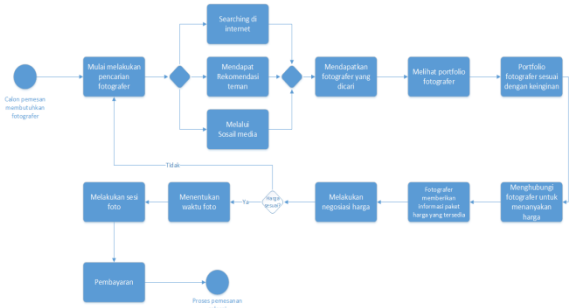


Figure 3. Photographer Search Procedure

The following is a description of Figure 3. Photographer's search process:

1. Search for searches by googling on the internet, recommendations from friends or through social media like Instagram and Facebook.
2. When you find it, the searcher will see the portfolio of the photographer.
3. If found, the searcher then contacts the photographer to ask the price and negotiate.
4. If the price is appropriate, both parties will determine the time, session, location and payment.
5. If it doesn't match, the Searcher will search again.

4.1.4 Example of a Photographer Search Case Based on a Portfolio

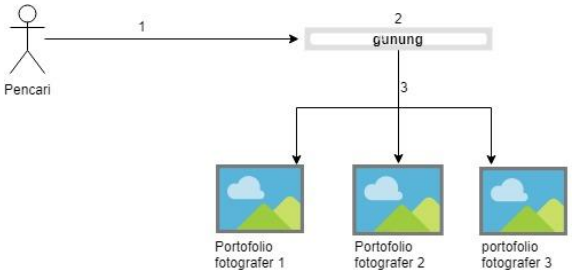


Figure4. Example of a Photographer Search Case Based on a Portfolio

The following is a description of Figure 4:

1. Search start searching by typing the desired criteria.
2. Suppose the searcher typed "mountain".
3. Then various types of portfolios will emerge from some photographers who will later be selected by the searchers.

4.1.5 Usecase Diagram

The use case diagram provides a way of describing the external view of the system and its interactions with the outside world. The following is a use case diagram for the application to be built:

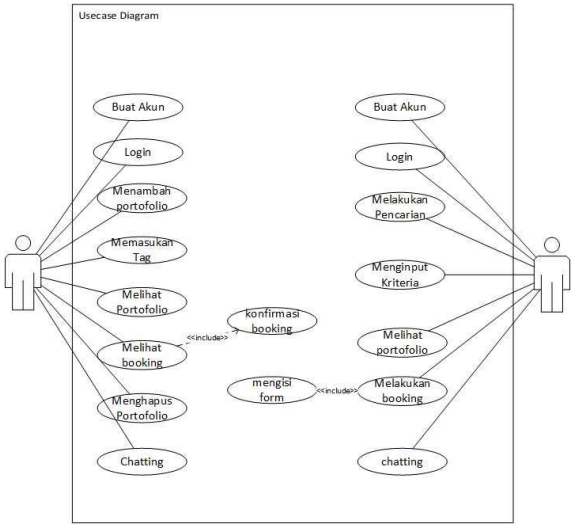


Figure 5.Diagram Usecase

Table 1.Actor description

No	Actor	Description
1	photographers	This actor makes it possible to create accounts, logins, add portfolios, enter tags, view portfolios, view bookings, confirm bookings, delete portfolios, and chat.
2	Searcher	This actor makes it possible to create accounts, log in, search, input criteria, book, fill out the booking form, and chat.

4.1.6 Activity Diagram

The following is the Login activity diagram:

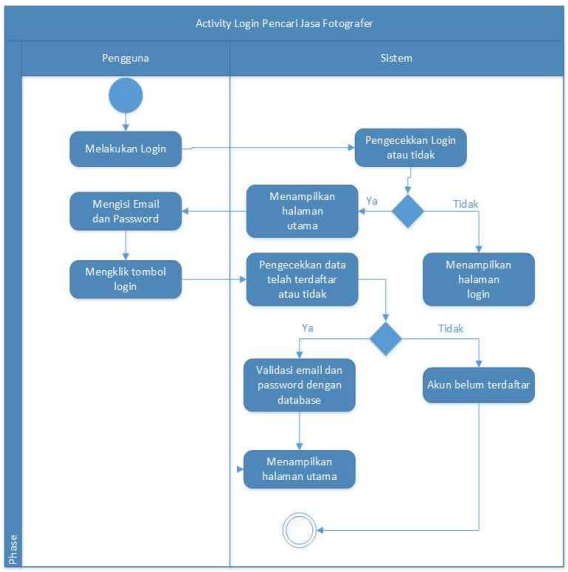


Figure 6. Login Activity diagram

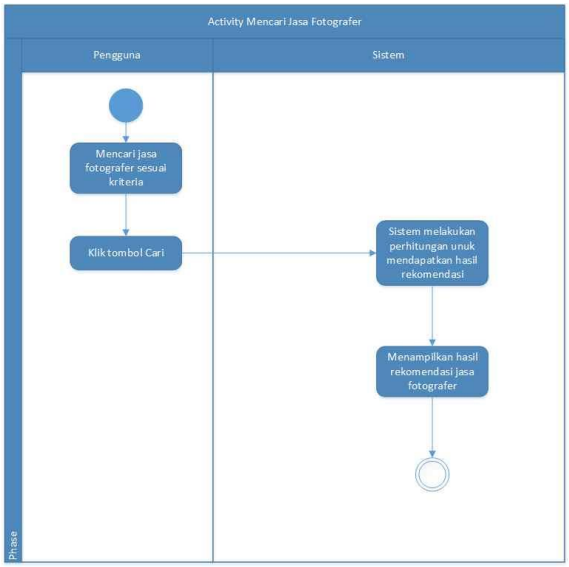


Figure7. Search photorapher Activity

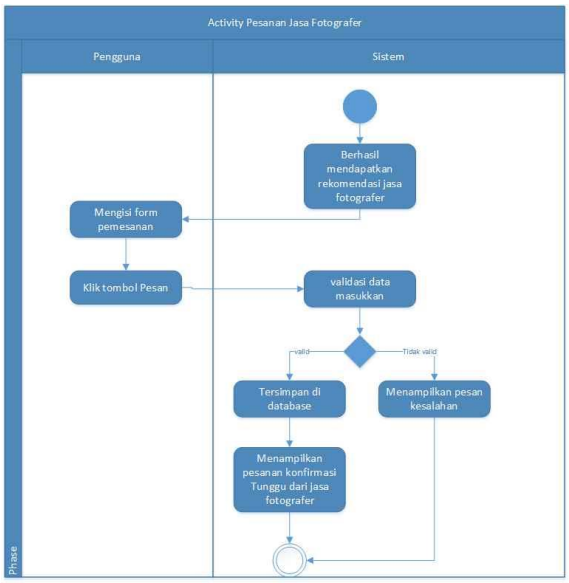


figure 8. Order photographer Activity

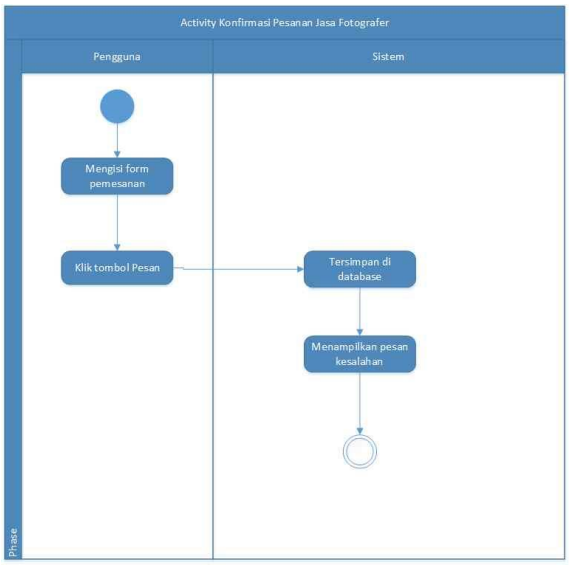


figure9. Order Confirmation Activity

4.1.7 Relation Scheme

Relationship Scheme is a way of arranging a relation by determining the name of a relation, the name of the field (column / attribute) and the domain of each which has the appropriate value or essentially is the type of field in the programming language.

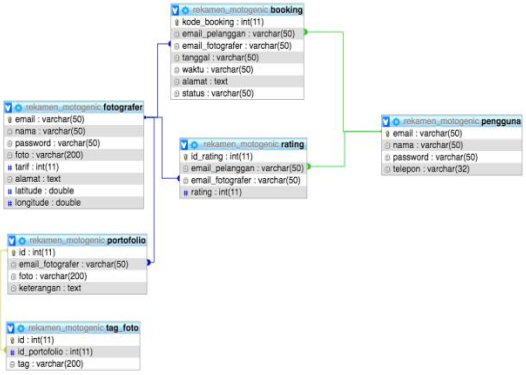


figure 9.Relationship scheme

4.1.8 Implementation System

1. **Hardware Implementation**

Table 2.Implementasi Min Hardware

Hardware	Spesification
Ram	1GB
Internal memory	4GB
GPS vesion	29.19.15.220149
CPU	1.8 Ghz

2. **Software Implementation**

Table 3.Software implementation

Software	Spesification
Operation system	Android 4.4 kitkat
browser	Google chrome

4.1.9 Alpha Testing

Table 4.apha testing

Kelas Uji	Testing point	Jenis Pengujian
Login	*Input* data *login*	*Black Box*
	Validasi data login	*Black Box*
Account Registration	*Input* registration data	*Black Box*
	Validation registration data	*Black Box*
	Save registration data to the database	*Black Box*
Forgot password	*Input* forgot data	*Black Box*
	Validation forgot data	*Black Box*
	Save data lupa to the *database*	*Black Box*
Search portfolio	*Input* keyword of data	*Black Box*
	Validation keyword of data	*Black Box*
	Show the portfolio data	*Black Box*
Booking a photographer	*Input* data *booking*	*Black Box*
	Booking data validation	*Black Box*
	Save booking data to *database*	*Black Box*
Booking confirmation	*Input* confirmation data	*Black Box*
	Validation confirm data	*Black Box*
	Change booking status in database	*Black Box*
Add Portfolio	*Input* portfolio data	*Black Box*
	Validation of portfolio data	*Black Box*
	Save portfolio data to *database*	*Black Box*
Delete Portfolio	*Input* portfolio data	*Black Box*
	Validation of portfolio data	*Black Box*
	Delete portfolio data in the database	*Black Box*
Give a rating	*Input rating data*	*Black Box*
	Validation of rating data	*Black Box*
	Save *rating* data to *database*	*Black Box*
Change Profil	*Input* profile data	*Black Box*
	Validation of profile data	*Black Box*
	Change profile data in the *database*	*Black Box*

Table 5.result of login test

Cases and Test Results (Correct Data)			
Data input	**Expected results**	**Observation**	**conclusion**
Email : Pass:	The system displays the main menu	Show main menu	be accepted

Cases and test results (wrong data)			
Data input	**Expected results**	**Observation**	**conclusion**
Email:{empty} Pass:{kosong}	The system displays a message "Email or password cannot be empty"	The message "email or password cannot be empty" appears	Be accepted

Table 6. The test results are looking for a portfolio

Cases and Test Results (Correct Data)			
Data input	**Expected results**	**observation**	**conclusion**
Keyword :	The system displays the portfolio you are looking for	Look for portfolio data sought	Be accepted
Cases and Test Results (Wrong Data)			
Data input	**Expected results**	**observation**	**conclusion**
Keyword:{empty}	Sistem displays the message "location data not found"	The message "Location data not found" appears	Be accepted

Table 7. Results of booking testing

Cases and Test Results (Correct Data)			
Data input	**Expected results**	**observation**	**conclusion**
Booking data:	The system displays the message "data successfully saved"	Message appears "data successfully saved"	Be accepted
	saved"		
Cases and Test Results (Wrong Data)			
Data input	**Expected results**	**observation**	**conclusion**
Booking data:{empty}	The system displays a message "complete booking data"	Message "complete booking data"	Be accepted

Table 8. Portfolio Test Results

Cases and Test Results (Correct Data)			
Data input	**Expected results**	**observation**	**conclusion**
Data portofolio :	The system displays the message "data successfully saved"	Message appears "data successfully saved"	Be accepted
Cases and Test Results (Wrong Data)			
Data input	**Expected results**	**observation**	**conclusion**
Portfolio data:{empty}	The System display the message "complete portfolio data"	Display message "complete portfolio data"	Be accepted

Table 9. Portfolio delete test results

Cases and Test Results (Correct Data)			
Data input	**Expected results**	**observation**	**conclusion**
Portfolio data :	The System displays the message "data successfully saved"	Message appears "data successfully saved"	Be accepted
Cases and Test Results (Wrong Data)			
Data input	**Expected results**	**pobservation**	**Conclusion**
Portfolio data:{em	The system	Display message	Be accepted

pty}	displays a message "complete portfolio data"	"complete portfolio data"	

Table 10. booking confirmation test results

Cases and Test Results (Correct Data)			
Data input	**Expected results**	**observation**	**conclusion**
Portfolio data:	The system displays the booking confirmation results	Booking confirmation results appear	Be accepted
Cases and Test Results (Wrong Data)			
Data input	**Expected results**	**observation**	**conclusion**
Portfolio data:{empty}	The system displays a message "complete confirmation data"	Message appears "complete confirmation data"	Be accepted

The percentage calculation from beta testing to the public as users of the development of photographer search and ordering applications based on portfolios utilizing clarifai APIs and location-based services on Android smartphones is in accordance with the expected goals.

4.1.10 Beta Questionnaire Testing

1. Does this application make it easy for you to find a photographer?

Tabel 10. Question 1 Questionnaire Results

Answer	Score	FJ	Total	Value	Kep
SS	5	10	50	(110/(30*5)) *100=73.3%	**S**
S	4	20	80		S
RR	3	0	0		
TS	2	0	0		
STS	1	0	0		
total		30	110		

Based on the results of the above calculations, it can be concluded that 73.3% agree this application makes it easy to find a photographer

2. Does this application make it easier for you to order a photographer that fits the criteria?

Table 11. Question 2 Questionnaire Results

Answer	Score	FJ	Total	Value	Kep
SS	5	14	70	(132/(30*5)) *100=88%	S
S	4	14	56		
RR	3	2	6		
TS	2	0	0		
STS	1	0	0		
total		30	110		

Based on the results of the above calculations, it can be concluded that 88% agree this application makes it easy to order photographers.

3. Does this application it easier to used?

Table 12. Question 3 Questionnaire Result

Answer	Score	FJ	Total	Value	Kep
SS	5	10	50	(127/(30*5)) *100=84.7%	S
S	4	17	68		
RR	3	3	9		
TS	2	0	0		
STS	1	0	0		
total		30	110		

Based on the above calculations, the total score obtained was 127 scores with the answer category scale including doubts, agreed and strongly agreed. While the results of the respondent's presentation value 84.7% of the expected value of 100%. Then it can be concluded that this application can be easily operated.

4. Is the appearance of this application comfortable to see?

Table 13. Question 4 Questionnaire Result

Answer	Score	FJ	Total	Value	Kep
SS	5	10	50	(110/(30*5)) *100=84.7%	S
S	4	20	80		
RR	3	0	0		
TS	2	0	0		
STS	1	0	0		
total		30	110		

Based on the above calculations, the total score obtained is 110 scores with the answer category scale including agreeing and strongly agree. While

the results of the respondent's presentation value were 73.3% of the expected value of 100%. Then it can be concluded that this application is comfortable to see.

5. CLOSING

5.1 Conclusion

Based on the results of tests and discussions that have been made, it can be concluded that:

1. The Motogenic application can make it easier for searchers to find a photographer.
2. Application of Motogenic Photographers can make it easier to find customers.
3. The Motogenic application can help searchers find the photographer that fits the desired criteria.

5.2 Suggestions

Suggestions that can be given for the development of this Motogenic application are:

1. Add a portfolio upload feature with good quality.

BIBLIOGRAPHY

[1] Jubilee enterprise dan ardiyanto nugroho.modeling photography handbookJakata.2012.PT Elex Media Komputindo.Hlm1

[2] Mulyanta, Edi S.Teknik Modem Fotografi Digital,2007

[3] Clarifai, “What is visual Recognition?,” Visual Recognition, 28 September 2013. [Online]. Available: https://www.clarifai.com/technology. [Diakses 2 September 2017

[4] Jurnal Rangga Gelar Guntara,Gunawan 1360-Article%20Text-2607-1-10-20190214.Vol 16.No 2. Hal 175

[5] Jurnal Andi Sunyoto, STMIK AMIKOM Jogjakarta, 2013:1

[6] Wildan Habibi, ITS, Surabaya Januari : 2011

[7] Prof. Jazi Eko Istiyanto, Ph.D