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Development of Web-Based Animal Adoption Application (Case Study: Medan Animal Rescue)

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ABSTRACT

Animals that receive welfare are in good condition, both physically and mentally. Based on research conducted by Bracke's Animal Protection Index (API), Indonesia received a 'D' rating. The explosion of the street animal population has become an issue in urban areas. The lack of care and handling of street animals has led to an explosion in the population of street animals such as stray cats and dogs. This population explosion has also led to various problems such as the rise of animal abuse cases, and the illegal capture of street animals for meat sale. Medan Animal Rescue is an organization engaged in rescuing abandoned animals and distributing abandoned animals as pets. In carrying out its operational activities, Medan Animal Rescue still uses simple and conventional methods. To overcome the problem of not maximizing the operational activities that take place, the utilization of information technology in the form of web-based animal adoption applications is very important to be applied to Medan Animal Rescue. The results obtained from the development of a web-based animal adoption application at Medan Animal Rescue show that the average user acceptance of the application is 85.54%. This means that the application is very helpful and worth using for animal welfare.

Keywords: Animal welfare, Abandoned animals, Adoption Application, UTAUT

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INTRODUCTION

Animal welfare relates to five freedoms in life, including freedom from hunger and thirst, freedom from discomfort, freedom from pain, harm and disease, freedom to express normal behavior, and freedom from fear and stress. Animals that receive welfare have a good condition, healthy body and mentality where biological processes run smoothly, feel happy or comfortable and live in a suitable habitat to be able to display their natural behavior freely [1]. Based on the results of research conducted by Bracke, the Animal Protection Index (API),

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Indonesia received a 'D' rating, which means that improvement and cooperation between parties are needed to raise the level of animal welfare [2]. The explosion of the street animal population has become an issue in urban areas. The lack of care and handling of street animals has led to an explosion in the population of street animals such as stray cats and dogs. This population explosion has also led to various problems such as the rise of animal abuse cases, and the illegal capture of street animals for meat sale [3].

In Jakarta in 2019, the cat population increased by 30,000. With news like that, people actually take action by killing animals. Then people who felt sorry for abandoned animals began to make movements by establishing communities and building abandoned animal shelters [4]. In addition, people can also adopt abandoned animals from shelters. By adopting these animals, people have helped to reduce the street animal population that often suffers and is a problem in many communities. Adopting an animal is a noble act that not only provides a new home for an animal in need but also creates a strong bond between humans and pets.

Medan Animal Rescue is a non-profit organization that focuses on social activities, namely rescuing abandoned animals and distributing abandoned animals as pets to parties (adopters) who are responsible for maintaining these animals. Medan Animal Rescue consists of several volunteers whose instincts are moved to rescue abandoned animals and provide proper welfare for the animals. Animals that have been rescued will be well cared for so that they can be distributed to adopters who will keep the animals. However, in reality, adopters who already own or adopt animals often do not follow the regulations, abandon the pets, and even use the pets as material for sale or consumption. To ensure the welfare of the pet, Medan Animal Rescue requires every adopter to report the pet's condition periodically as a form of monitoring. Some adopters from out of town experienced problems in submitting their reports. Until now, Medan Animal Rescue still uses simple methods to record its operations.

To increase efficiency, minimise errors in recording adopter data and ensure monitoring activities can run smoothly, the use of information technology in activities carried out by Medan Animal Rescue is very important. The utilisation of a web-based application at Medan Animal Rescue can provide convenience for adopters to obtain various information related to adoptable animals. Monitoring activities for pets that have been successfully adopted can also be reported by adopters without experiencing obstacles. In addition, the public can also utilise the web to report the discovery of abandoned animals on the streets as a form of concern for animal welfare. The web-based animal adoption application can certainly also provide education to the wider community about the importance of animal welfare.

METHODS

In conducting this research, the research stages carried out are:

Observation and interview

Observation is carried out by making direct observations to obtain various information related to the object of research objectively and factually. The results obtained from observation activities are that this abandoned animal shelter still uses conventional methods to carry out its operational activities, such as making adoption records in a book. Interviews were also conducted with the owners and managers of abandoned animal shelters to obtain various information needed such as the types of animals that can be adopted, procedures for making adoptions, and also monitoring efforts for animals that have been adopted.

Literature study

At this stage, a search for various reference sources relevant to the research topic is carried out, both from websites, books, and research journals accessed from the internet.

System Development

Stages in system development using waterfall methodology, consisting of:

1. Analysis

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Is the initial stage of the system development methodology. This stage is carried out by discussing with the owner of the abandoned animal shelter to get information on the problems faced, then described with a fishbone diagram as shown in Figure 1 below:

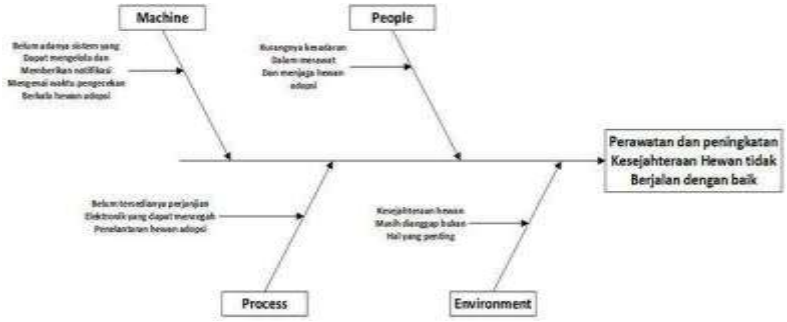

Figure 1. Problem Analysis

Analysis is also carried out to find out the entities that will interact with the system. The analysis of functional requirements that have been obtained is then described in the form of a use case diagram as shown in Figure 2 below:

Figure 2. Usecase Diagram

2. Designing
   In the second stage, the design of the application display is carried out in accordance with the results of the analysis that has been obtained previously. The design of the application display is a depiction, planning and sketching of applications designed using the Figma application. In addition, database design is also carried out.
3. Implementation

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After completing the design of the application display, then the design will be implemented with the Visual Studio Code programming language.

4. Testing
   The last stage of application development is to test the functionality of the application, namely using the blackbox testing method. Testing is also carried out to assess user acceptance of the application using the Unified Theory of Acceptance and Use of Technology (UTAUT).

Abandoned Animals

According to Law of the Republic of Indonesia No. 41/2014 on animal husbandry and animal health article 3 paragraph 4, a pet is an animal whose life is partly or wholly dependent on humans for certain purposes [11]. Abandoned animals are animals that do not have a place to live or an owner to take care of them. According to one of the world's animal rights organizations, People for the Ethical Treatment of Animals (PETA), there are at least 70 million abandoned dogs and cats struggling to live, they come from owners who abandon them, people who help them leave or even because they don't want the animal anymore [12]. With so many abandoned animals that are not adopted, it is not uncommon for them to end up euthanized. Euthanasia is the medical act of slowly ending an animal's life. The PETA organization says that more than six million dogs and cats in America are captured, of which two to three million are euthanized every year to reduce the population [13].

Click-Wrap Agreement Method

In an electronic agreement, there are several methods used to produce validity in the electronic agreement. One method that is often used in electronic contracts is the click-wrap agreement method. This method is often used because of the convenience offered without eliminating the legal validity of the electronic agreement.

Click-wrap agreement is an electronic agreement with standard clauses commonly found in trading activities through electronic systems [5]. In addition, a click-wrap agreement can be defined as an acceptance method for consumers who want to make transactions to purchase goods or services offered by online media [6]. Based on this description, a click-wrap agreement can be interpreted as an electronic agreement process where one party provides a standard electronic contract and the other party agrees to the electronic contract by clicking on the icon that has been provided as a form of approval.

There are stages of the click-wrap agreement method in electronic agreements, namely as follows:

1. The party who will agree to the electronic contract is required to read and understand well the contents of the electronic agreement. This click-wrap agreement is commonly found when someone wants to download software, register an account on a platform and others [7].
2. Approval of the electronic contract that has been provided by clicking the approval icon that has been provided makes the electronic contract valid and binding to be implemented by both parties to the agreement [6].

Blackbox Testing

System testing is the process of finding errors contained in the system, then making improvements. This stage is important in system development because it is a stage to ensure that a system is free from errors.

Blackbox testing is a stage used to test the smooth running of the program that has been made, blackbox testing is important to do with the aim that there are no errors in the flow of the program that has been made. Blackbox testing is a test that is generally concerned with verifying that the system can function correctly from a user perspective. This test usually cannot verify internal system processes and only the actual results seen by system users [8].

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The blackbox testing method is a system test that focuses on the functional specifications of the system. Blackbox testing finds things like incorrect or missing functions, interface errors, errors in data structure and database access, performance errors and initialization and termination errors. There are several techniques of backbox testing including equivalence partitioning, boundary value analysis or limit testing [8].
The testing technique used in this research is Boundary Value Analysis (BVA), which aims to test the input limit or input to the system and monitor the resulting output. The purpose of testing with the BVA method is to find bugs or errors in the system that appear when the input reaches a certain value limit.

Unified Theory of Acceptance and Use of Technology (UTAUT)
The Unified Theory of Acceptance and Use of Technology (UTAUT) model is a unified model developed by Venkatesh et al (2003) based on cognitive social theory with a combination of eight leading research models on information technology acceptance. The UTAUT model has four key constructs, namely performance expectancy, effort expectancy, social influence, and facilitating conditions that have an influence on behavioral intentions to use technology [9].
Performance expectancy is the extent to which an individual believes that using the system will help him to achieve benefits in a particular job or activity. Effort expectancy is the level of ease associated with using the system/technology by users. Social influence is the extent to which a person's perception that others believe that it is better to use the system/technology. Facilitating conditions are the extent to which an individual believes that technical and organizational infrastructure is available to support the use of systems/technology [10]. The UTAUT concept can be seen in Table 1 below.

Table 1. UTAUT Concept

UTAUT Conception	Conception Roots
Performance Expectancy	Perceived usefulness
	Extrinsic Motivation
	Job-fit
	Relative Advantage
	Outcome Expectation
Effort Expectancy	Perceived Ease of Use
	Complexity
	Ease of Use
Social Influence	Subjective Norm
	Social Factors
	Image
Facilitating Conditions	Perceived Behavioral Control
	Facilitating Conditions
	Compatibility

RESULTS AND DISCUSSION
User interface is a visual display where users can see and simultaneously interact with computer systems, applications or websites. With a user interface, users become easy to use, efficient, feel comfortable and happy in the process of interacting with the system. The following are some of the results of the user interface implementation of the web-based animal adoption application.

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Figure 3. Main Page

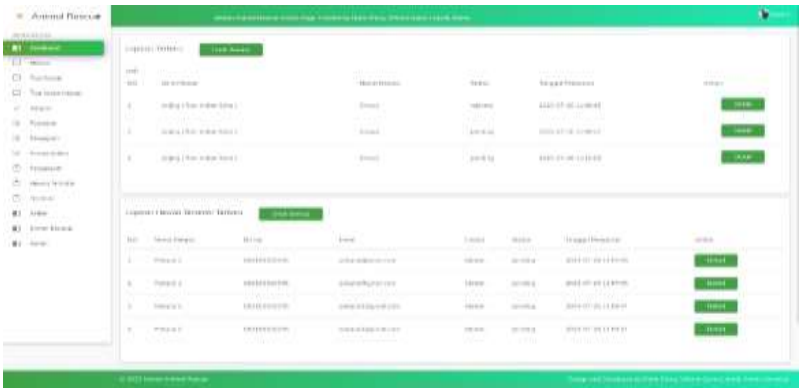

Figure 4. Admin Dashboard Page

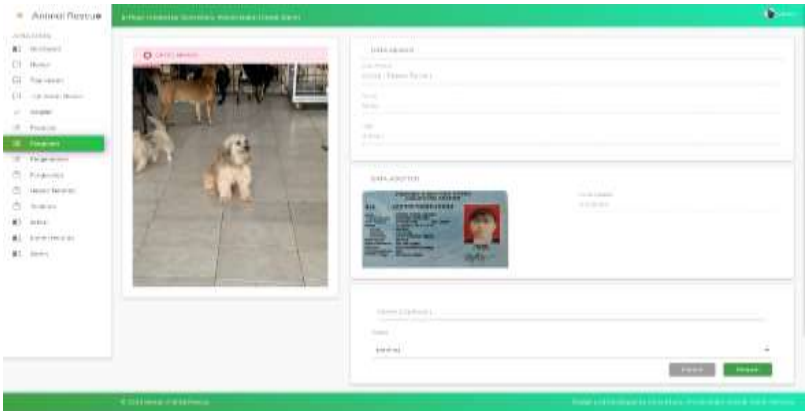

Figure 5. Animal Adoption Submission Page

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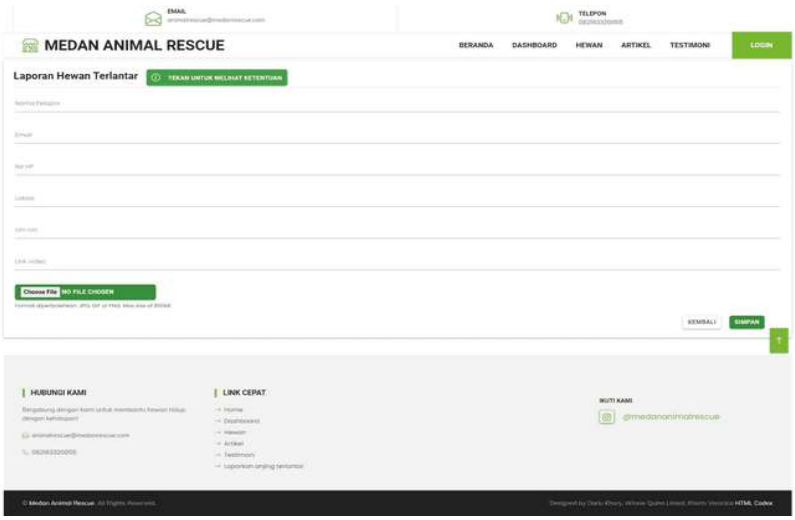

Figure 6. Abandoned Animal Report Page

Blackbox testing is carried out on three types of users, namely admin, adopter and guest. Some blackbox testing results can be seen in Table 2 below.

Table 2. Blackbox Testing Results

No.	Testing	Test Scenario	Expected results	Test Results	User Type
1	Perform login	Input username and password	Successful login	Success	Admin, Adopter
2	Search for adoptable animal list	Enter a time range for the search	Display a list of adopted animals according to the range	Success	Guest, Adopter
3	Apply for animal adoption	Adopter agrees to the terms of adoption	Adopter successfully applies for adoption	Success	Adopter
4	Make an adoption agreement	Adding an adoption agreement	The adoption agreement was successfully added	Success	Admin
5	Make a report on abandoned animals	Complete data on abandoned animals	Successfully create a report	Success	Guest, Adopter

Testing is also carried out to determine user acceptance of the application that has been developed. This test involved 5 admins, 5 guests, and 10 adopters. Testing is done by distributing questionnaires via google form. The number of questions on the questionnaire amounted to 13 questions using a Likert scale of 5 to measure the opinions of the respondents. Questions on the questionnaire include 4 questions related to performance expectancy, 1

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question effort expectancy, 1 question social influence, and 7 questions facilitating conditions. The following table shows the results of each respondent's response to each question.

Table 3. Respondent Questionnaire Results

No.	UTAUT Categories	Respondent																				Mean
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1	effort	4	4	5	3	5	4	4	5	4	5	4	4	5	3	5	4	4	5	3	5	4.25
2	facilitating	5	4	4	4	5	5	4	4	4	5	4	4	4	5	5	4	4	4	4	5	4.35
3		5	4	4	5	4	5	4	4	5	4	5	4	4	5	4	4	5	4	5	4	4.4
4		4	5	5	4	4	4	5	5	4	4	4	5	5	4	4	4	5	5	4	4	4.4
5		4	4	3	3	5	4	4	5	5	5	4	4	5	3	5	4	4	3	3	3	4
6		5	5	4	5	5	5	5	4	5	5	5	5	4	5	4	5	5	4	5	5	4.75
7		4	4	5	4	5	4	4	5	4	5	4	4	5	4	5	4	4	5	4	5	4.4
8		4	5	3	4	4	4	5	5	4	4	4	5	4	5	4	4	5	3	4	4	4.2
9	performance	5	5	4	5	5	5	5	4	5	5	5	5	4	5	4	5	4	5	5	5	4.75
10		5	4	4	4	4	4	4	4	4	4	5	4	5	4	4	5	4	4	4	4	4.2
11		5	5	3	5	4	4	5	3	5	3	5	5	3	5	4	5	5	4	5	3	4.3
12		5	4	5	5	4	5	4	5	5	4	4	4	5	5	4	5	4	5	5	4	4.55
13	social	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4.05

Based on the results of the questionnaire from respondents, the average value of each question is greater than 4, while the percentage of each UTAUT category is as follows:

Table 4. UTAUT Percentage

UTAUT Categories	% acceptance
performance expectancy	89
effort expectancy	85
social influence	81
facilitating conditions	87.14
Mean	85.54

CONCLUSION

After successfully developing the animal adoption application and testing, the following conclusions were obtained: Based on the results of blackbox testing, it can be concluded that the functions contained in the application have run properly and correctly. From testing using UTAUT, it shows that the average user acceptance of the animal adoption application is 85.54%. This means that the development of animal adoption applications has a fairly high level of acceptance because it makes it easy for adopters to carry out the animal adoption process, the animal adoption administration process can run well and systematically, and also makes it easy for the public to report abandoned animals.

REFERENCES

[1] M. Drh. Ni Wajan Leestyawati Palgunadi, "Kesejahteraan Hewan (Animal Welfare)," 7 April 2020. [Online]. Available: https://distanpangan.baliprov.go.id/kesejahteraan-hewan-animal-welfare/. [Accessed Desember 2023].

[2] M. B. M. Bracke, . H. M. Vermeer and R. A. v. Emous, Animal Welfare Regulations and Practices in 7 (potential) Trade-agreement Partners of the EU with a Focus on Laying

Doi. 10.54209/jurnalkomputer.v15i02.173

Hens, Broilers and Pigs: Mexico, Chile, Indonesia, Australia, New Zealand, Turkey and the Philippines, Wageningen Livestock Research, 2019.

[3] C. Evelina and N. Carina, "Fasilitas Penanganan Hewan Terlantar," *Jurnal STUPA Sains, Teknologi, Urban, Perancangan, Arsitektur,* Vols. 3, No.2, pp. 2223-2236, 2021.

[4] A. B. Pamungkas and N. E. Nastiti, "Perancangan Media Informasi Berbasis Teknologi Mobile Tentang Tempat Penampungan Hewan Terlantar di Bandung," in *e-Proceeding of Art & Design*, 2020.

[5] L. A. Hasudungan, E. Gultom and N. Suryanti, "Penentuan Utang yang Telah Jatuh Waktu pada Click-Wrap Agreement yang Tidak Mencantumkan Klausul Jatuh Waktu Utang," *Jurnal Ilmiah Universitas Batanghari Jambi,* vol. 22, pp. 2306-2311, 2022.

[6] A. A. Solaiman, "Perlindungan Hukum Pembeli Polis Asuransi Online," *Jurnal Hukum Bisnis,* vol. 2, pp. 52-66, 2018.

[7] M. Fathur, "Tanggung Jawab Tokopedia Terhadap Kebocoran Data Pribadi Konsumen," in *National Conference on Law Studies (NCOLS)*, 2020.

[8] Y. F. Achmad and A. Yulfitri, "Pengujian Sistem Pendukung Keputusan Menggunakan Black Box Testing Studi Kasus E-wisudawan di Institut Sains Dan Teknologi Al-Kamal," *Jurnal Ilmu Komputer,* vol. 5, 2020.

[9] A. A. Taiwo and A. G. Downe , "The Theory Of User Acceptance And Use Of Technology (UTAUT): A Meta-Analytic Review Of Empirical Findings," *Journal of Theoretical and Applied Information Technology,* 2013.

[10] V. Venkatesh, J. Y. L. Thong and X. Xu, "Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology," *MIS Quarterly,* vol. 36, pp. 157-178, 2012.

[11] "Perubahan atas Undang-Undang Nomor 18 Tahun 2009 Tentang Peternakan dan Kesehatan Hewan," JDIH BPK RI, 2014. [Online]. Available: https://peraturan.bpk.go.id/Details/38801. [Accessed November 2023].

[12] "Companion Animal Overpopulation," PETA, [Online]. Available: https://www.peta.org/issues/animal-companion-issues/overpopulation/. [Accessed November 2023].

[13] H. N. Athifah and Z. Nadia, "Analisis Preferensi User Interface untuk Adopsi Hewan Terlantar," *Jurnal Desain,* vol. 11, September 2023.