

WEBSITE-BASED ARTIFICIAL INTELLIGENCE IDENTIFICATION SYSTEM FOR CHICKEN DISEASES

Lia widiyani, Yuri Fitriani

Information Systems Study Program, STMIK Pringsewu, Lampung
Wisma Rini Steet No. 09 pringsewu Lampung

E-mail: liawidiyani5@gmail.com, yurifitriani@gmail.com

Article Info

Article history:

Received March 13, 2022

Revised March 20, 2022

Accepted April 15, 2022

Keywords:

expert checklist,
chicken diseases,
based websites

Abstract

The rapid development of the animal husbandry industry has resulted in an increase of in chicken Populations that cause various types of chicken diseases such as bird flu, Gumboro and others. This Becomes an obstacle for the breeders, especially difficult, to diagnose and lack of knowledge of the disease and symptoms of symptoms that are the caused. In this modern era of a lot of science that can be utilized to help everyday life such as expert systems that can imitate human knowledge into the computer, so that it can solve the problem worthy of an expert. This website uses PHP and MSQl programming language as its database.

I. INTRODUCTION

Poultry industry in Indonesia has increased from year to year, especially in the production of chicken meat which accounts for more than the production of other poultry in accordance with the statistical data in 2016 the population of broiler (boiler) reached 1.59 billion birds, laying chicken (layer) reached 162 million chickens and chicken instead of race (native) reached 299 million head or an increase of approximately 4.2% of the population in 2015. Produksi poultry accounted for 83% of national meat supply, while the production of chicken meat accounts for 66% of national meat supply[1] but an increase in the production of chicken along with increased risk of disease, one of which global warming is causing extreme climate change threatens the chicken immune system, health and quality of meat. Based on the research results and Rina Siti Rohajawati Supriyati (2010) expert system that is capable of making a diagnosis quickly and accurately to the symptoms that caused by the chicken is expected to assist the farmers in anticipation of losses caused by the disease. Necessary accuracy and precision calculations in diagnosing symptoms of the disease in order to conclude the results[2]. Based on research Meilany Nonsi Tentua (2009). growth and its rapid proliferation causes chicken population even more in comparison with other livestock population. Therefore, the disease on him

even more and more, from mild disease to a disease that can be transmitted to humans and cause diseases such as bird flu death[3]

In general, the research carried out to solve the problem and find a solution, and from the analysis of the symptoms of the symptoms that caused the diseases it can be seen easily, so that farmers can reduce the risk of large losses. using technology today its rapid development and implementation of the utilization degan tick experts will facilitate farmers to know what kind of disease experienced by chickens so that farmers will be more responsive to treatment. This research was conducted because of its increasing market demand for meat and eggs are always increasing every year of her, but the threat to the human infectious diseases that could make consumers uneasy. In addition to lowering the quality of chicken meat and eggs threat of disease is also very detrimental and harmful to farmers because it can be transmitted to humans which can cause death. Thus the early detection of disease in chickens is very important so as not contagious and casualties. This study aimed to facilitate the farmers to know the type of disease in chickens in order to reduce the risk of large losses in an easy way and to improve the quality of meat and chicken health.

Berdsarkan background in a bag then obtained his formulation of the issue is: how to know the chicken from the disease that caused the symptoms using expert implementation checklist based websites. The purpose of this study was to produce an implementation expert checklist based website to find out the type of disease and how his treatment based on symptoms experienced, so the implementation of the experts checklists can be useful for poultry breeders and is expected to be a reference and comparison for researchers selanjut his.

II. THEORETICAL BASIS

2.1. Expert system

Rosnelly Rica (2012) expert system is a computer system that is the show to mimic all aspects of human life in making decisions pakar. dan an expert system can take maximum SCARA specialized knowledge as an expert to solve the problem. Expert systems can not be separated from the human elements related in personail related his existing 4, namely: expert (ekpert), builder of knowledge (knowledge engineer), the builder of the system (systems engineer), user[4]. Turban (1995) expert system in interchanges by two main parts, namely the development environment and environmental consulting section. The development environment is useful to include experts in science and environmental consulting expert system

useful to take the knowledge of experts through expert systems. The components of the expert system can be seen in the following figure[5]–[7].

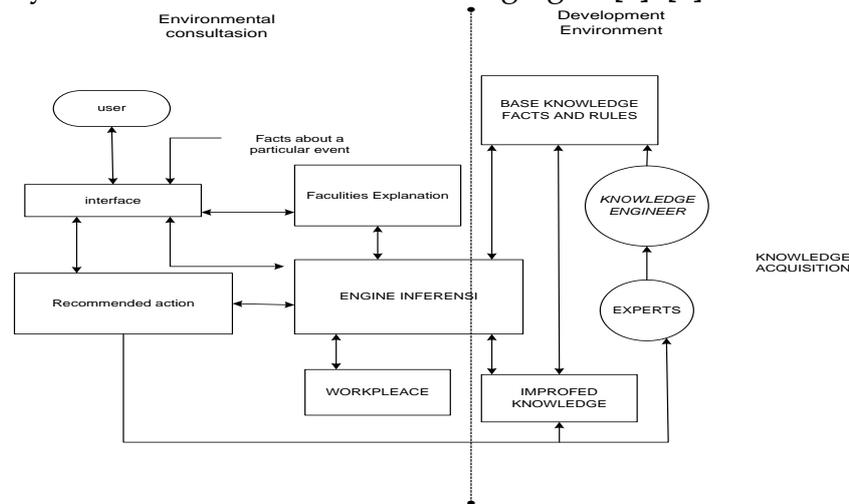


Fig 1. expert system architecture (Turban 1995).

Knowledge of an expert system can be presented in many ways. But the method is often used to present the results of knowledge is in the form of types of rules (rule)if ... then (jika..maka). by Turban (1995) states that the basic concept of an expert system contains some element or elements of expertise, experts, transfer of expertise, inference, and the ability to explain the rules [8].

2.2. Data chicken diseases

Bunafit Nugroho (2014) After carefully following types of diseases that often attack the chicken.

Table 1 Data disease

Code	Name of Disease
P1	defecation lime
P2	chicken cholera
P3	Bird flu
P4	tetelo
P5	typhus chicken
P6	Dysentery
P7	Gumboro
P8	salesma chicken
P9	chronic cough
P10	edema chicken
P11	coughing up blood
P12	Marek
P13	egg production
P14	initial production

(Source: Bunafit nugroho)

2.3.Data chicken disease symptoms.

From the data in Table 1 the disease in the data obtained symptoms that may cause disease symptoms in chickens.

Table 2 Data of disease symptoms

Code	Symptoms of the disease
G1	Decreased appetite
G2	shortness of breath
G3	breath snoring
G4	rapid breathing
G5	sneeze sneezing
G6	Cough
G7	Thin body
G8	Dull hair and wrinkled
G9	Diarrhea
G10	Decreased egg production
G11	Ugly egg production
G12	Looked sleepy and hairs standing
G13	Cold
G14	listless
G15	Greenish diarrhea forage
G16	Whitish diarrhea putihan
G17	Diarrhea mixed with blood
G18	Many drink
G19	Pale face
G20	It appears bluish
G21	totter
G22	Swollen red cockscomb
G23	pale comb
G24	Swollen foot
G25	Inflamed foot / lame
G26	limp leg
G27	Eyelid redness
G28	Frothy fluid out of the eye
G29	Discharge from the eyes and nose
G30	Out the pus from the eyes and the smell
G31	swollen head
G32	head terputar
G33	Watery eyes
G34	Swelling of the sinuses and eyes
G35	abdominal bloating
G36	wings hang
G37	There is a white kototan around the anus
G38	There is mucus mixed with blood in the oral cavity
G39	Lay half of his sleeping on the floor
G40	Sitting with a hunched stance
G41	Died suddenly

(Source: Bunafit nugroho)

2.4. Knowledge Representation

Knowledge used by the researchers is to use the rules of production, prepresentasi is used to determine the process and conclusions. In this type of rule rule can specify rules that are in use on the following diseases[9] :

Table 3. Diagnosis rules table rule.

No.	IF AND	THEN
	(Symptoms)	(disease)
1	G1, G2, G4, G7, G8, G9, G10, G13, G16, G24, G37.	P1
2	G1, G2, G3, G6, G8, G9, G10, G12, G14, G15, G18, G22, G25, G29.	P2
3	G1, G2, G3, G5, G6, G9, G10, G20, G28, G31, G41.	P3
4	G1, G2, G3, G5, G6, G10, G14, G15, G21, G32.	P4
5	G1, G7, G8, G9, G12, G12, G14, G15, G23.	P5
6	G1, G7, G8, G10, G17, G19.	P6
7	G1, G8, G14, G16, G39, G40.	P7
8	G1, G5, G9, G10, G27, G30, G34.	P8
9	G1, G3, G5, G6, G9, G10, G12, G13, G14, G20.	P9
10	G1, G2, G7, G8, G23, G35.	P10
11	G2, G3, G5, G6, G33, G38	P11
12	G1, G4, G7, G19, G21, G26, G36.	P12
13	G4, G10, G11, G15.	P13
14	G9, G10, G16, G22.	P14

2.5. Website

Heri hidayat (2011) World wide web (www) or so-called web resource is one of the rapidly growing Internet. memalui web information distributed hypertext approach that allows a short text is the reference to other open documents[10]. Edy Winarno (2010) PHP is a programming language based web server (server-side) capable of parsing the php code to code php web extensions resulting in the display of dynamic website in the browser. MySQL is a database software that has a data type rational means mysql store its data in tabular form related tables.[11]

III. RESEARCH METHODS

Methods used in the development of this expert system application using the SDLC (systems development life cycle) According to Mohammed Muslihudin (2016) SDLC is a process of creating and modifying the system and metedologi models are in use to develop a system of systems. The following phases of the SDLC phases: planning, analysis, design, implementation, testing, management[12][13], [14]. **Plan** the first tahanp buy hosting and domains to create a website to make it easier to diagnose the disease breeder chickens. **Analysi** The main threat of the farmers are fighting the disease, but farmers are difficult to diagnose the disease experienced by chickens, as a result there was an error in the handling of which caused huge losses. Tekologi progress in its data store and easily access anytime and anywhere makes a lot of people prefer to be consulted on the website. **Design** at this stage the owners provide information see the web page as promotional material. The database is used to create and search the web and HTML as an index

for the search. **Implementation** at the implementation stage, namely coding program in accordance with the design that has been created and uses MySQL database system. **Trials** in the pilot phase of testing is done the same practice-based expert system in order to avoid error website and its results in accordance with the previously designed. **Management** on stage Management then do check the program on a regular basis to anticipate the virus problems/damage.

The following researchers will become clear right mindset researchers using flowchat

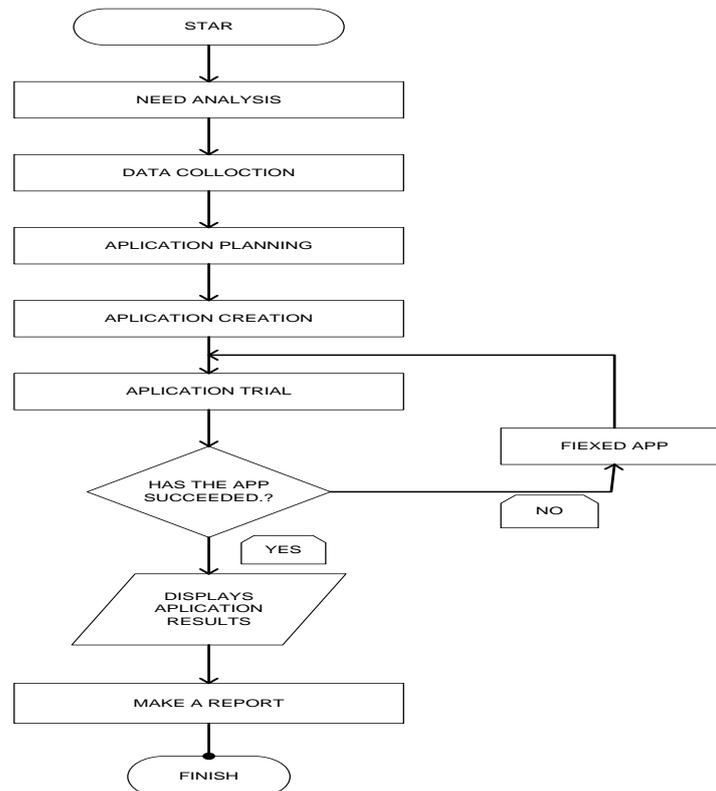


Fig 2. flowchat flow of thought

In Figure 1 the researchers pelakukan activity at an early stage, namely:

- a. Analysts need, the analysis needs of researchers seeking information problems and needs of poultry farmers in the village wayjaha.
- b. then proceed to the stage of data collection that memdat information through the breeders, veterinarians and internet.
- c. Then design the appropriate application to the desired by the breeder
- d. After designing the application is the application process, coding and as his.
- e. Then the experimental stage application at this stage the application is tested whether the application is successfully in Bolts without error or not, if the application is still experiencing error or not correct it will be done in stages of repair so seterus her, but if the application is in the test is successful then the application can already use ,
- f. if the application has not been successfully created or is still experiencing an error, the application repair phase will be carried out.
- g. application improvements that are in the form of improved coding.
- h. After repairs will be tested again.

- i. And if the application tested is successful the application results will appear
- j. In the application display a diagnostic page will appear.
- k. And the last step is to report the final results of the application creation process.

IV. RESULTS AND DISCUSSION

Context diagrams are used to describe the general flow of the system. starting from how many related entities, the processes that can be carried out by each entity and the sub-systems that can be accessed by each entity. The following context diagram chicken disease diagnosis expert system:

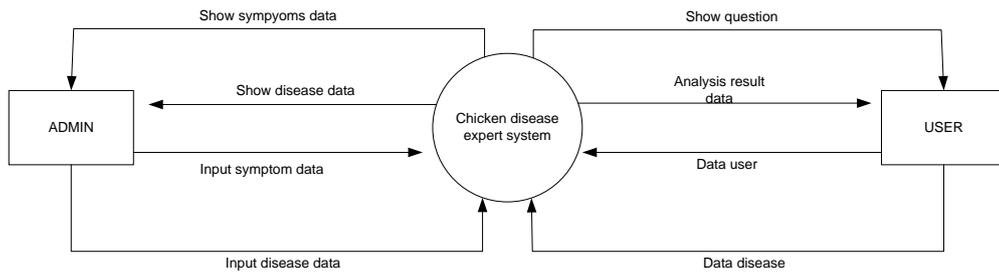


Fig 3. Context diagram image

Data Flow Diagram or DFD is a diagram that is used to describe the overall system flow in more detail. The flow described in the DFD includes the process flow for each entity that can be carried out on a system, the relationship between the system and the related database, as well as the description of the relationship between existing sub-systems. Here DFD level 0:

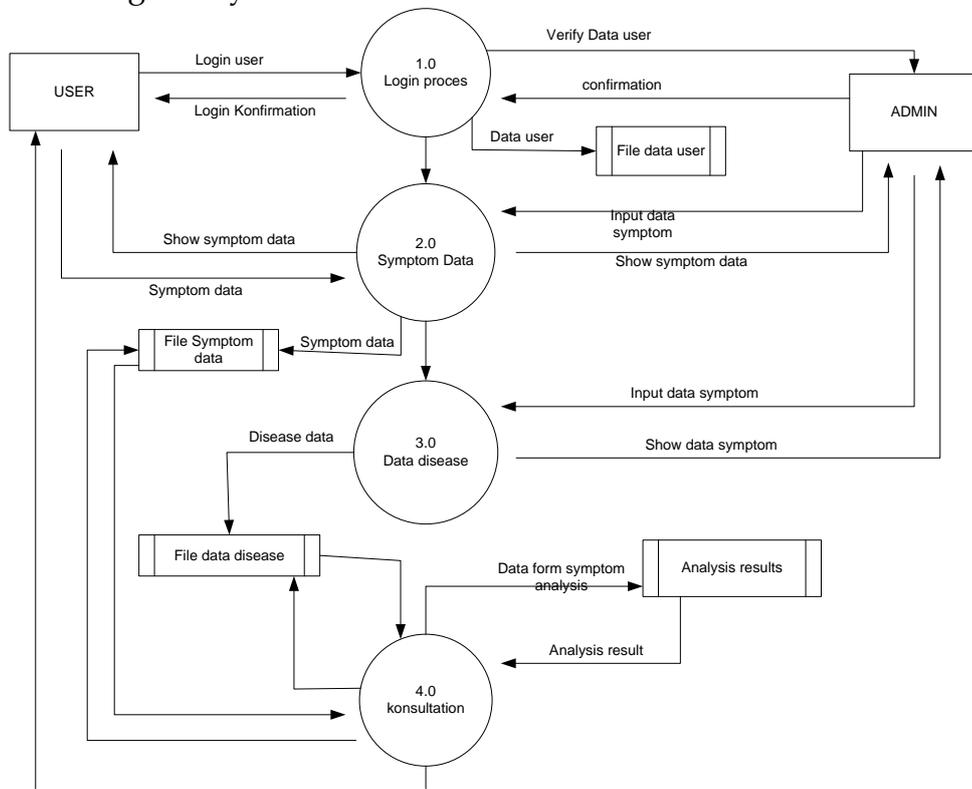
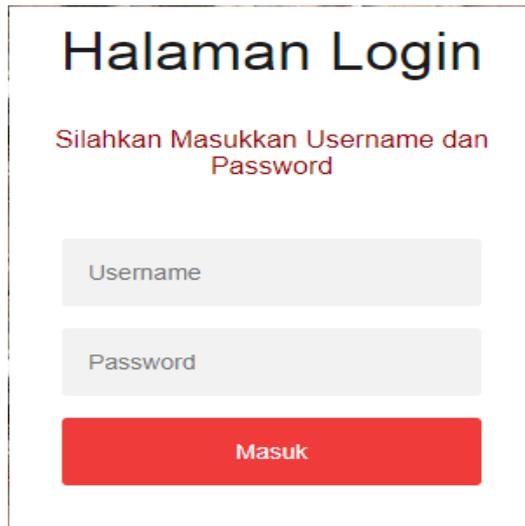


Fig 4. DFD level 0

the login page display is used to enter a username and password before entering a system.



Halaman Login

Silahkan Masukkan Username dan Password

Username

Password

Masuk

Fig 5. Login Menu

Main page menu display for chicken disease detection system



Fig 6. Chicken disease diagnosis menu

Display of the checklist menu page that is used as a page for inputting symptoms indicated in chickens.



sistem pakar ceklist penyakit ayam

Menu Pekerja

gejala-gejala yang ditimbulkan:

DIAGNOSA

obat obatan

KELUAR

- nafsu makan berkurang
- nafas sesak
- nafas ngorok
- nafas cepat
- bersin bersin
- batuk
- badan kurus
- bulu kusam dan berkerut
- diare
- produksi telur menurun
- kualitas telur jelek
- kelihatan ngantuk dan bulu berdiri
- kecinginan
- tampak lesu
- mencret kehijau hijauan
- mencret keputih putihan
- mencret bercampur darah
- banyak manum
- muka pucat
- nampak membluru

Fig 7. Chicken disease identification menu

The display of the diagnostic results page after inputting the indicated symptoms in chickens. The page view can be seen in the image below.

Analysis of system

Analysis of the results of this research to whether the application is running as desired.

Table 3. Test Application

No.	question	Trials	
		Yes	No
1	whether the application can be run ..?	√	
2	Whether the user can log ...?	√	
3	If the user can see the data symptoms ..?	√	
4	Whether the user can consult ...?		√
5	Whether the user can log out ..?	√	

Based on the analysis of the system's application expert system can be used but not in accordance with the expected

V. CONCLUSION

Bersarkan issues that have been researched and selesaikna with this report take the conclusion as follows the system is designed with the rules of production which is expected to measure the level of trust users on the system. This application is built with PHP and MySQL that have the nature of the multi-user so that they can be used by many users. With the existence of this system, it will be easier for farmers to determine the types of diseases experienced by chickens so that they can be prevented so that the chickens are healthier.

REFERENCES

- [1] Ms. (Humas D. P. dan K. H. Yuliana Susanti, SPt dan • BERITA, "Dirjen PKH Kementan Apresiasi PT. CPI Hibahkan Kandang Ayam Close House Kepada 4 Universitas Untuk Kegiatan Teaching Farm," 2017.
- [2] S. Rohajawati dan R. Supriyati, "Sistem Pakar Diagnosa Penyakit Unggas dengan Metode Certainty Factor," *J. Teknol. Inf.*, vol. 4, hal. 41-46, 2010.
- [3] Meilany Nonsi Tentua, "Sistem Pakar Diagnosa Penyakit Ayam," *Din. Inform.*, vol. 3, no. September, hal. 95-110, 2009.
- [4] R. Rosnelly, *Sistem Pakar Konsep dan Teori*. Yogyakarta: Andi Offset, 2011.
- [5] J. S. R. Jang, "ANFIS: Adaptive-Network-Based Fuzzy Inference System," *IEEE Trans. Syst. Man Cybern.*, vol. 23, no. 3, hal. 665-685, 1993.
- [6] B. Jagadeesh, P. Rajesh Kumar, dan P. Chenna Reddy, "Fuzzy inference system based robust digital image watermarking technique using discrete cosine transform," *Procedia Comput. Sci.*, 2015.
- [7] E. Turban, J. E. Aronson, dan T.-P. Liang, "Decision Support Systems and Intelligent Systems," *Decis. Support Syst. Intell. Syst.*, vol. 7, hal. 867, 2007.
- [8] M. Arhami, *Konsep Dasar Sistem Pakar*. ANDI, 2005.
- [9] Bunafit Nugroho, *Aplikasi Sistem Pakardengan PHP dan Editor Dreamweaver*. yogyakarta: GAVA MEDIA, 2014.

- [10] H. Hidayat, *Cara Instant Menguasai Pemrograman Web*. agogos publishing, 2011.
- [11] Edy Winarno, *Easy Web Programming with PHP plus HTML5*. Alex media komputer indo, 2010.
- [12] M. Muslihudin, *Analisis dan Perancangan Sistem Informasi Menggunakan Model Terstruktur dan UML*. CV. Andi Offset, 2016.
- [13] S. A. Muhamad Muslihudin, Fauzi, *Metode Desain & Analisis Sistem Informasi Membangun Aplikasi Dengan UML Dan Model Terstruktur*. Yog: Andi Offset, 2021.
- [14] O. Muhammad Muslihudin, *Analisis Dan Perancangan Sistem Informasi Menggunakan Model Terstruktur Dan UML*. Yog: Andi Offset, 2016.