Journal of Applied Science, Technology & Humanities
Volume 2, Issue 3, June, 2025, Pages 416-439

ISSN 3032-5765
DOI: https://doi.org/10.62535/1q1pyn27

Designing a Website-Based Inventory Information System at 'NeoSkin' Cosmetics Store Using User-Centered Design

Evlyn Jane Putri [1]*
[1]* Software Engineering Technology Study Program, College of Vocational Studies, IPB University
selynevlyn@apps.ipb.ac.id

Devi Fedrianingsih[2], Meilani Jesica[3], Irfan Tigranaufal Nugraha[4], Danke Hidayat[5], Ramma Dwi Rachmat[6], Mahatmadi Ariq Mayangkara[7], Ade Riyanti[8], Afifah Rodhiyatun Nisa[9]
[23]Software Engineering Technology Study Program, College of Vocational Studies, IPB University
[2]devifedrianingsih@apps.ipb.ac.id, [3]melanijesica@apps.ipb.ac.id
[456789]Computer Engineering Technology Study Program, College of Vocational Studies, IPB University
[4]tigranaufalirfan@apps.ipb.ac.id, [5]dankehidayat@apps.ipb.ac.id, [6]ry0ramma@apps.ipb.ac.id,
[7]mahatmadiariq@apps.ipb.ac.id, [8]aderiyanti@apps.ipb ac.id, [9]afifahrnisa@apps.ipb.ac.id

Inventory system plays an important role in managing inventory in the warehouse, especially for companies engaged in product sales. in the field of product sales. NeoSkin, as one of the cosmetics stores, needs an effective and efficient system to manage inventory reports. an effective and efficient system to manage inventory reports in a structured manner. in a structured manner. This research aims to design and develop web-based Inventory Information System at NeoSkin cosmetics store, with a User Centered Design (UCD) approach that focuses on the needs of users. User Centered Design (UCD) approach that focuses on the needs and experience of users. user experience. Black Box Testing is used to ensure that the system system functions properly and according to user needs.

Keywords: Black Box Testing, Cosmetic Store, Inventory Information System, User Centered Design, Website

INTRODUCTION

In today's digital era, advances in information technology have a major impact on various aspects of life, including in the inventory management system. For companies engaged in product sales, inventory is one of the most important components in their operations. This inventory is used on an ongoing basis in daily sales activities and can be presented in the form of an inventory report. (Badrul, 2021). An inventory system is a system that functions to manage stock items in a warehouse. If a company wants to manage items recording and reporting in a planned, controlled, systematic, and connected way, it needs an inventory system. (Badrul, 2021).

NeoSkin, as one of the cosmetic stores, requires an efficient system to manage items data reports, incoming items reports, and outgoing items reports. Currently, the inventory management process at NeoSkin is still done conventionally, namely the admin inputting data manually using a spreadsheet, which can cause errors in recording and reporting stock items. In addition, a User Centered Design approach is needed in designing this inventory information system, because this approach focuses on user needs and preferences. (Mukti, 2018).

This research has a high urgency because NeoSkin, as a cosmetic store, faces challenges in managing the supply of items. With a manual inventory management system, the risk of errors in recording incoming and outgoing items increases, which in turn will potentially cause shortages or overstocks. Therefore, designing a website-based inventory information system with a User Centered Design approach is very important to minimize the risk of errors in managing items data and ease of use of the system by the admin as a user.

Based on research conducted (Badrul, 2021) A website-based inventory system can help improve efficiency in recording and managing items data, thus saving time in the process. In addition,

research by (Dakhilullah dan Suranto, 2022) also shows that the application of UCD to web-based applications succeeds in creating intuitive and easy-to-use interfaces. (Daffa et al., n.d.)

This research supports previous studies by emphasizing the importance of intuitive and responsive interface design to improve user experience. By applying the User Centered Design (UCD) approach, it is expected that the design of the inventory information system on the NeoSkin website can be designed to support the user experience so that it is easy to use, efficient, and in accordance with user needs.

This research aims to design and implement an effective and efficient website-based inventory information system using the User Centered Design approach, so that it can facilitate the management of items data, incoming items reports, and outgoing items reports at NeoSkin cosmetic stores.

METHODS

The author uses the User Centered Design method, an approach used in design by directly involving the participation of users, namely warehouse administrators, to ensure that the developed system meets their daily operational needs. Users are involved in the development process through information gathering techniques such as interviews, problem solving, class diagram creation, and interface design (Nanda Wijaya Putra et al., 2023) . Furthermore, for the development of this wsbiste, usability testing is carried out with a black box testing approach by the user. Blackbox Testing is a software testing method that emphasizes testing application functions without considering the internal structure or workings of the application. (Fahrezi et al., n.d.).

This User Centered Design method has several stages, which can be seen from Figure 1 below.

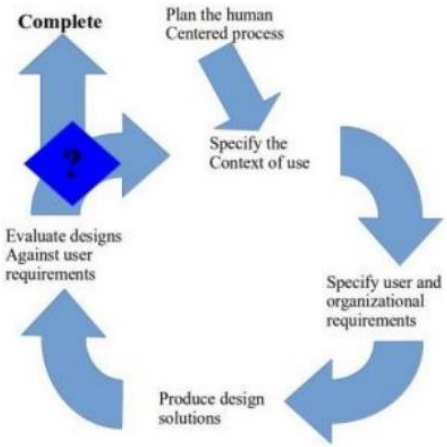

Figure 1. User Centered Design Method

1. Specify the Context of Use : At this stage, the developer understands the user context of the system to be designed. The context in question includes who will use the system, the reasons users utilize the system, and in what situations or conditions they use it (Queen Virginia Jeanifer Tambayong, 2022).
2. Specify User and Organizational Requirements : This stage the developer determines the user's needs to create an application design (Akay et al., n.d.).
3. Produce Design Solutions : This stage performs design design as a solution to the product to be developed, which is tailored to user needs (Badrul, 2021).
4. Evaluate Design Against User Requirement : This stage evaluates the designs and prototypes at the 'Produce Design Solutions' stage carried out by users to ensure whether they are in accordance with user needs (Ernawati & Dwi Indriyanti, n.d.).

To understand user needs, the author needs to collect the data needed in this research using several data collection techniques, namely:

a. Observation

The author makes direct observations at the NeoSkin cosmetics store so that the author can identify problems that exist in the inventory system at NeoSkin. Observations are made directly in the field so that the author can understand the conditions of the system used today.

b. Interview

The author conducted a direct interview with Mrs. Lunia, the owner of NeoSkin Cosmetic Shop, to obtain more information about the data and needs in designing a better inventory system. Through this interview, the author gained a deeper understanding of the business flow, specific needs of the store, and expectations to be achieved with the new inventory system. Ms. Lunia provided insight into the weaknesses of the current system.

c. User Testing

The author conducted observations and interviews with users while interacting with the NeoSkin inventory system website. During this process, the author gets direct feedback from users regarding the usefulness of the system that has been implemented. This test aims to evaluate whether the designed system is in accordance with user needs or not.

To analyze the data that had been collected, the authors used descriptive qualitative analysis techniques. Data from observations, interviews, and user testing were interpreted in depth to identify patterns, needs, and problems faced by users. Information obtained from interviews with Ms. Lunia, the owner of NeoSkin, as well as user feedback when interacting with the system, was used to evaluate whether the proposed inventory system design was in accordance with the expectations and operational needs of the store. The results of this analysis then become the basis for preparing recommendations for improvement and further development of the system to make it more effective and efficient.

RESULTS AND DISCUSSION

The results of this research are in the form of designing a website-based inventory information system using a User Centered Design approach that focuses on user needs. In this design, the analysis of system needs is carried out by collecting data from users through direct interviews, where each information obtained is analyzed to produce a system design that is truly in accordance with user needs. This analysis process not only aims to design relevant features and workflows, but also to ensure that the developed system is able to provide an intuitive and easy-to-understand user experience.

This system needs analysis aims to ensure that the system meets user needs and is easy to understand when used, this needs analysis goes through four stages, namely:

1. Specify the Context of Use

This stage identifies the users who will use the website. This process is done with observations and interviews so that users can explain under what conditions they will use the website, and convey their specific needs. By doing this identification, the developer can ensure that the system is designed according to user needs. The following is an interview with the user:

Table 1. Interview Results

No.	Interview Results	Stakeholder
1.	**How does Neoskin Store usually record items leaving the warehouse?** Answer: "Admin records it manually on a spreadsheet. After the transaction is complete, the admin manually inputs the outgoing items data into the spreadsheet."	

2. **What is the workflow at Neoskin Store when receiving items into the warehouse?**
   Answer:
   "After the items arrive, the warehouse staff check the physical condition of the items and then report to the admin. If everything is good, the admin records the incoming items and updates the stock in the spreadsheet. Next, the admin will report it to the finance department."

3. **How does the admin report available stock items?**
   Answer:
   "The admin usually makes a monthly report by manually counting the stock, then sends it to the finance department via email in the form of an excel file."

4. **What are the main obstacles the admin faces in recording incoming and outgoing items and managing items data?**
   Answer:
   "Sometimes there are errors in recording items that cause discrepancies between physical stock and spreadsheets."

5. **What are the main needs of Toko Neoskin in managing items data?**
   Answer:
   "My main requirement is to have a system that can manage data automatically and provide accurate reports. I want to ensure that data on available and outgoing stock items can be accessed easily and quickly."

6. **How do you think the process of recording and reporting incoming items can be improved?**
   Answer:
   "A system that can update the stock as soon as the items come in would be very helpful."

7. **What features do you think will be most helpful in this new inventory system?**
   Answer:
   "A system that can record incoming and outgoing items would be very helpful, as well as, a feature to generate items reports quickly."

Name: Lunia Nur Larasati
Age : 26 years old
Occupation : NeoSkin Owner

From the results of interviews with NeoSkin shop owners, recording incoming and outgoing items is currently still done manually by the admin using a spreadsheet. The main obstacle faced by the admin is that recording errors often occur, causing discrepancies between physical stock and spreadsheets. To overcome this problem, NeoSkin Shop needs a system to manage inventory in the warehouse effectively and efficiently.

2. Specify User and Organizational Requirements

This stage identifies user needs that are adjusted to the NeoSkin Inventory System Activities and Features table, class diagram and activity diagram to provide a clear picture of how the system will work.

Table 2. NeoSkin Inventroy System Activities and Features

Business Process Name	Feature Name (Routines)	User
Inventory	Read items data	Warehouse Admin
	Add items data	
	Edit items data	
	Delete items data	
	Manage items data	
	Read incoming items data	
	Add incoming items data	
	Edit incoming items data	
	Delete incoming items data	
	Manage incoming items data	
	Read outgoing items data	
	Add outgoing items data	
	Edit outgoing items data	
	Delete outgoing items data	
	Manage outgoing items data	

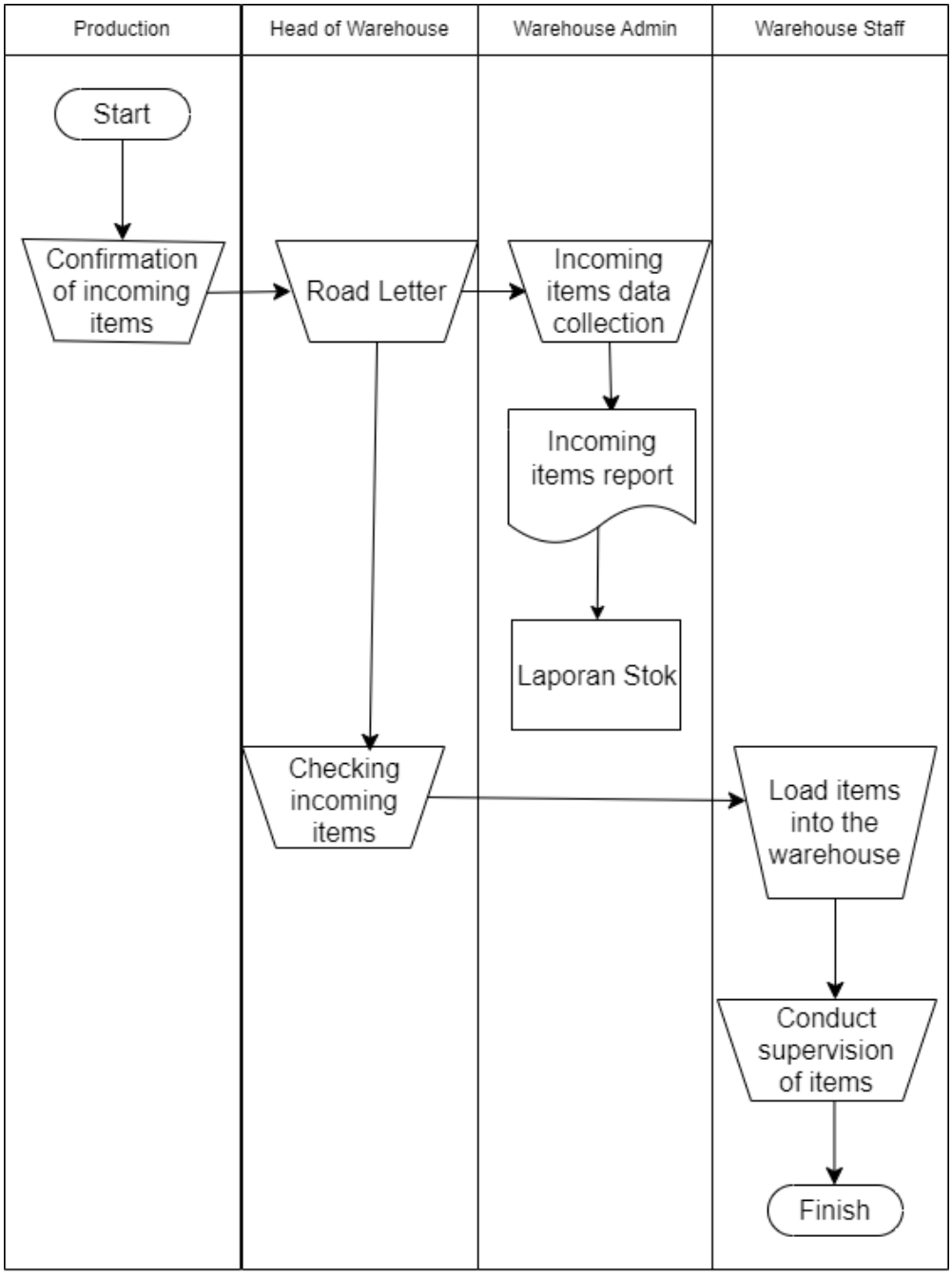

Figure 2. Incoming Items Activity Diagram

The picture above explains that every items that comes or enters from the supplier, the production department will first confirm to the head of the warehouse by providing a road letter containing the number and what items will enter. Then the head of the warehouse will check the items and give the road letter to the warehouse admin to manage the incoming items data into the system. Furthermore, the data is processed by the system into a stock report. After the head of the warehouse checks, then the head of the warehouse confirms to the warehouse staff to load and supervise the items entering the warehouse.

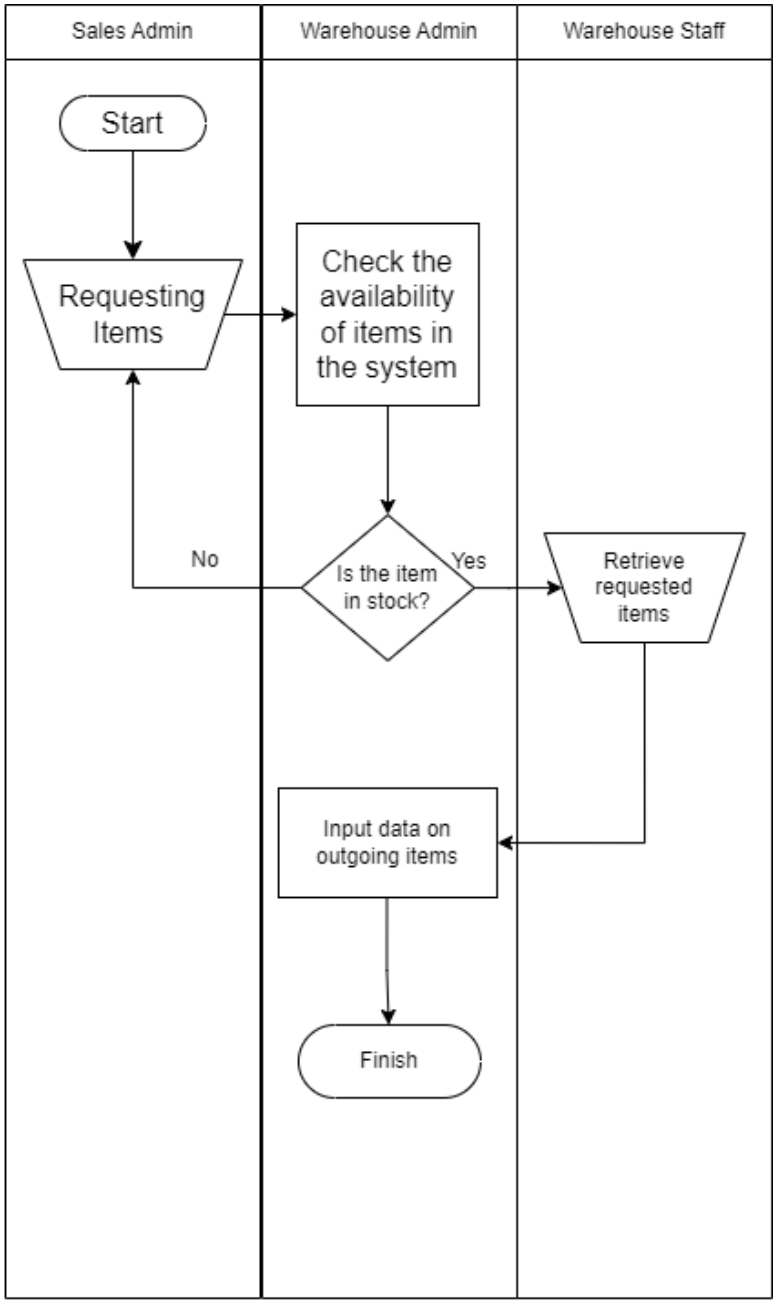

Figure 3. Outgoing Items Activity Diagram

The picture above explains that the sales department requests items from the warehouse, then the warehouse checks the availability of the requested stock. If the stock is available, the warehouse takes the requested items, enters the items into the dispensing document, and sends the items to the sales department. After that, the warehouse updates the stock of items that have been issued. However, if the stock is not available, the warehouse informs the sales department that the items are not available.

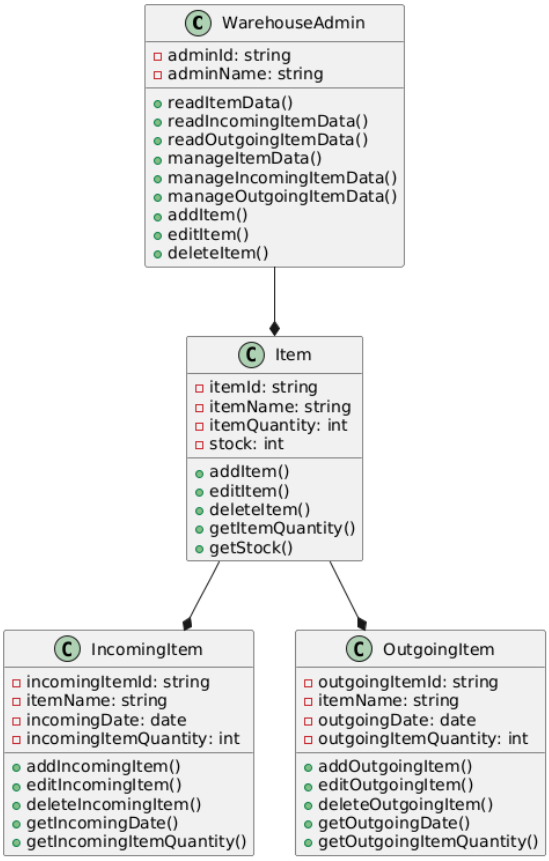

Figure 4. Class Diagram

3. Produce Design Solution

At this stage, the solutions that have been identified begin to be realized in real form. At this stage, the design is carried out in detail and carefully to create an inventory management information system that is in accordance with the needs and objectives that have been set previously. This stage focuses on developing a system that can facilitate the management of items at NeoSkin, including the management of stock items, recording incoming items, and outgoing items.

3.1 Login Page

On the login page, users are given the opportunity to enter their registered email address and the appropriate password to gain access to the website. After the user fills in both fields correctly, the system will verify the information entered before granting permission to enter the website.

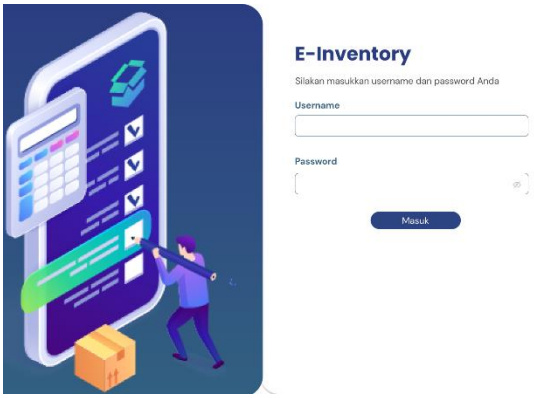

Figure 5. Login Page

3.2 Dashboard Page

On the dashboard page, the admin can see a visual overview of the stock of items in the warehouse through a graph. This graph displays the total stock of items and outgoing items. In addition, the dashboard also displays the top 4 products that have the most stock in the warehouse, helping admins to know which items are available in large quantities so that they can manage stock more efficiently.

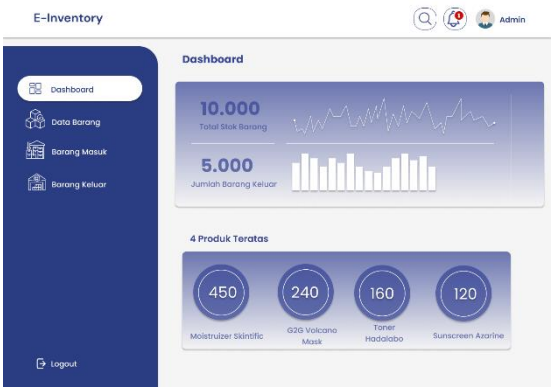

Figure 6. Dashboard Page

3.3 Items Data Page

The Items Data page is a page where the admin can manage the data of items available in the warehouse. Through the CRUD (Create, Read, Update, Delete) function, the admin can add new items data by entering information such as items name, items type, and stock quantity. In addition, the admin can view and monitor stored items, update stock information if changes occur, and delete items that are no longer available. This feature is very important to ensure the availability of items and prevent stock shortages in the NeoSkin warehouse.

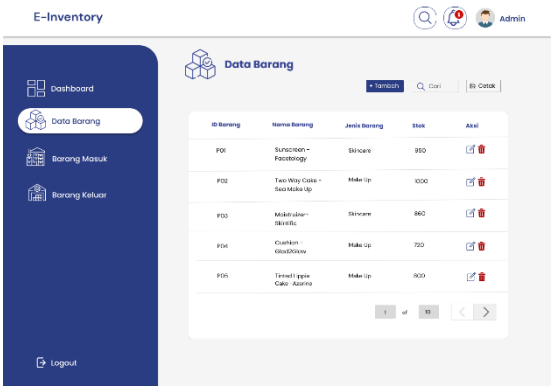

Figure 7. Items Data Page

3.4 Incoming Items Data Page

The Incoming Items Data page is a page where the admin can record and manage data on items received at the warehouse. Admins can add reports of newly arrived items, including details such as the name of the items, the number of incoming items, and the date the items entered the warehouse. This feature also allows the admin to view the history of incoming items, update information in case of recording errors, and delete unnecessary reports. With this feature, the items receiving process can be well organized and the history of items received can be monitored easily.

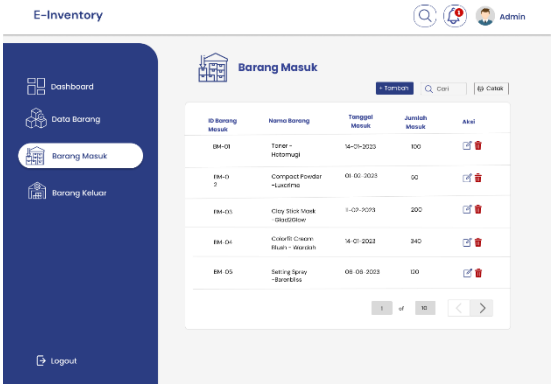

Figure 8. Incoming Items Data Page

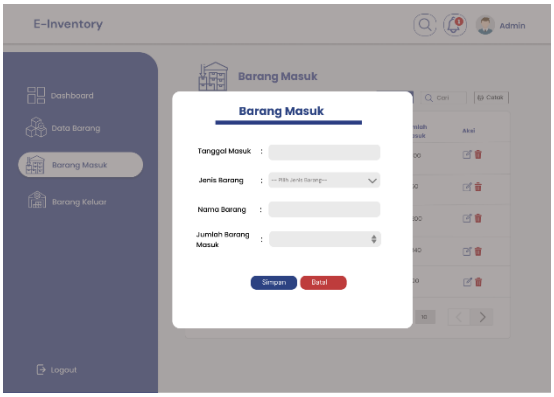

Figure 9. Form Add / Edit Incoming Items

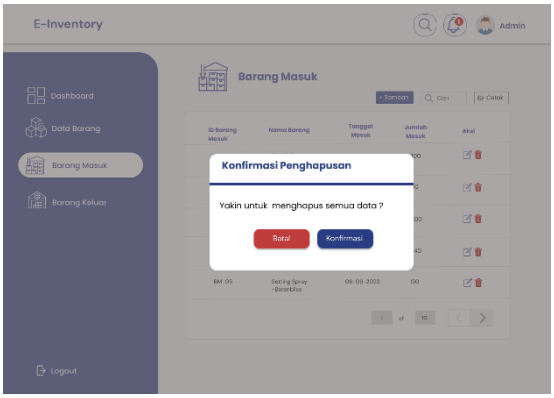

Figure 10. Delete Incoming Items

3.5 Outgoing Items Data Page

The Outgoing Items Data page is a page where the admin records every items that comes out of the warehouse for sales. The admin can create a report on the release of items by including data such as the name of the items, the number of items issued, the date the items was released. In addition, admins can view the history of outgoing items, update reports if needed, and delete reports. This feature helps ensure that every items that goes out is recorded properly, so that stock can be managed accurately.

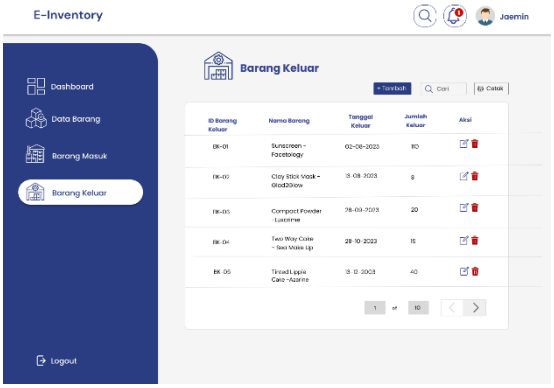

Figure 11. Outgoing Items Data Page

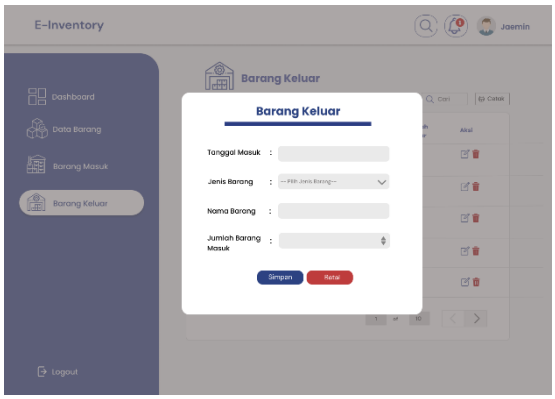

Figure 12. Form Add / Edit Outgoing items

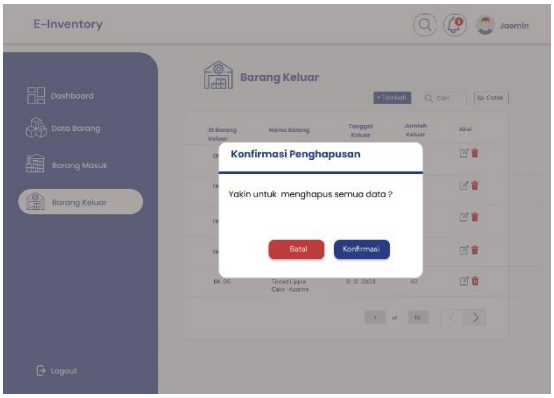

Figure 13. Delete Outgoing items

4. Evaluate design against user requirements

This stage is the process of evaluating the design that has been made at the Produce Design Solution stage to ensure that the resulting design meets user needs. At this stage, users test the prototype to find out whether the design results are in accordance with their needs and expectations. This evaluation is carried out using the Black Box Testing method, which focuses on testing system functionality based on user needs and expectations without paying attention to the internal processes of the system. The results of Black Box Testing are then analyzed to

see if there are any functional errors or discrepancies with user requirements. With this testing, the Evaluate Design Against User Requirements stage ensures that the design solution that has been created can be implemented effectively and supports user tasks in managing inventory at Neoskin.

4.1 Login Function Testing Results

Table 3. Testing the Login Function

Test Case Name	**Initial Conditions**	**Tester**
Login Function	Admin is on the Login page	NeoSkin Admin and NeoSkin Owner
Scenario		
Test procedure steps for test cases : • Fill in all requested data • Click the “Login” button		
Results		
Expected	**Observation**	**Results**
1. If the email and password entered match then login successfully and will be directed to the admin dashboard page. 2. If the email and password entered do not match, the login will failed.	When performing the steps listed above, the test was successful.	Success

4.2 Results of Testing the Function to Add Items Data

Table 4. Testing the Function to Add Item Data

Test Case Name	**Initial Conditions**	**Tester**
Admin function Adding Item Data	Admin has logged in	NeoSkin Admin and NeoSkin Owner
Scenario		
Test procedure steps for test cases : • Login as admin • Enter the Item Data page • Press the add button • Fill in all fields • Click the save button		
Results		
Expected	**Observation**	**Results**

1. Data is successfully added to the goods table database	When performing the steps listed above, the test was successful.	Success

4.3 Testing Results for the Function to Delete Items Data

Table 5. Testing the Function to Delete Item Data

Test Case Name	Initial Conditions	Tester
Admin function testing deleting item data	Admin has logged in	NeoSkin Admin and NeoSkin Owner
Scenario		
Test procedure steps for test cases : • Login as admin • Enter the Item Data page • Press the delete icon button to delete item data		
Results		
Expected	**Observation**	**Results**
1. Can delete item data	When performing the steps listed above, the test was successful.	Success

4.4 Results of Testing the Function of Searching and Printing Items Data

Table 6. Testing the Function of Searching and Printing Item Data

Test Case Name	Initial Conditions	Tester
Admin function testing Searching and Printing Item Data	Admin has logged in	NeoSkin Admin and NeoSkin Owner
Scenario		
Test procedure steps for test cases : • Login as admin • Enter the Item Data page • Press the 'Search' button to search for the desired data • Press the 'Print' button to print the item data report in PDF format		
Results		
Expected	**Observation**	**Results**
1. Can search for item data according to the wishes of the admin 2. Can print item data reports	When performing the steps listed above, the test was successful.	Success

4.5 Result of Testing the Function of Adding Incoming Items Data

Table 7. Testing the Function of Adding Incoming Items Data

Test Case Name	Initial Conditions	Tester
Admin function testing Adding Incoming Items Data	Admin has logged in	NeoSkin Admin and NeoSkin Owner
Scenario		
Test procedure steps for test cases : • Login as admin • Enter the Incoming Items Data page • Press the add button • Fill in all fields • Click the save button		
Results		
Expected	**Observation**	**Results**
1. Data is successfully added to the incoming items table database	When performing the steps listed above, the test was successful.	Success

4.6 Test Results of the Function Deleting Incoming Items Data

Table 8. Testing the Function of Deleting Incoming Items Data

Test Case Name	Initial Conditions	Tester
Admin function testing Deleting Incoming Items Data	Admin has logged in	NeoSkin Admin and NeoSkin Owner
Scenario		
Test procedure steps for test cases : • Login as admin • Enter the Incoming Items Data page • Press the delete icon button to delete incoming items data		
Results		
Expected	**Observation**	**Results**
1. Can delete incoming items data	When performing the steps listed above, the test was successful.	Success

4.7 Results of Testing the Function of Searching and Printing Incoming Items Data

Table 9. Testing the Function of Searching and Printing Incoming Items Data

Test Case Name	Initial Conditions	Tester
Admin function testing Searching and Printing Incoming Items Data	Admin has logged in	NeoSkin Admin and NeoSkin Owner
Scenario		
Test procedure steps for test cases : • Login as admin • Enter the Incoming Items Data page • Press the 'Search' button to search for the desired data • Press the 'Print' button to print the item data report in PDF format		
Results		
Expected	**Observation**	**Results**
1. Can search for incoming items data according to the wishes of the admin 2. Can print incoming items data reports	When performing the steps listed above, the test was successful.	Success

4.8 Testing Results of the Function Adding Outgoing Items Data

Table 10. Testing the Function of Adding Outgoing Items Data

Test Case Name	Initial Conditions	Tester
Admin function testing Adding Outgoing Items Data	Admin has logged in	NeoSkin Admin and NeoSkin Owner
Scenario		
Test procedure steps for test cases : • Login as admin • Enter the Outgoing Items Data page • Press the add button • Fill in all fields • Click the save button		
Results		
Expected	**Observation**	**Results**
1. Data is successfully added to the outgoing items table database	When performing the steps listed above, the test was successful.	Success

4.9 Testing Results for the Function to Delete Incoming Items Data

Table 11. Testing the Function of Deleting Outgoing Items Data

Test Case Name	Initial Conditions	Tester
Admin function testing Deleting Outgoing Items Data	Admin has logged in	NeoSkin Admin and NeoSkin Owner
Scenario		
Test procedure steps for test cases : • Login as admin • Enter the Outgoing Items Data page • Press the delete icon button to delete outgoing items data		
Results		
Expected	**Observation**	**Results**
1. Can delete outgoing items data	When performing the steps listed above, the test was successful.	Success

4.10 Results of Testing the Function of Searching and Printing Outgoing Items Data

Table 12. Testing the Function of Searching and Printing Outgoing Items Data

Test Case Name	Initial Conditions	Tester
Admin function testing Searching and Printing Outgoing Items Data	Admin has logged in	NeoSkin Admin and NeoSkin Owner
Scenario		
Test procedure steps for test cases : • Login as admin • Enter the Outgoing Items Data page • Press the 'Search' button to search for the desired data • Press the 'Print' button to print the item data report in PDF format		
Results		
Expected	**Observation**	**Results**
1. Can search for outgoing items data according to the wishes of the admin 2. Can print outgoing items data reports	When performing the steps listed above, the test was successful.	Success

4.11 Testing Results of Logout Function

Test Case Name	Initial Conditions	Tester
Logout Function	Admin has logged in first	NeoSkin Admin and NeoSkin Owner
Scenario		
Test procedure steps for test cases : • Click the “Logout” button		
Results		
Expected	**Observation**	**Results**
1. Can log out and return to the login page	When performing the steps listed above, the test was successful.	Success

CONCLUSION

Based on the research results, it can be concluded that the User Centered Design approach method combined with the Black Box Testing approach is effectively used to meet the needs of the NeoSkin website design. The user response, namely the admin to the functional needs and design appearance on the website shows positive results, indicating that this website is suitable for use as a cosmetic product inventory information system. The designed system not only meets the expectations and needs of users, but also provides an efficient solution in managing data on items at NeoSkin.

REFERENCES

Abiyaksa, D., Adi, S. H., & Siskandar, R. (2020). Pembuatan Prototype Smart Budidaya Ikan Mas Koki Berbasis Arduino Making Smart Prototype Goldfish Culture Based On Arduino. In *Indonesian Journal of Science* (Vol. 1). http://journal.pusatsains.com/index.php/jsi

Adelia Tri Aprilian, Hikmah Rahmah, Nur Aziezah, Walidatush Sholihah, Ridwan Siskandar, & Aep Setiawan. (2023). Pengaruh Penampilan Dan Fitur Robot Quality Check Apilastik Terhadap Tingkat Kepuasan Pengguna. *Jurnal Publikasi Teknik Informatika*, *3*(1), 55–63. https://doi.org/10.55606/jupti.v3i1.2512

Afifah, N. P., Rahma, H., Aziezah, N., Siskandar, R., Setiawan, A., & Vokasi, S. (2024a). Pengaruh Minat Penggunaan Robot AI terhadap Tingkat Akurasi dalam Mendeteksi Kematangan Buah Tomat. *Jurnal Ilmu Teknik*, *1*(2), 144–149.

Akay, Y. V., Santoso, A. J., & Rahayu, F. L. S. (n.d.). *Metode User Centered Design (UCD) Dalam Perancangan Sistem Informasi Geografis Pemetaan Tindak Kriminalitas (Studi Kasus : Kota Manado)*.

Aprilianti, D. (2024). AR Application Design for SV IPB Software Engineering Technology Study Program using Design Thinking Method. Journal of Applied Science, Technology & Humanities, 1(1), 1–10. https://doi.org/10.62535/phjrce82

Ardelia Wirastuti, M., Fakhiratunisa, N., Renaisance Al-ars, K., Putri Rahmani, D., Farras Fauzan, M., Lintar Balle, J., Shubhi Maulana, M., Fitria Dewi, M., Febriayanti, T., Ronald Suhada, V., Alif Falah, N., Parasti Mindara, G., & Siskandar, R. (n.d.). Pembuatan sistem surat bebas komdisma berbasis website di komisi disiplin dan kemahasiswaan SV IPB Development of komdisma free letter system based on website in the discipline and student affairs commission of SV IPB. In *Indonesian Journal of Science* (Vol. 2). http://journal.pusatsains.com/index.php/jsi

Auliafitri, D., Erry RizkySuro, Tedi Kurniawan, Muhammad Danang Mukti Darmawan, Fiqri Nurfadillah, & Octavia, N. (2024). Chicken Egg Hatching Optimization with Automatic Control Using Fuzzy Logic Journal of Applied Science, Technology & Humanities, 1(3), 174–186. https://doi.org/10.62535/0m1ks522

Badrul, M. (2021). Penerapan Metode waterfall untuk Perancangan Sistem Informasi Inventory Pada Toko Keramik Bintang Terang. PROSISKO: Jurnal Pengembangan Riset Dan Observasi Sistem Komputer, 8(2), 57–52. https://doi.org/10.30656/prosisko.v8i2.3852

Banila, L., Lestari, H., & Siskandar, R. (2021). Penerapan blended learning dengan pendekatan STEM untuk meningkatkan kemampuan literasi sains siswa pada pembelajaran biologi di masa pandemi covid-19. *Journal of Biology Learning*, *3*(1), 25. https://doi.org/10.32585/jbl.v3i1.1348

Daffa, T., Dakhilullah, A., & Suranto, B. (n.d.). *Penerapan Metode User Centered Design Pada Perancangan Pengalaman Pengguna Aplikasi I-Star*.

Ernawati, S., & Dwi Indriyanti, A. (n.d.). Perancangan User Interface dan User Experience Aplikasi Medical Tourism Indonesia Berbasis Mobile Menggunakan Metode User Centered Design (UCD) (Studi Kasus: PT Cipta Wisata Medika). *JEISBI*, *03*, 2022.

Fahrezi, A., Salam, F. N., Ibrahim, G. M., Syaiful, R. R., & Saifudin, A. (n.d.). *Pengujian Black Box Testing pada Aplikasi Inventori Barang Berbasis Web di PT. AINO Indonesia*. https://journal.mediapublikasi.id/index.php/logic

Fakhiratunisa, N., Ardelia Wirastuti, M., Renaisance Al-Ars, K., Putri Rahmani, D., Farras Fauzan, M., Alif Falah, N., Lintar Balle, J., Shubhi Maulana, M., Fitria Dewi, M., Febriyanti, T.,

Ronald Suhada, V., Parasti Mindara, G., & Siskandar, R. (n.d.). Pembuatan Sistem Lapor Komdisma Berbasis Web di Komisi Disiplin dan Kemahasiswaan SV IPB Making a Web-Based Komdisma Report System in Discipline and Student Affairs Commission of SV IPB. In *Indonesian Journal of Science* (Vol. 2). http://journal.pusatsains.com/index.php/jsi

Haminah Sagala, S., Nugraha, I., & Siskandar, R. (2020). Pembuatan Motion Graphics SOP Produksi Berita sebagai Media Promosi di PT Bintang Advis Multimedia Making motion graphics SOP news production as a promotional media at PT Bintang Advis Multimedia. In *Indonesian Journal of Science* (Vol. 1). http://journal.pusatsains.com/index.php/jsi

Harahap, G. R. R., Sudiro, S. F. D., Alifah, R. S., Salsabila, S., Iswanda, A. T., Azahra, X. Y., Putri, G. K., Az Zahra, S., Sanjaya, H. F., Ar Rafi, I. H., Damarjati, A. S., Rahmawati, E., Octavia, N., Angeline, E., Darmawan, M. D. M., Nurfadillah, F., & Trianawati, M. L. (2024). Implementation of Fuzzy Logic in Stabilizing Temperature and Humidity in Freeze Dryers for Dried Apple. Journal of Applied Science, Technology & Humanities, 1(4), 315–328. https://doi.org/10.62535/3bjxym42

Harga, P., Terhadap, J., Telur, P., Menggunakan, A., Regresi, P., Kasus, S., Agen, :, Abc, T., Santosa1, S. H., Hidayat1, A. P., Siskandar2, R., & Rizkiriani3, A. (2021). Effect of Selling Price on Demand for Chicken Eggs Using a Regression Approach Case Study: ABC Egg Agent. In *Indonesian Journal of Science* (Vol. 2). http://journal.pusatsains.com/index.php/jsi

Hidayat, A. P., Kartinawati, A., Dardanella, D., Siskandar, R., Angeli, J., Nainggolan, Z. N., Triyoga, Z., & Vokasi, S. (2023). Optimalisasi Rute dan Moda Transportasi pada Pengiriman Paket Menggunakan Metode Saving Matrix Optimizing Routes and Transportation Modes in Package Delivery Using the Saving Matrix Method. In *Indonesian Journal of Science* (Vol. 4). http://journal.pusatsains.com/index.php/jsi

Hidayat, A. P., Santosa, S. H., & Siskandar, R. (2022). Penentuan Jumlah Kebutuhan Bahan Baku Berdasarkan Distribusi Barang Ideal di IKM Tepung Tapioka Kabupaten Bogor. *Jurnal INTECH Teknik Industri Universitas Serang Raya*, *8*(1), 23–28. https://doi.org/10.30656/intech.v8i1.4400

Hidayat, A. P., Santosa, S. H., Siskandar, R., & Gilang Baskoro, R. (2021). Evaluation of Chicken Eggs Supply With Fuzzy AHP Approach Through Development of Safea Software. *Jurnal Logistik Indonesia*, *5*(2), 104–110. http://ojs.stiami.ac.id

Hidayati, Anita. (2019). *2019 2nd International Conference of Computer and Informatics Engineering (IC2IE) : proceedings : "Artificial Intelligence Roles in Industrial Revolution 4.0" : 10-11 September 2019, Banyuwangi, East Java, Indonesia*. IEEE.

Irzaman, Siskandar, R., Jenie, R. P., Syafutra, H., Iqbal, M., Yuliarto, B., Fahmi, M. Z., Ferdiansjah, & Khairurrijal. (2022). Ferroelectric sensor BaxSr1-xTiO3 integrated with android smartphone for controlling and monitoring smart street lighting. Journal of King Saud University - Science, 34(6). https://doi.org/10.1016/j.jksus.2022.102180

Irzaman, Suryana, Y., Pambudi, S., Widayanti, T., Jenie, R. P., Prastowo, B., Har, N. P., Rahmawaty, V., Dahrul, M., Aminullah, Kurniawan, A., Siskandar, R., Hardyanto, I., Iskandar, J., Nurdin, N. M., Ardidarma, A., Rahayu, S. K., & Alatas, H. (2022). Development of blood hemoglobin level early detection device based on a noninvasive optical platform. *Heliyon*, *8*(11). https://doi.org/10.1016/j.heliyon.2022.e11260

Irzaman, Suryana, Y., Pambudi, S., Widayanti, T., Jenie, R. P., Prastowo, B., Zaheri, R., Hardyanto, I., Nurdin, N. M., Dahrul, M., Iskandar, J., Kurniawan, A., Siskandar, R., Aridarma, A., Rahayu, M. S. K., Riadhie, T. S., & Alatas, H. (2021). Review: Non-Invasive Blood Haemoglobin Level Measurement. *AIP Conference Proceedings*, *2320*. https://doi.org/10.1063/5.0037477

Jenie, R. P., Suryana, Y., Pambudi, S., Widayanti, T., Irzaman, Nurdin, N. M., Dahrul, M., Iskandar, J., Kurniawan, A., Siskandar, R., Aridarma, A., Rahayu, M. S. K., Riadhie, T. S., & Alatas, H. (2021). General protocol for ethical conforming development for non-invasive blood biomarker measurement optical device. *AIP Conference Proceedings*, *2320*. https://doi.org/10.1063/5.0037469

Kamil, D., Angeline, E., De Nerol, I., & Rasyid Parmana, R. (2024). Implementing a Mineral Water Gallon Counter Device Based on a Website Using Infrared Sensors. Journal of Applied Science, Technology & Humanities, 1(2), 97–110. https://doi.org/10.62535/4ytea377

Kharismatunnisaa, F., Saputra, Y., Bahri, S., & Siskandar, R. (2023). Penerapan Framework Laravel Pada Modul Profil untuk Website Dinas Cipta Karya, Tata Ruang dan Pertanahan (DCKTRP) Application of the Laravel Framework in the Profile Module for the Dinas Cipta Karya, Tata Ruang dan Pertanahan (DCKTRP). In *Indonesian Journal of Science* (Vol. 4). http://journal.pusatsains.com/index.php/jsi

Kostajaya, A., Kusumah, B. R., Rachmat, A., Siskandar, R., Yulianti, S., & Rahim, F. F. (2023). Observation of Excess Air Discharge in the Budikdamber Pond Aeration System on the Real Effect of Tilapia Fish Health (Oreochromis spp.). *Aquacultura Indonesiana 2023*, *24*(1), 1–8. https://doi.org/10.21534/ai.v24i1.290

Kusumah, B. R., Jaya, A. K., Iftitah, D., Siskandar, R., Lestari, H., Umam, K., & Supriadi, D. (2021). Penerapan Teknologi Tepat Guna (E-Ox Level) kepada kelompok pembudidaya Ikan Lele di Desa Kepongpongan Kabupaten Cirebon. *Unri Conference Series: Community Engagement*, *3*, 40–46. https://doi.org/10.31258/unricsce.3.40-46

Lestari, F., Hafis Suwandi, Muhammad Widagdo Sidharto, Ratu Nabilla Rahmawati, Muhammad Abdul Sidiq, Amanda Suci Ramadhani, Handika Dwi Al Falah, Moh Fahri Aulia Priatna, Muhammad Habib Al Mutawakkil, Amanda Ghurin Syalju, Nur Azizah, Aliffia Anassyahtira Hamzah, Ibnu Prastio Wibisono, Rega Firgiawan Anwar, & Siti Rahmah Khairunisa. (2024). Application of Mamdani Fuzzy Logic System on Catfish Sorting System (Clarias sp.). Journal of Applied Science, Technology & Humanities, 1(3), 187–195. https://doi.org/10.62535/ppvqgg56

Lestari, H., Banila, L., & Siskandar, R. (2019). PENINGKATAN KEMAMPUAN LITERASI SAINS SISWA BERDASARKAN KEMANDIRIAN BELAJAR MELALUI PEMBELAJARAN BERBASIS STEM IMPROVING STUDENT'S SCIENCE LITERACY COMPETENCIES BASED ON LEARNING INDEPENDENCE WITH STEM LEARNING. *Jurnal Biologi Dan Pembelajarannya*, *14*(2).

Lintar Balle, J., Shubhi Maulana, M., Febriyanti, T., Farras Fauzan, M., Ronald Suhada, V., Alif Falah, N., Fitria Dewi, M., Putri Rahmani, D., Ardelia Wirastuti, M., Fakhiratunisa, N., Renaisance Al-ars, K., Rifa Kusumah, B., & Siskandar, R. (2021). Implementasi alat pengusir hama sawah dengan cara tradisional dan modern bertenaga surya menggunakan sensor PIR berbasis Android Implementation of rice field pest repellents in a way traditional and modern solar powered using an Android-based PIR sensor. In *Indonesian Journal of Science* (Vol. 2). http://journal.pusatsains.com/index.php/jsi

Lutfi Yustisyia, M., Aprilianti, D., Nelvi, A. A., Renaldi, M. A., Alwahdi, M. A., Wicaksono, S., Delano, B. I., Rifan, M. A., & Siskandar, R. (2023). Penerapan Website sebagai Media E-Portofolio berbasis HTML dan CSS Website Application as HTML and CSS base E-Portfolio Media. In *Indonesian Journal of Science* (Vol. 4). http://journal.pusatsains.com/index.php/jsi

Muhammad Fajarudin, Handika Saputra Harahap, Irmansyah, Muhamad Al Habsy, Fardiana Yunita, Inna Novianty, Nanda Octavia, & Ivan De Nerol. (2024). Implementation of Fuzzy Logic to Regulate Water Quality in Maintaining the Aquascape Ecosystem. Journal of

Applied Science, Technology & Humanities, 1(4), 303–314. https://doi.org/10.62535/dvbdxn84

Mukti, Y. (2018). Rancang Bangun Website Sekolah Dengan Metode User Centered Design (UCD). *Jurnal Ilmiah Betrik*, *9*(02), 84–95. https://doi.org/10.36050/betrik.v9i02.34

Nanda Wijaya Putra, Shinta Arafah Hidayanti, Evlyn Jane Putri, Andi Nurfitriana, Dany Fadhilah, Aditya Wicaksono, & Hari Agung Adrianto. (2023). Perancangan Website "Agriverse" Media Informasi dan Edukasi Teknik Hidroponik Menggunakan Metode User Center Design. Jurnal Sains Dan Teknologi, 2(2), 189–201. https://doi.org/10.58169/saintek.v2i2.269

Naseem, S. (2021). The Role of Tourism in Economic Growth: Empirical Evidence from Saudi Arabia. *Economies*, *9*(3), 117. https://doi.org/10.3390/economies9030117

Nindita, C., Candra Kirana, R., Nurfitri Fesenrey, M., Trianggraini, L., Siskandar, R., & Lestari, H. (2023). Kepribadian Narsistik dan Perilaku Hate Comment Pengguna Media Sosial. *JURNAL KAJIAN ISLAM MODERN*, *9*(01), 42–51. https://doi.org/10.56406/jkim.v9i01.162

Prastowo, B., Jenie, R. P., Hardyanto, I., Dahrul, M., Iskandar, J., Kurniawan, A., Siskandar, R., Nurdin, N. M., Suryana, Y., Pambudi, S., Widayanti, T., Aridarma, A., Rahayu, M. S. K., Riadhie, T. S., Irzaman, & Alatas, H. (2021). Determination of light source modules on blood glucose biomimetics using the reflectance method. *AIP Conference Proceedings*, *2320*. https://doi.org/10.1063/5.0037485

Prayudha Hidayat, A., Husen Santosa, S., Siskandar, R., Vokasi Institut Pertanian Bogor Bogor Indonesia, S., & Vokasi Institut Pertanian Bogor, S. (2021). PENENTUAN RUTE KENDARAAN MENGGUNAKAN SAVING MATRIX TERHADAP JASA PENGIRIMAN BARANG. In *Indonesian Journal of Science* (Vol. 2). http://journal.pusatsains.com/index.php/jsi

Prayudha Hidayat, A., Wiyoto, W., Julio Pratama, A., Vibowo, H., Husen Santosa, S., & Siskandar, R. (2023). Fuzzy Analytical Hierarchy Process (AHP) Model for Chicken Egg Supply and Demand Management Strategies Through SAFCES Application Development. *E3S Web of Conferences*, *454*. https://doi.org/10.1051/e3sconf/202345403004

Queen Virginia Jeanifer Tambayong. (2022). *RANCANG BANGUN APLIKASI PENAWARAN KERJA PARUH WAKTU BERBASIS WEB MENGGUNAKAN METODE USER CENTERED DESIGN DAN ALGORITMA COLLABORATIVE FILTERING*. UNIVERSITAS MULTIMEDIA NUSANTARA.

Rahayu Rahman, R., Wibisono, A., Mulanti, R., Nur Fadhli, H., Refiana Zahra, G., Magdalena Gultom, N., Dwi Anjani, R., Muhammad Azkiya, A., Alhaq, S., Anwar, S., Ridho Setyo Laksono, N., Amelia Purnama, R., Danang Mukti Darmawan, M., Nurfadillah, R., Angeline, E., Octavia, N., Wiyoto, W., & Siskandar, R. (2024). Analisis Kelayakan Kualitas Air untuk Mengoptimalkan Pertumbuhan Ikan Lele Berbasis Fuzzy Logic Mamdani Water Quality Feasibility Analysis to Optimize Catfish Growth Based on Fuzzy Logic Mamdani. In *Indonesian Journal of Science* (Vol. 5). http://journal.pusatsains.com/index.php/jsi

Rahmani, D. P., Wirastuti, M. A., Fakhiratunisa, N., Farras Fauzan, M., Suhada, V. R., Fitria, M., Fitriani, D., Falah, N. A., Lintar Balle, J., Rizha, T., & Siskandar, R. (2021). Pembuatan motion graphic iklan aplikasi FlickApp dan Silvi+ di PT Kreigan Sentral Teknologi The making of Flick and Silvi+ apps motion graphics advertisement at PT Kreigan Sentral Teknologi. In *Indonesian Journal of Science* (Vol. 2). http://journal.pusatsains.com/index.php/jsi

Renaisance Al-Ars, K., Fakhiratunisa, N., Ardelia Wirastuti, M., Fitria Dewi, M., Lintar Balle, J., Farras Fauzan, M., Shubhi Maulana, M., Alif Falah, N., Ronald Suhada, V., Rodhia, S., Rizha, T., & Siskandar, R. (2021). Pembuatan video tutorial pengetahuan produk aplikasi SilviPlus dengan teknik motion graphic di PT KST The making of SilviPlus application product knowledge video tutorial using motion graphics techniques in PT KST. In *Indonesian Journal of Science* (Vol. 2). http://journal.pusatsains.com/index.php/jsi

Renaldi, M. A., Nelvi, A. A., Aprilianti, D., Alwahdi, M. A., Wicaksono, S., Lutfi Yustisyia, M., Delano, B. I., Rifan, M. A., & Siskandar, R. (2023). Menyampaikan Isu Ilegalitas Penangkapan Ikan Melalui Game "Let's Keep Our Sea" yang Dibangun dengan Unity Engine Conveying the Issue of Illegal Fishing through "Let's Keep Our Sea" Game Built with Unity Engine. In *Indonesian Journal of Science* (Vol. 4). http://journal.pusatsains.com/index.php/jsi

Renaldi, M. A., Riyo Putra Syam Satria, Nanda Octavia, Muhammad Danang Mukti Darmawan, Ivan De Nerol, Firdayanti, Fiqri Nurfadillah, Fiona Kharismatunnisaa, Ester Angeline, & Yourdan Saputra. (2024). Making a Mobile-Based Social Media Information System for Environmentalists with Flutter and AWS. Journal of Applied Science, Technology & Humanities, 1(1), 19–34. https://doi.org/10.62535/73a97b15

Rizkiriani, A., Martini, R., Santosa, S. H., & Siskandar, R. (n.d.). Karakteristik dan tingkat kecukupan energi pasien penyakit infeksi dan degeneratif yang di rawat inap di rumah sakit Characteristics and energy adequacy level of patients with infectious and degenerative diseases in hospital. In *Indonesian Journal of Science* (Vol. 2). http://journal.pusatsains.com/index.php/jsi

Rohim, A. A., Rahmah, H., Aziezah, N., Siskandar, R., & Setiawan, A. (2024). PENGARUH HUBUNGAN ANTARA FITUR DAN PENAMPILAN DENGAN KETERTARIKAN PENGGUNA ROBOT QUALITY CHECK "APILASTIK." *Jurnal Ilmu Teknik*, *1*(2), 228–232. https://doi.org/10.62017/tektonik

Salma Salsabilla Fardani, C., Tri Wahyudiningsih, N., Ayu Nandita Pangesti, R., Halim, G., Jaka Nugraha, I., Adhi Anugrah Firdaus, M., Roihan, M., Luthfi Hizbul Mujib, M., Rifa Kusumah, B., & Siskandar, R. (n.d.). Penerapan Teknologi Sensor Kamera Sebagai Notifikasi Smoke Detector Untuk Kenyamanan Pengguna Ruangan ber-AC The Application of Camera Sensor Technology as a Smoke Detector Notification for The Convenience of Air-Conditioned Room Users. In *Indonesian Journal of Science* (Vol. 3). http://journal.pusatsains.com/index.php/jsi

Santi, M. A., Har, N. P., Jenie, R. P., Siskandar, R., Syafutra, H., Pratama, E., Negara, T. P., Setiawan, A. A., Alatas, H., & Irzaman. (2024). Effect of Cupric-Doped SrTiO3Films on Optical Properties Using Spectrophotometry Method. *IOP Conference Series: Earth and Environmental Science*, *1359*(1). https://doi.org/10.1088/1755-1315/1359/1/012015

Santosa, S. H., Hidayat, A. P., & Siskandar, R. (n.d.). Analisis permintaan telur ayam menggunakan metode peramalan kuantitaif, studi kasus : agen telur ABC Chicken egg demand analysis using quantitative forecasting method, case study: ABC egg agent. In *Indonesian Journal of Science* (Vol. 3). http://journal.pusatsains.com/index.php/jsi

Saputra, Y., Kharismatunnisaa, F., Bahri, S., & Siskandar, R. (2023). Implementasi Framework Laravel dalam Perancangan Website Instansi DCKTRP dengan Modul Pejabat Pengelola Informasi dan Dokumentasi (PPID) Implementation of the Laravel Framework in Designing DCKTRP Agency Websites with the Information Management and Documentation Officer (PPID) Module. In *Indonesian Journal of Science* (Vol. 4). Mediana & Nurhidayat. http://journal.pusatsains.com/index.php/jsi

Siskandar, R., Dio, F. C., Alatas, H., & Irzaman, I. (2022). Application of ba0.5sr0.5tio3 (bst) film doped with ruo2 (0%, 2%, 4% and 6%) on a rice-stalk cutting robot model based on a line follower with hc-05 bluetooth control. Biointerface Research in Applied Chemistry, 12(2), 2138–2151. https://doi.org/10.33263/BRIAC122.21382151

Siskandar, R., Fadhil, M. A., Kusumah, B. R., Irmansyah, I., & Irzaman, I. (2020). INTERNET OF THINGS: AUTOMATIC PLANT WATERING SYSTEM USING ANDROID. Jurnal Teknik Pertanian Lampung (Journal of Agricultural Engineering), 9(4), 297. https://doi.org/10.23960/jtep-l.v9i4.297-310

Siskandar, R., Hidayat, A., Martini, R., Ristianingrum, A., Sahat Manalu, D., Budi Priatna, W., Indrawan, P., Wiraguna, E., Dewi, H., Putri Dewi, S., Julio Pratama, A., Ratnawati, B., Kharismatunnisaa, F., Danang Mukti Darmawan, M., Nurfadillah, F., Angeline Sitompul, E., Hayya Sabilla, C., Faiz Assariy, M., Zulqisthi, D., & Sahat Tua Manalu, D. (2024). EasyChair Preprint SoltarinE: Solar Charging Station Eco Friendly as a Charging Solution for Electric Farm Machinery SoltarinE: Solar Charging Station Eco Friendly as a Charging Solution for Electric Farm Machinery.

Siskandar, R., & Kusumah, B. R. (2019). Control Device Engineering for Aquaponic Monitoring System. Aquacultura Indonesiana, 20(2), 72. https://doi.org/10.21534/ai.v20i2.151

Siskandar, R., Mandang, T., Hermawan, W., & Irzaman, I. (2023a). Engineering of Information Monitoring System Sensor Reading Data Based on Smart Wireless using NVDIA Jetson Nano and Arduino Mega on Agricultural Spraying Machines. Jurnal Teknik Pertanian Lampung (Journal of Agricultural Engineering), 12(4), 921. https://doi.org/10.23960/jtep-l.v12i4.921-936

Siskandar, R., Mandang, T., Hermawan, W., & Irzaman, I. (2023b). Engineering of Information Monitoring System Sensor Reading Data Based on Smart Wireless using NVDIA Jetson Nano and Arduino Mega on Agricultural Spraying Machines. Jurnal Teknik Pertanian Lampung (Journal of Agricultural Engineering), 12(4), 921. https://doi.org/10.23960/jtep-l.v12i4.921-936

Siskandar, R., Mandang, T., Hermawan, W., & Irzaman, I. (2023c). Thin Film Potential Ba0.5Sr0.5 TiO3 (BST) doped with RuO2 6% as a Light Detecting Sensor at Solar Tracker ALSINTAN System in Microcontroller-Based. Biointerface Research in Applied Chemistry, 13(6). https://doi.org/10.33263/BRIAC136.545

Siskandar, R., Santosa, S. H., Wiyoto, W., Kusumah, B. R., & Hidayat, A. P. (2022). Control and Automation: Insmoaf (Integrated Smart Modern Agriculture and Fisheries) on The Greenhouse Model. Jurnal Ilmu Pertanian Indonesia, 27(1). https://doi.org/10.18343/jipi.27.1.141

Siskandar, R., Wiyoto, W., Hendriana, A., Ekasari, J., Kusumah, B. R., Halim, G., & Nugraha, I. J. (2022). Automated Redox Monitoring System (ARMS): An Instrument for Measuring Dissolved Oxygen Levels Using a Potential Redox Sensor (ORP) in a Prototype of Shrimp Farming Pond with an Internet-Based Monitoring System. Journal of Aquaculture and Fish Health, 11(2), 238–246. https://doi.org/10.20473/jafh.v11i2.31487

Siskandar, R., Wiyoto, W., Santosa, S. H., Sari, J. E., Darmawangsa, G. M., Hidayat, A. P., Dardanella, D., & Kusumah, B. R. (2023). Potential Readings of Water Turbidity Values Based on Optical Sensors on Fish-Rearing Biofloc Media. Photonics Letters of Poland, 15(1), 1–3. https://doi.org/10.4302/plp.v15i1.1176

Supama Wijaya, A., Suriaatmaja Suwanda, B., Astuti, V. F., & Siskandar, R. (2022). Studi Literatur: Analisis Penggunaan Video sebagai Media Pembelajaran Mahasiswa. In *Indonesian Journal of Science* (Vol. 3). http://journal.pusatsains.com/index.php/jsi

Vibowo, H., & Satiti, H. (2024). The Owner's Level of Knowledge about First Aid in Cat with Viral Diseases Symptomps at Satwagia RE Martadinata Clinic Bogor. Journal of Applied Science, Technology & Humanities, 1(2), 87–96. https://doi.org/10.62535/w14fz490

Wicaksono, S., Nelvi, A. A., Delano, B. I., Aprilianti, D., Alwahdi, M. A., Renaldi, M. A., Rifan, M. A., Yustisyia, M. L., & Siskandar, R. (n.d.). Implementasi Aplikasi Augmented Reality pada E-Book Budidaya Tebu POJ 2878 di Kabupaten Kerinci Implementation of Augmented Reality Applications in Sugar Cane Cultivation E-Book POJ 2878 in Kerinci Regency. In *Indonesian Journal of Science* (Vol. 4). http://journal.pusatsains.com/index.php/jsi

Wiyoto, W., Hendriana, A., Siskandar, R., Mashita, N., Mahendra, T., Cahyo, A. D., Arzi, J. R. A., Aulia, S. S., & Ekasari, J. (2022). Analysis of water and sediment quality in Pacific white leg shrimp Litopenaeus vannamei culture with different sediment redox potential. *Jurnal Akuakultur Indonesia*, *21*(1), 59–67. https://doi.org/10.19027/jai.21.1.59-67

Yusrina, S., Aziezah, N., Rahmah, H., Siskandar, R., Setiawan, A., Studi, P., Rekayasa, T., Lunak, P., Vokasi, S., Pertanian Bogor, I., Program, S., Teknologi, R., Komputer, S., Vokasi, P., Bogor, J., Kumbang, N., 14, R. T., 06, / Rw, Tengah, K. B., & Bogor, K. (2024). Dampak Keahlian Robot Dalam Mengenali Kematangan Tomat Terhadap Kepuasan Pengguna Pada Sektor Agroindustri. *Jurnal Teknologi Dan Manajemen Industri Terapan (JTMIT)*, *3*(1), 20–26.