



E-business designing interface "petani sejahtera" based on mobile application

Gilang Pratama Putra¹, Ari Purno Wahyu Wibowo²

^{1,2} Widyatama University

¹putra.2448@widyatama.ac.id, ²ari.purno@widyatama.ac.id

Article Info

Article history:

Received Dec 12th, 2022

Revised Jan 20th, 2023

Accepted Feb 11th, 2023

Keyword:

Prosperous farmers; Farmers;
figma; Androids; User interface

ABSTRACT

The monitoring information system is an Android application that was developed to facilitate the distribution of harvests in order to prevent the accumulation of unused crops and the subsequent waste that results from this accumulation. The goal of this study is to determine how successful the features of the "Petani Sejahtera" application were when it came to their implementation. A qualitative approach that takes a descriptive stance is taken with the research that was carried out in this study. This research can be said to follow the targets expected by various parties related to deciphering the data that was collected and then summarizing and sorting it into features based on the methods that were used, the results that were obtained, and the discussions that were held because of those methods and results. The "Petani Sejahtera" application feature is going to undergo additional development in the near and distant futures.



© 2022 The Authors. Published by Accounting Study Program, Indonesian Cooperative Institute. This is an open access article under the CC BY NC license (<https://creativecommons.org/licenses/by/4.0/>)

INTRODUCTION

Based on field conditions in the Sukapura Village area, Kertasari District, Bandung Regency, statistical data listed on the official website of Sukapura Kertasari Village (sukapura-kertasari.desa.id) minority of workers there according to the percentage and number of people recorded are farmers totaling 124 people (2.89%) and farm workers 95 people (2.21%). Sukapura village is famous for its highlands where farmers grow types of vegetables such as tomatoes, chilies, cabbage, coffee, celery, cassava, carrots and other vegetables depending on the weather. Sometimes there is a market demand specifically for certain farmers. The harvest from farmers certainly requires a distribution channeling medium, where farmers should get profits that can support farming in the future. However, on the contrary, the farmers' harvest is only enough to cover the cost of production, fertilizers and pesticide liquids. In contrast, the profits obtained are very minimal because the distribution channels used by individuals who try to monopolize market prices (Gobel & Adam, 2021). With the difficulties experienced by farmers, the role of technology and monitoring information systems is needed to support and prosper farmers. Of course, this system must be supported by institutions that are willing to manage, record and distribute crops from farmers so that in the future, they can feel the benefits of these monitoring technology and information systems. Of course, the manager referred to here is an institution that has full power over distribution and monitoring, so that market price stability occurs, especially for the Bandung regency area has an institution that is already willing, that is a Bandung regency KADIN (Chamber of Commerce and Industry) institution as reported from the web is a forum for professional development and distribution, aspirations and facilities for the benefit of the business world, in striving for a conducive business climate.

Many people are starting to develop using smartphones to sell or make it easier to promote a product, and it's just that people are not informed about this. Where E-Business in this day and age is not a new thing or a foreign thing if you talk about business digitally anything depends on the individual himself, because in terms of the benefits of E-Business this can introduce the products owned and can be a factor to monitor its development, depending on the individual himself in utilizing it. E-business is the management of all business activities through the application of information and communication technology. Along with the rapid development of technology and innovation, the implementation of the e-business concept will be increasingly varied. With effective management, companies can get value

and benefits. In management, one of the things that need to be managed is a negative risk (Sisca et al., 2022). (Rayyan sugangga, 2022). The simple terminology of e-business is using electronics, computing and internet-based technologies to change traditional business models and designs (Hasibuan et al., 2020). The concept of e-business is a new revolution for a company, which not only creates e-business competitiveness referring to the broader definition of e-commerce, where the activities in it not only include the purchase and sale of goods and services but involve all types of online businesses such as service to customers, collaboration with business partners, delivery of e-learning and the implementation of electronic transactions within the company (Sisca et al., 2022).

The monitoring information system is a program that can handle a repetitive activity and move to achieve the goals (Astriyani et al., 2020). A system is designed by humans and used by humans to make work easier. A monitoring information system is a system that can facilitate the monitoring process in a more computerized way. With a computerized monitoring system, the acquisition of information is due to the policies obtained based on data and then implemented to be faster in decision making, precise and accurate. So that the purpose of monitoring itself can be realized better (Haryono, 2020). Monitoring Information System is a procedure to supervise or monitor the maintenance of goods stored by a company, organization, and agency (Anindita, 2018). Information is a set of data or facts that are organized or processed in a certain way to have meaning for the recipient. It is well known that information is very important for companies in making daily decisions. At the same time, the system is a collection of parts or components, both physical and non-physical, that are interconnected and work together to achieve certain goals (Ningtyas et al., 2022). Monitoring Information System is monitoring and reporting with electronic data delivery (online). It can be monitored continuously to assess the quality and effectiveness of the control system to ensure that control has run as expected and improved according to needs (Juliana et al., 2018). As for the results of observations, researchers get data that the minority community of farmers there does not understand the use of Android-based applications. Android is one of the operating systems (OS) that is open source. Open source means it is open and everyone can use it and develop it. Android is also one of the most used OS on mobile smartphone devices (Lukman, 2019). The structure of an Android application or the fundamentals of an application is written in the Java programming language. The Java code is compiled along with the resource files needed by the application, where the process is packaged by a tool called apt tools into the Android package. Thus generating a file with an apk extension. This apk file is called an application and can later be run on mobile equipment (Dewi et al., 2018). The Android application is one of the media providing information whose existence is currently very important in the world of information and business (Hartawan, 2019).

Therefore researchers think of a way how a design user interface (UI) can be a way to prosper farmers in today's era by providing a sense of comfort and ease of understanding when farmers use the application. Implementing UI for a product facilitates interaction between users and products, increases sales and business growth, and improves branding quality (Aprilia, 2020). User Interface is the science of the graphical layout of a web or application. UI coverage is the button the user will click on, text, images, text entry fields, and all items the user interacts with. The UI designs all visual elements, allowing users to interact with an app or web page. UI designers should be able to create good looks that will increase user loyalty (Muhyidin et al., 2020). An application or program is said to be easy to use if it uses a good display. Users will give positive responses in the form of feedback from the application that can simplify the process. In addition, the UI is a complex system because it is controlled by the user and is the stage of preparation for the design and construction of the implementation (Hartawan, 2019).

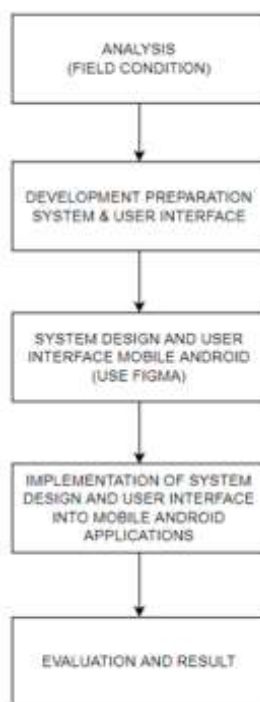
User interface (UI) design is needed to describe the two parties related to the management responsible for monitoring and farmers as actors who are in charge of providing data from the beginning of the harvest process to the harvest. Of course, before creating this application, researchers analyzed the needs from both the perspective of farmers and managers. The application before the formation of a ready-to-use application based on mobile android, researchers gave an initial picture of the design that will be applied to the application. The application used to design the interface display uses the Figma application software, where the software will provide an overview of the user interface (UI) visualization. Figma is a design tool usually used to create the appearance of mobile applications, desktops, websites and others. Figma can be used on windows, linux or mac operating systems by connecting to the internet. Generally, Figma is widely used by someone who works in UI / UX, web

design and other similar fields (Muhyidin et al., 2020). Figma can save time in verifying designs because we can collaborate by commenting, making suggestions, and even changing existing design designs simultaneously. Figma is a cloud-based design application and prototyping tool for digital projects. Figma was created to help its users collaborate on projects and work in the form of a team at the same time anywhere (Pramudita et al., 2021).

Previous research conducted by Nazara (2015) on the Android-based M-Petani Application stated that it makes it easier for farmers to submit complaints to the Food Crops Agriculture Office of West Java Province at any time and from any location. Therefore, the researcher made an android mobile interface design for the "Petani Sejahtera" application using a reference from an online store in Indonesia, which is Tokopedia as a reference for the initial design and it is hoped that with the design interface on the "Petani Sejahtera" application, farmers will be motivated to use the application because the application will be a way for farmers to prosper.

RESEARCH METHODS

A qualitative approach that takes a descriptive stance is taken with the research that was carried out in this study. The method in the research focuses on analysis, design, application of systems and user interfaces, where the focus of the analysis is to collect data based on facts in the field and needs in the field, the focus of the design is the form of the initial picture to be shown to the parties who will be involved in the use of the "Petani Sejahtera" application, and the application where when the target condition is achieved, implementation is carried out on the application that will be used mobile based android.



Picture 1 Research Procedure

Information :

Step 1 Analysis (Field Condition)

Finding more information related to the data desired by the manager and the condition of farmers when in the field, which can be used as data for a reference for changes that make farmers better when the application is used, and the benefits can be felt, the data obtained will later become a reference for a system design and user interface display.

Step 2 Development Preparation System & User Interface

Preparation for making the system & user interface where when all the data has been described, the needs that need to be prepared regarding the making of the "Petani Sejahtera" application have been planned both in terms of the software to be used and the feature requirements that will be implemented.

Step 3 System Design and User Interface Mobile Android (Use Figma)

This stage is said to be critical where the need for the formation of a system that has been elaborated into features, as well as the design of the user interface display for the convenience of farmers who use the application will be used as a form of visualization that describes the results of analysis and preparation.

Step 4 Implementation of System Design and User Interface into Mobile Android Applications

As for the party responsible for coding development, the design and system results depicted in the Figma application will be directly implemented using the flutter framework and android studio simulation applications. Of course, later there will be further development if it is felt that the "Petani Sejahtera" application is already running and the benefits are felt.

Step 5 Evaluation And Result

In the last stage of evaluation and results, when the application has been successfully created and used on a smartphone, it has become common to evaluate by involving outsiders to test the application. After testing, of course, we will get the results related to the opinion of the convenience of interface design and available features, which will later become a reference for further development before such applications are released and widely used by farmers.

So each step of this research procedure will be an interface design that will involve five stack holders, that is: Farmers, Managers, Village Governments, Business Partners and Couriers who are in charge of delivering their crops to business partners who have collaborated with the management, on that basis the design of the system and user interface will be a vital point of feasibility to be released and used for the welfare of farmers.

RESULTS AND DISCUSSION

Result Of The Research

Based on Picture 1 of the Research Procedure, in step 1, this is the analysis of field conditions, the researcher obtains data that can be a reference to continue to step 2 along with the data obtained when conducting field analysis related to the preparation of the system development & user interface based on the narrative conveyed by the parties which will later become part of the sustainability of the "Petani Sejahtera" application:

Farmers and Village Governments

- **Harvest**
The harvest stage is where the farmer has carried out the initial planting process, which has already been known for some time. For example, when the farmer grows carrots, the harvest must be done when the age of the carrot has touched 2-2,5 months.
- **Distribution**
Usually, farmers make distributions to traditional markets, private sales to known people and farmers hand over their crops to irresponsible parties who allow a monopoly on the market.
- **Android Application**
Most farmers know about android applications. It is just that many farmers also state that they do not understand because there are too many incomprehensible features and the information obtained is not directed.
- **Data**
The village government needs data that can help record its residents so that they can be reported to their superiors if they are asked for data on residents who work as farmers and their land area.

Manager (KADIN), Business Partner and Courier

- **Hope**
KADIN has the hope that it wants a media to help farmers not always rely on irresponsible third parties and provide farmers with the flexibility to sell their crops, especially in Sukapura Village, by utilizing android application media for farmers to access and websites to monitor the development of farmers every harvest season, even though there is business involvement

according to KADIN itself is reasonable and it is necessary because it wants the same benefits without having to be harmed.

- **Price Equalization**

The purpose of KADIN wants to monitor the harvest in Sukapura Village to stabilize prices by monitoring. A large number of crops and the scarcity of vegetables needed by business partners who later this party can help as a container for collecting farmers' crops, therefore so that there is no longer a monopoly on market prices KADIN wants data that can be a reference to stabilize market prices and scarcity of vegetable products experienced by the community based on needs.

- **Data**

When analyzing the expectations of KADIN in the hope of making the "Petani Sejahtera" application, researchers thought of data that could be a reference for KADIN to monitor crop yields for distribution. Therefore, the researcher summarizes the data that will be available and then used as a feature in the Android mobile application along with the core features that will be available in the application of "Petani Sejahtera":

1. **Register**

NIK, Full Name, Village Origin, Telephone Number and Password, application in Picture 3 Register.

2. **Login**

NIK and Password, application in picture 4 Login.

3. **Home**

Current Price List includes : Product Images, Vegetable Names, Price and Weight, application in picture 5 Home.

4. **Commodities**

Vegetable Name + Photo Automatically use the options box. Product Details include: Land Area based on (/m²), Prediction of harvest weight based on (/kg), Planting Date, Harvest Date and Price including automation of total price estimate output before entering shipping and courier services, Pick-up Address, Telephone number automatically when registering. Application in picture 2.5 Commodities.

5. **Harvest**

Harvest data is where it relates to commodity data. It is just that this data will display the harvest that has been confirmed by KADIN and assign a courier to pick up the harvest. Implementation in Picture 10 Harvest.

6. **Farmer Data (Saya)**

Data is displayed from the first time the farmer registers. Implementation in picture 12 About Me.

- **Distribution**

In terms of logistics distribution, of course, other parties are in charge of sending farmers' crops to KADIN or Business Partners. Therefore researchers make data so as not to make errors in sending and picking up crops along with data related to distribution between farmers and couriers:

Courier Name, Receipt Number, Type of Transportation, Vehicle no plate and courier Telephone Number, which will be related to commodity and harvest data. In picture 2.10 sales details. Continuing to steps 3 and 4, the design of the android mobile system & user interface (Use Figma) and the application of the system design & user interface to an android mobile application, based on the results of research from steps 1 and 2, the researcher made a user interface design and immediately applied it to the android mobile application as follows:

Start page, the application is opened

The reason why the researcher chose the user interface display as shown in picture 2 is that the researcher wants users who use memorization that the application used is the "Petani Sejahtera" application, so clearly the researcher displays when the application is opened, the first is the logo of the "Petani Sejahtera" application itself and the next is continued to a page that explains that this application is supported by the local government and KADIN and then developed by students Widyatama

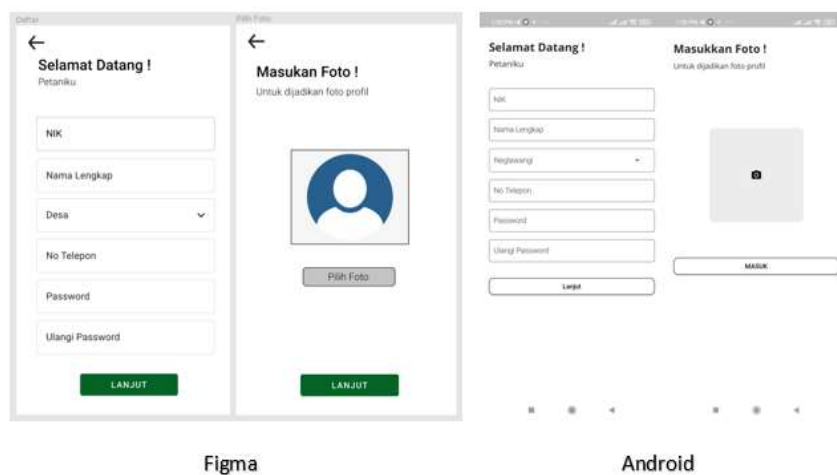
University. Here is how it looks when doing the initial design using Figma to its implementation in the Android application.



Picture 2 Start page, the application is opened

- **Register**

This register feature is the implementation of the need to record citizen data as well as access to log in to the application so that they can access the features of the "Petani Sejahtera" application in a comprehensive manner.



Picture 3 Register

- **Login**

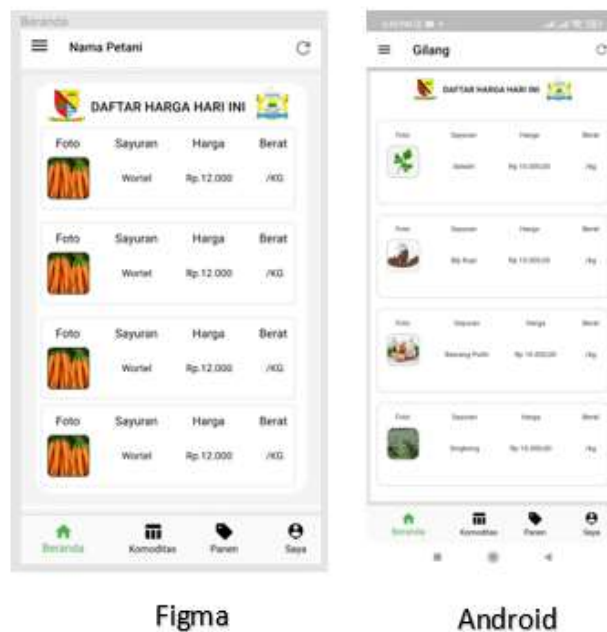
The login feature displays the start page with the slogan and hopes with this application, "May You Always Be Prosperous My Farmer", and requires login data in the form of NIK and Password to get this login data, farmers must first register it in the register menu. Here is how it looks when doing the initial design using Figma until its implementation in the Android application.



Picture 4 Login

- **Home**

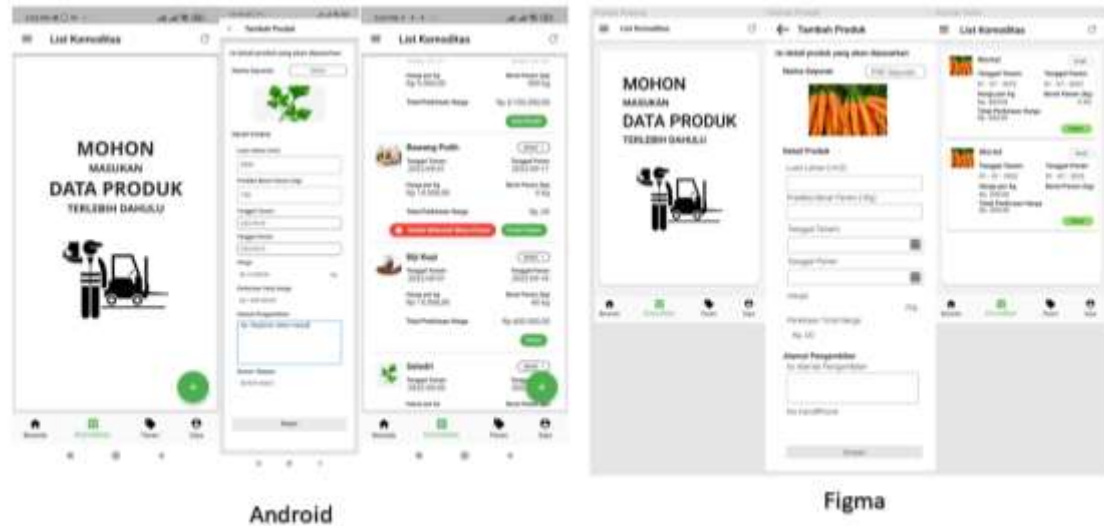
When farmers log in, farmers will immediately be directed to the home feature, which displays the current price list of vegetables. It aims to have farmers have the option to sell their crops to the application and review the feasibility of vegetable prices offered by KADIN to farmers through the "Petani Sejahteras" application.



Picture 5 Home

- **Commodities**

Commodity features are vital features where farmers begin to enter data related to vegetables, changes in status during the planting process, and harvest until they are ready for distribution. Farmers must enter initial planting to harvest data based on estimates by the farmer himself, this feature can see the estimated price after the harvest weight is entered, and it will automatically display the selling price based on the price of vegetables at that time while it is not yet a fixed price because the original price will come out after the farmer enters the harvest process by entering the original weight when the harvest occurs.



Picture 6 Commodity

As for the status of this feature, there are 3:

Planting (Tanam): The farmer is carrying out the planting process in this status.

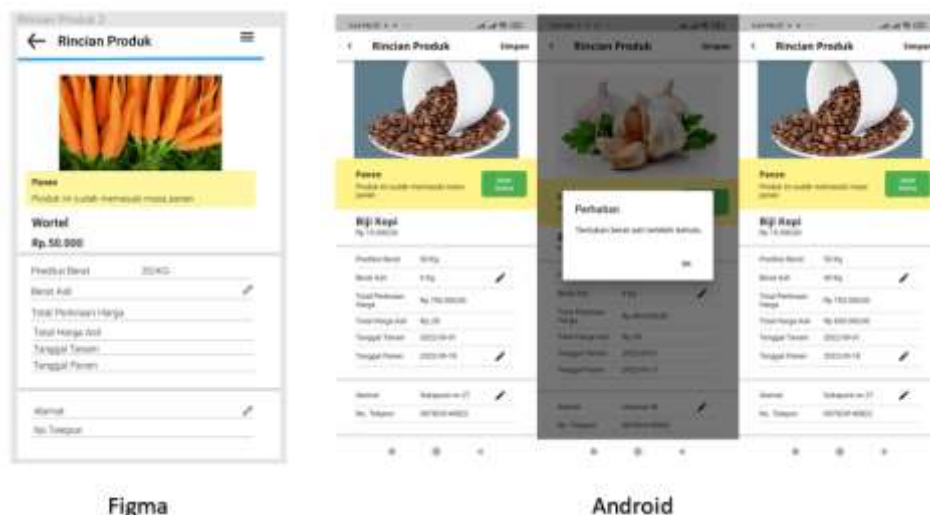
Harvest (Panen): harvest status is the status of farmers who have harvested and preparations to continue to the status of ready to be taken.

Ready to Be Taken (Siap Diambil): this status is when the farmer has packed his harvest and is ready to be picked up by a courier whom KADIN will later assign.



Picture 7 Status

Related to these three statuses can be seen in picture 2.5 Commodity, where the application will remind that the vegetables have entered the harvest period. Farmers must change their status manually by clicking the details on the commodity page on the vegetables that have fallen into the harvest period and then entering the original weight. When it is ready for distribution, farmers must change the status again to be ready to be taken. Here is an overview of the detailed features to change the status and include the original weight of the harvest.

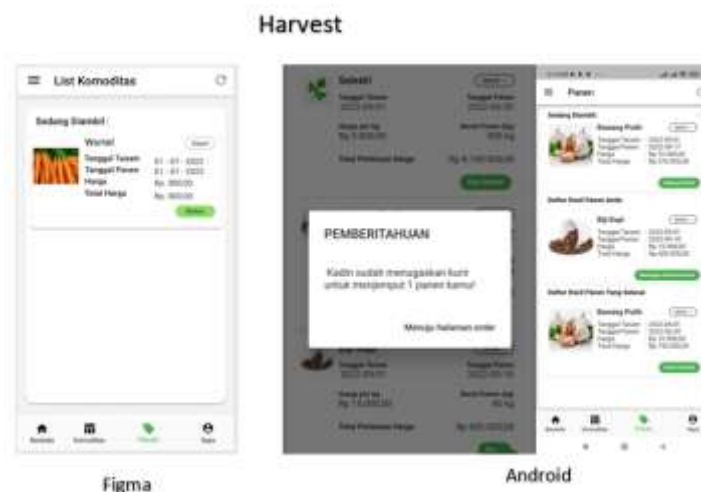


Picture 8 Details Product

Therefore, when farmers have entered the harvest stage, farmers are obliged to change the data to harvest, as shown in picture 2.6 Status. After that, the farmer must enter the original weight to store the data. When the farmer forgets to enter the original weight, the system will give a notification "determine the original weight first" by clicking the pencil icon in the original weight data. Afterward, the farmer will be able to see the original price and can save the data.

- **Harvest**

The harvest feature will display information about vegetables chosen by Kadin and distributed to business partners. When a farmer's harvest is selected in the app, the following notification appears: "KADIN has assigned a courier to pick up 1 of your crops." Farmers only need to wait for the courier to arrive before being picked up. This feature displays farmer transactions in the "Petani Sejahtera" application.



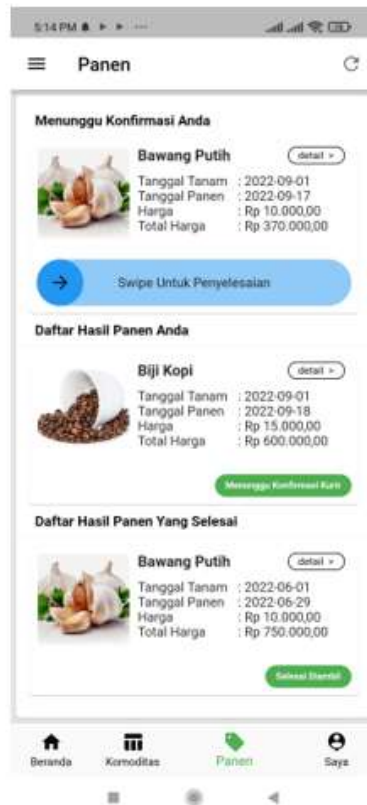
Picture 9 Harvest

On the harvest page has 3 statuses, that is:

Being picked up (Sedang diambil): means that the courier is picking up the harvest.

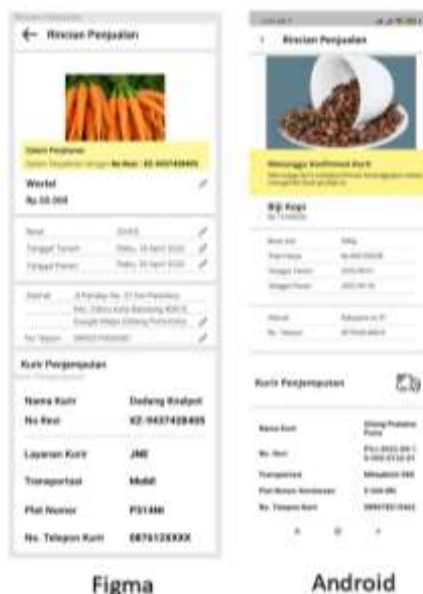
Waiting for courier Confirmation (Menunggu Konfirmasi kurir): this status is waiting for the courier's approval to pick up.

Finished being taken (Selesai diambil): this status means that farmers and couriers have successfully made transactions or the harvest has been taken by farmers. In contrast, later, farmers have to swipe on the application to ensure the courier has taken the harvest. Here has an overview of when the farmer has to confirm the crop has already been taken by the courier.



Picture 10 Status Harvest

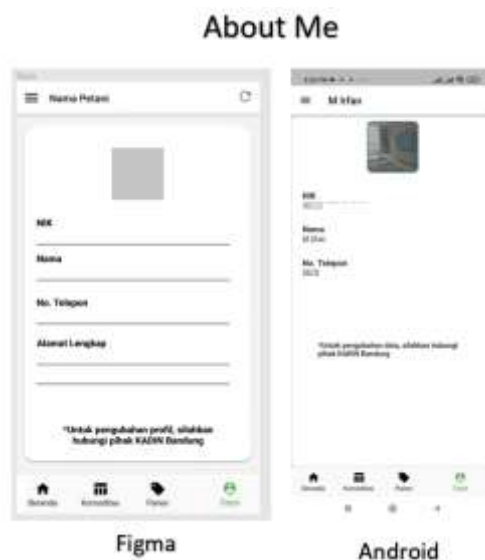
Detailed feature on the harvest page is about the sales details, which are related to the courier where the courier data and the pick-up date will be carried out.



Picture 11 Sales Details

- **Farmer Data (About Me)**

In this feature, farmers can see the data that was first registered, and this data is a reference for picking up crops that will be carried out by couriers where the data that is the reference is a name and cellphone number data. Meanwhile, if there is an error in the data, farmers can contact KADIN to change the data.



Picture 12 About me

Based on the results of step 3, the design of the android mobile system & user interface (Use Figma) directly applied to step 4 of the system design & user interface to the android mobile application, as well as the reason the dominant design uses green because researchers were inspired by the online shop application from Indonesia, that is "Tokopedia" and supported by the logo of the "Petani Sejahtera" application itself with a green booster symbolizing welfare for everyone.

The continuation of the results of steps 1 - 4 is the last step of the evaluation and the results where the researcher gets various previous evaluations when the researcher uses Figma as a reference for the initial picture to be redesigned in the android mobile application using the flutter framework and android studio as a simulation of the application used in real-time. The results of the system and user interface design that the researcher planned and implemented can be said to have met the target based on the data collected and the results of testing the application itself so that the application no longer has errors.

Discussion

Along with the rapid development of technology and innovation, the application of e-business concepts will be increasingly varied. With effective management, companies can obtain value and benefits. The concept of e-business is a new revolution for a company, which not only creates e-business competitiveness (referring to the broader definition of e-commerce), where activities in it do not only include buying and selling of goods and services. but involves all types of online business such as customer service, collaboration with business partners, delivery of e-learning, and implementation of electronic transactions within the company(Sisca et al., 2022).

As it is known that information is very important for companies in making daily decisions. A system is a collection of parts or components, both physical and non-physical, that are interconnected and work together to achieve certain goals(Ningtyas et al., 2022). Monitoring information system can be monitored continuously to assess the quality and effectiveness of the control system to ensure that control is running as expected and improved as needed (Juliana et al., 2018).

In this application, there are several features, namely the “Home” feature, which is used to review the feasibility of vegetable prices offered by KADIN to farmers through the "Prosperous Farmers" application. Next is “Commodity” features which is a vital features where farmers begin to enter data related to vegetables, changes in status during the planting process, and harvest until they are ready for distribution. Before the harvest period, farmers first enter initial planting data, but the price that appears is the price at that time and is temporary. Then, when harvest time comes and the harvest is available, the farmer must update the data previously entered according to the harvest so that the original selling price will appear and the farmer can save it. Then, there is a “Harvest” feature, where the harvest feature will display information on vegetables selected by Kadin and distributed to business partners. With this application, when farmers' harvests are selected by KADIN, farmers do not need to deliver their own crops. Farmers only need to wait for the courier to arrive before being picked up. In addition to these features, there is also an "About Me" feature which provides the first data information that is revealed and becomes a reference for picking crops by couriers

Before the formation of a ready-to-use application based on mobile Android, researchers gave an initial picture of the design that will be applied to the application. The application used to design the display interface uses the Figma application software, where the software will provide an overview of the user interface (UI) visualization. Therefore, the researcher made an android mobile interface design for the "Petani Sejahtera" application using a reference from an online store in Indonesia, which is Tokopedia, as a reference for the initial design, and it is hoped that with the design interface on the "Petani Sejahtera" application, farmers will be motivated to use the application because the application will be a way for farmers to prosper.

Previous research conducted by Nazara (2015) on the Android-based M-Petani app and found that it facilitated the submission of complaints by farmers to the Food Crops Agriculture Office of West Java Province at any time and from any location. Based on the data gathered and the results of testing the application itself, it can be claimed that the results of the system and user interface design that the researcher designed and implemented have fulfilled the target. This software's benefits include tracking crop output and examining market pricing to ensure consistency. In addition, farmers can choose to distribute their harvests so that surpluses don't form, or to sell their crops to monopolistic buyers.

CONCLUSION

Based on the methods, results and discussions, this research can be said to follow the targets expected by various parties related to deciphering the data collected and then summarizing and sorting it into features. As for the future, there will be further development in the "Petani Sejahtera" application feature. The advantages of this application are that it can monitor crop yields and analyze market prices for stability. Moreover, farmers have other options to distribute their crops so that there is no accumulation of crops or sell their crops to parties who can monopolize prices. Regarding the appearance of the user interface and design system, it has gone through the testing stage. It is a mature concept in appearance, including features that are easy to understand and effective to use. It is hoped that with the "Petani Sejahtera" application, farmers can make the best use of it and no longer need to worry about distribution matters because this application collaborates with the responsible manager.

REFERENCE

- Anindita, K. (2018). Mengenal sistem manajemen inventory & manfaatnya bagi bisnis anda. In *HashMicro*.
- Aprilia, P. (2020). *Mengenal user interface: Pengertian, kegunaan, dan contohnya*. Niagahoster.
- Astriyani, E., Putri, F. N., & Widianingsih, N. E. (2020). Desain sistem informasi monitoring aset pada PT. Arbunco Wira Pandega. *Journal Sensi*, 6(1), 87–99.
- Dewi, N. K. C., Anandita, I. B. G., Atmaja, K. J., & Aditama, P. W. (2018). Rancang bangun aplikasi mobile siska berbasis android. *SINTECH (Science and Information Technology) Journal*, 1(2), 100–107.
- Gobel, C. Y., & Adam, N. (2021). E-commerce pemasaran hasil panen komoditas pertanian menerapkan user centered design. *Jurnal Media Informatika Budidarma*, 5(4), 1519–1527.

- Hartawan, M. S. (2019). Analisa user interface untuk meningkatkan user experience menggunakan usability testing pada aplikasi android pemesanan test drive mobil. *Jurnal Teknologi Informasi ESIT*, 14(2), 46–52.
- Haryono, K. (2020). *Sistem informasi monitoring barang (Studi kasus bidang LTI Diskominfo DIY)*. Universitas Islam Indonesia.
- Hasibuan, A., Jamaludin, J., Yuliana, Y., Sudirman, A., Wirapraja, A., Kusuma, A. H. P., Hwee, T. S., Napitupulu, D., Afriany, J., & Simarmata, J. (2020). *E-Business: Implementasi, Strategi dan Inovasinya*. Yayasan Kita Menulis.
- Juliana, J., Wibawanti, Y., & Haikal, M. (2018). Monitoring kemajuan pengerjaan proyek Belt Conveyor Plant 14 Hambalang berbasis web. *Simetris: Jurnal Teknik Mesin, Elektro Dan Ilmu Komputer*, 9(1), 29–34.
- Lukman, D. A. A. M. (2019). Aplikasi mobile. *Evolusi*, 7(2), 58–65.
- Muhyidin, M. A., Sulhan, M. A., & Sevtiana, A. (2020). Perancangan Ui/Ux aplikasi my cic layanan informasi akademik mahasiswa menggunakan aplikasi figma. *Jurnal Digit*, 10(2), 208–219.
- Nazara, A. (2015). *Aplikasi M-Petani berbasis android pada Dinas Pertanian Tanaman Pangan Provinsi Jawa Barat*. Universitas Komputer Indonesia.
- Ningtyas, S., Ar-Rasyid, H., & Marchiandy, A. (2022). Rancangan sistem monitoring pengiriman barang berbasis website pada PT. Denso Centra. *JRIS: Jurnal Rekayasa Informasi Swadharma*, 2(2), 34–41.
- Pramudita, R., Arifin, R. W., Alfian, A. N., Safitri, N., & Anwariya, S. D. (2021). Penggunaan aplikasi figma dalam membangun Ui/Ux yang interaktif pada program studi teknik informatika STMIK Tasikmalaya. *Jurnal Buana Pengabdian*, 3(1), 149–154.
- Sisca, S. E., Rayyan Sugangga, S. H., Simanjuntak, M., Dwianto, S. B., SE, M. M., Wayan Ardani, S. S., Aditya Wardhana, S. E., Pada, A. T., Novrianti, D. P., & Setyawati, C. Y. (2022). *E-Business: Inovasi di era digital*. Media Sains Indonesia.