

Design of Telemedicine Platform to Support Health Services In Order To Reduce The Risk Chronic Disease Patients During The Covid-19 Pandemic in HGA Hospital Depok 2021

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Abstract:

The COVID-19 pandemic limits patients from coming to health services, especially patients with chronic diseases, telemedicine platforms can be a solution in using this telehealthcare technology. This study aims to design a telemedicine platform, a case study of Hasanah Graha Afiah General Hospital, Depok. The research method used is the SDLC (System Development Life Cycle) methodology, which is a software development system that uses the following stages: planning, analysis, design, implementation, testing, and maintenance, which is one of the model used is a prototype (life cycle using prototyping). The design results from this study help to find needs in the early stages of designing a telemedicine platform and the actual design is made exactly like a prototype model with better quality. The conclusion of this study is how to design a telemedicine platform that can be used more effectively by health workers, hospitals and patients, especially chronic disease patients during the Covid-19 pandemic and can also be used as a suggestion for future public health services.

Keywords: Telemedicine, Covid-19 Pandemic, Chronic disease, Tele healthcare

1. INTRODUCTION

The Covid-19 pandemic that has occurred in the world, where the first patient was detected in Indonesia from March 2, 2020 to October 31, 2021, has 4,243,835 confirmed cases of the Covid-19 virus, and 143,388 died. The impact of this pandemic, apart from crippling the economy, also affects the health sector, especially health services. Many health services, especially hospitals, are more focused on handling the treatment of COVID-19 patients, besides that, with the rapid spread of this virus, hospitals which are areas with the highest levels of exposure to the Covid-19 virus also have an effect on the decline in services, especially the reduced service for patients. Non-covid-19 especially chronic disease patients. As is well known, chronic disease is the biggest cause of death in Covid-19 patients. No less than 67% of those who died from Covid-19 previously had a chronic disease, this is what causes chronic disease patients to be reluctant to come to health services. Another factor is the shortage of medical personnel due to the presence of health workers infected with the virus-19. According to the Covid-19 Report data, as of September 15, 2021, as many as 2,029 health workers have died due to COVID-19. Likewise, patients with chronic diseases who do require routine care are constrained, especially for patients with repeated visits who require consultation and doctor's examinations. One way to overcome these obstacles is with the help of telehealthcare remote examination technology which is commonly known as telemedicine. The Indonesian government, in this case the Ministry of Health, during the Covid-19 pandemic, issued Circular Letter Number HK.02.01/MENKES/303/2020 concerning the Implementation of Health Services through the Utilization of Information and Communication Technology in the Context of Preventing the Spread of Corona Virus Disease 2019 (Covid-19). Provide a reference in providing health services by utilizing information and communication technology to prevent the spread of Covid-19 in the form of the telemedicine method.

2. RESEARCH METHODE

The research method used is the SDLC (System Development Life Cycle) methodology, which is a software development system that uses the following stages: planning, analysis, design, implementation, testing and management. (Maintenance), one of the models used is a prototype (life cycle using prototyping) or commonly known as a prototype.

The prototype method is a method that allows users or users to have an initial picture of the software to be developed, and users can conduct initial testing before the software is released. This method aims to develop the model into the final software. This means that the system will be developed faster and the costs incurred are lower. This prototype method has stages that must be carried out in software development. The following are the stages of software development using the prototype method.

Analysis Needs, at this stage the developer identifies the software and all system requirements to be made.

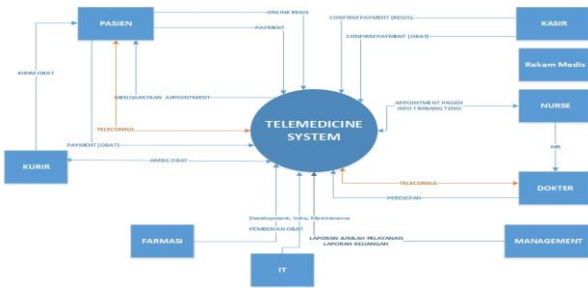


Figure 1. Telemedicine Context Diagram

Making prototypes, making temporary designs that focus on the flow of the program to the user.

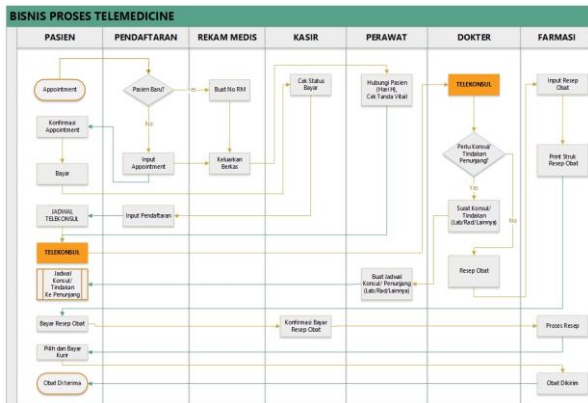


Figure 2. Telemedicine Business Process

Evaluation of the prototype, the evaluation is carried out to find out whether the prototype model is in line with expectations.

Coding the system, if the prototype is approved it will be translated into the appropriate programming language.

System testing, after the software is ready, the software must pass testing. This test is usually done with White Box Testing, Black Box Testing, and others.

System evaluation, the user evaluates whether the software is in accordance with what is expected or not. If yes, do the next step. If not, repeat the system coding and system testing stages.

Using the system, the software that has been tested and approved is ready to go.

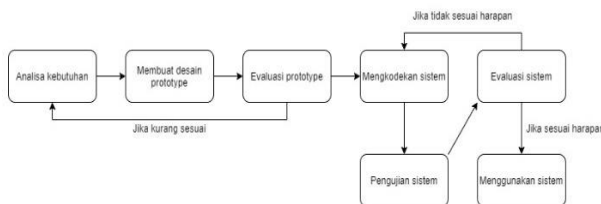


Figure 3. Prototype Stages

One of the stages of designing a telemedicine system is the stage of making a prototype in the form of a display design that will be used, in this case the researcher uses the help of the *figma* application in making clickable and dynamic designs.

3. RESULTS AND DISCUSSION

In the display design that is based on an Android Smartphone, in accordance with the business processes as shown in Figure 2 and the text diagram above, there are 4 parts of the display, namely from the patient side, nurses and doctors, pharmacy and management who manage the telemedicine system, as follows: the design:

1. Patient View:



Figure 3. Patient Login

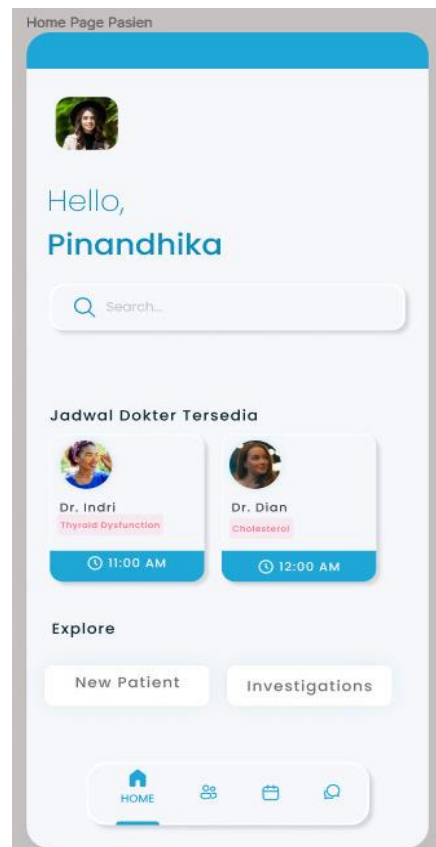


Figure 4. Start Page

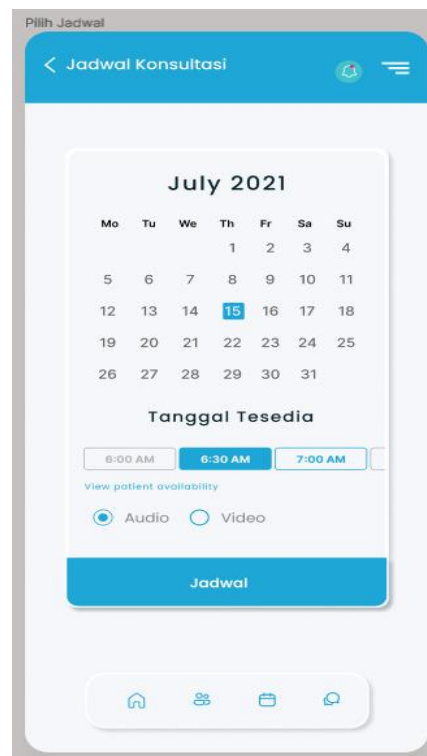


Figure 5. Patient chooses schedule



Figure 7. Patient Payment



Figure 6. Patient Text Message

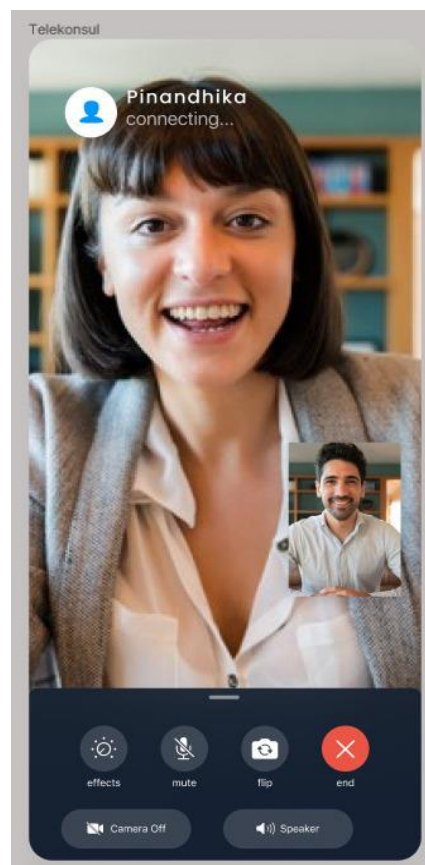


Figure 8. Teleconsul Patient

2. Nurses and Doctors



Figure 9. Doctor Login

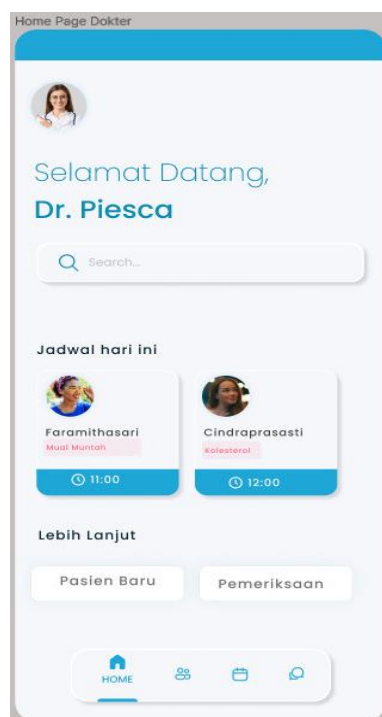


Figure 10. Doctor First Page

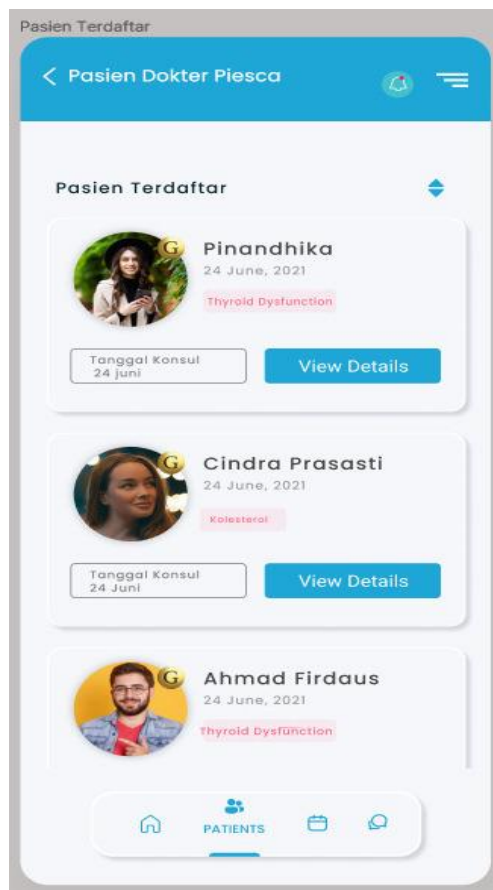


Figure 11. Patient Next Schedule



Figure 12. Pharmacy Login

1. Pharmacy

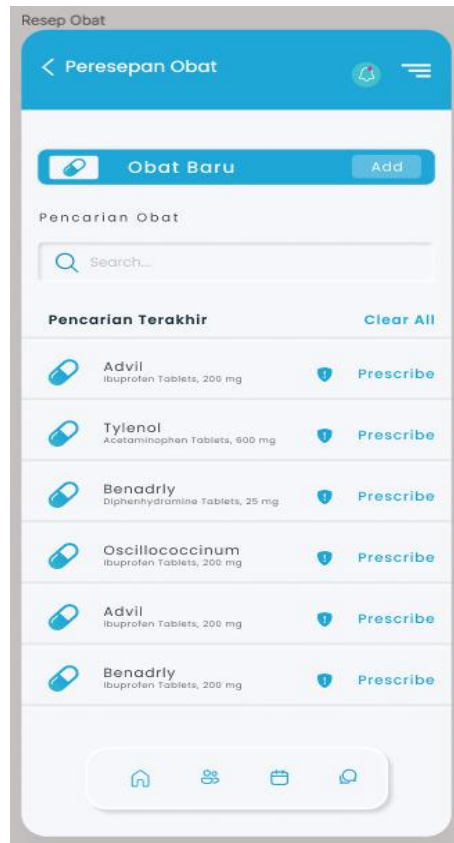


Figure 13. Recipe Search

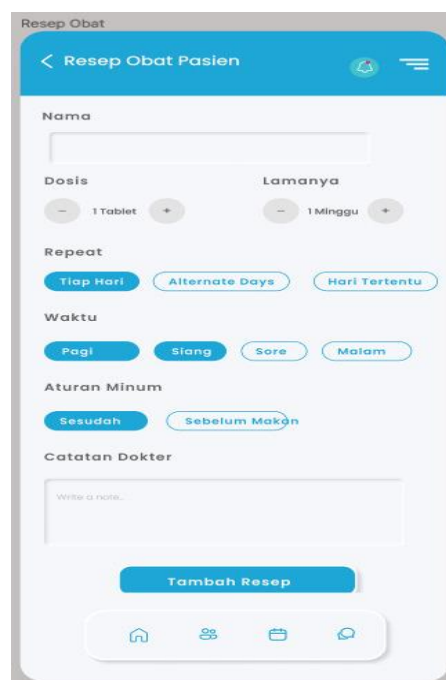


Figure 14. Patient prescription

4. CONCLUSION

From this prototyping or prototype design research, telemedicine can be made a system that is useful for the development of health technology, especially in the era of the COVID-19 pandemic and in the future it can be developed with the development of technology, especially technology related to human body examination aids and can be integrated with this telemedicine system.

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