Research Article

Development of Basic Housekeeping Virtual Reality Learning Module For Students

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Abstract.
The Virtual Reality (VR) Basic Housekeeping Module helps students to gain and experience practical experience even though they are studying from home. Polimedia as a vocational campus that prioritizes practice in transferring knowledge to students must look for new methods so that students continue to gain knowledge. The VR learning module development method that the author uses is the Waterfall SDLC (System Development Life Cycle) method. The system design stages in this research are explained through process design using cases and sequence diagrams. In the design, the results are in the form of a VR application. Testing the system interface was declared good based on an assessment using 3 aspects (usability aspects, user aspects and interaction aspects).

Keywords: virtual reality, housekeeping, education, new media, interactive

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1. Introduction

In the field of education, technology plays an important role. One example is virtual reality technology, which gives students a simulation to learn science in a setting that looks like reality. Virtual reality is a computer simulation technology that gives users the possibility to interact with the surrounding environment, a real environment that is imitated, exists only in the user's imagination, where objects can be explored as if in the real world. Consequently, virtual reality technology allows users to engage with the environment around them as if they were doing so in the real world. Virtual reality is increasingly being used in learning, as are visual (images), audio and video (multimedia) learning media.

The technology in question is "Virtual Reality" (VR). Students who become users can be active during learning because students are able to be involved in the process of anatomy learning activities themselves. They focus more on activities because by using VR technology students experience it directly as if they were in the real world doing something without any distractions. That's why there is a need for an application that makes learning easier, such as 'Virtual Reality'.

This application is a virtual reality simulation of basic housekeeping learning for hotel management study program students. This application will simulate a hotel room and the stages of housekeeping activities according to the correct procedures.

The main objective of this research is to create an early development basic housekeeping learning module in the form of a virtual reality application. It is hoped that in the future this learning module can also be developed in other courses to support virtual practical learning before students practice directly in real life.

2. Material and Methods

The system development stages are carried out by applying the steps contained in the System Development Life Cycle (SDLC). These stages include:

Systems Analysis, is the process of analyzing and defining problems and possible solutions for organizational systems and processes.

System Design, includes the process of designing output, input, file structure, programs, procedures, hardware and software needed to support the system.

System Development and Testing, build the software needed to support the system and carry out testing accurately. Installing and testing hardware and operating software

System Implementation, is the transition stage from the old system to the new system, carrying out training and guidance as necessary.

Operations and Maintenance, are stages carried out to support information system operations and make changes or additional facilities.

System Evaluation, evaluating the extent to which the system has been built and how well the system has been operated

The design stage is carried out to provide a complete design of the system to be built. The system design stages in this research are explained through process design using use cases and sequence diagrams.

3. Result and Discussion

3.1. Result

Based on the design carried out in this study, the results obtained are in the form of a Housekeeping VR module application. The following is the resulting application output:

Title Screen. In this page, there are introduction and instruction to start the module.

Hotel Room Basic Housekeeping Simulation. After we choice to start the programs, we are now in the simulation step by step basic housekeeping procedure
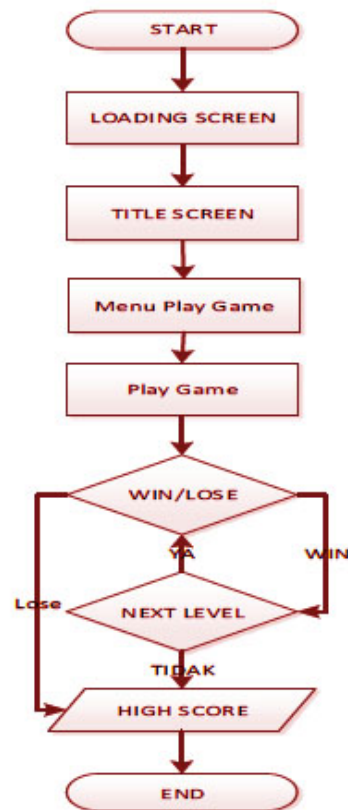
Figure 1: Usecase Diagram.

Menu Action Choice. In each step of procedure, we have to chose the action for the correct basic housekeeping procedure.

3.2. Discussion

Testing of the application is carried out by testing the process and face-to-face system. Process testing is carried out by running each process provided in the system to ensure that there are no errors in both the data processing and the calculation of the VR Application. Based on the results of the tests carried out, the system has been able to run properly and there are no errors in any data processing. Testing of the system interface is carried out through a questionnaire given to students of the hotel management study program.

Questionnaires were given to 30 students of the hotel management study program. The results of the system interface assessment questionnaire are as follows:
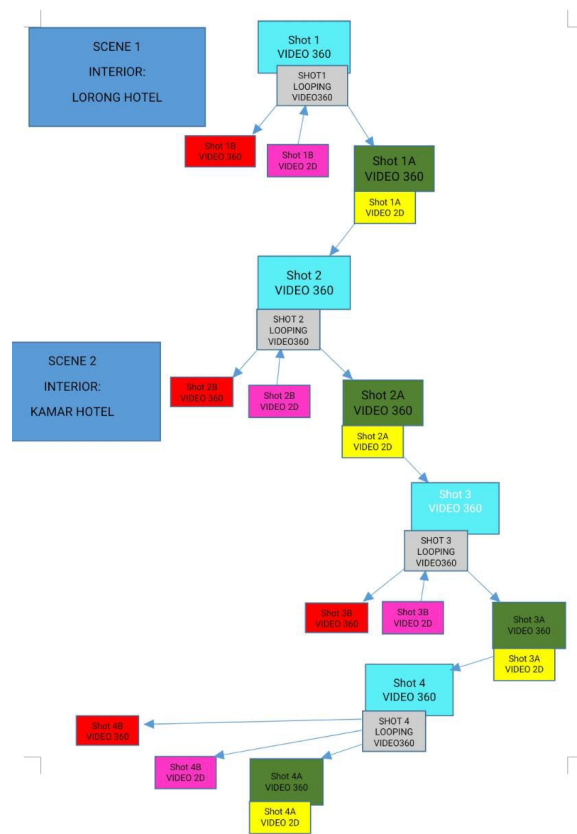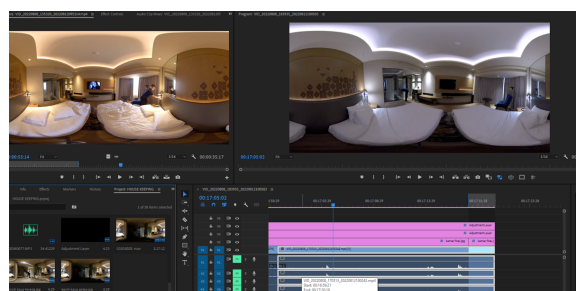
Figure 2: Sequence Diagram.

Figure 3:

Figure 4:

Figure 5:

Figure 6:

TABLE 1: System Interface Assessment Aspects.

Score : 5 = Very Good; 4 = Good; 3 = Fair; 2 Bad; 1 = Very Bad		
No	Pertanyaan	SCORE
	USABILITY	
1	Is the application design is easily recognise ?	
2	Is the application easy to operate?	
3	Is the application display pleasing to the eye & not boring	
	USER	
1	Is the menu display in the application easy to recognize?	
2	Is the application easy to read?	
3	What are the image symbols easy to understand ?	
	INTERACTION	
1	Is it easy to access information provided?	
2	Is the information provided appropriate needs?	
3	Is the menu and appearance of the application easy to remember?	

4. Conclusion

Based on the tests of Basic Housekeeping VR Application, it is concluded that the system testing based on process criteria has no errors (errors) while the program is

TABLE 2:

No	Questions	Percentage
USABILITY		
1	Is the application design is easily recognise ?	5= 25%, 4=75%, 3=0, 2=0, 1=0
2	Is the application easy to operate?	5= 25%, 4=75%, 3=0, 2=0, 1=0
3	Is the application display pleasing to the eye & not boring	5= 25%, 4=75%, 3=0, 2=0, 1=0
USER		
1	Is the menu display in the application easy to recognize?	5= 20%, 4=80%, 3=0, 2=0, 1=0
2	Is the application easy to read?	5= 20%, 4=80%, 3=0, 2=0, 1=0
3	What are the image symbols easy to understand ?	55= 20%, 4=80%, 3=0, 2=0, 1=0
INTERACTION		
1	Is it easy to access information provided?	5= 15%, 4=85%, 3=0, 2=0, 1=0
2	Is the information provided appropriate needs?	5= 15%, 4=85%, 3=0, 2=0, 1=0
3	Is the menu and appearance of the application easy to remember?	5= 15%, 4=85%, 3=0, 2=0, 1=0

running. Testing the system interface was declared good based on an assessment using 3 aspects (usability aspects, user aspects and interaction aspects). Based on the usability aspect, 25% of respondents chose very good; 75% voted Good. Based on the user aspect 20% chose very good; 80% voted good. Based on the interaction aspect 15% chose very good; 85% voted good.

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