Application of Augmented Reality Technology to Hospitality French Learning

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Abstract: The delivery of teaching materials in lectures is one of the parts that determine students' understanding of the material presented, especially when lecture materials are things that demand equipment that supports outdoor activities or requires practicum devices that are not possible to be applied to the room, for example in the Unimed French Language Education study program in semester 6. Students will meet the practicum course in the l'hôtellerie or hospitality course this course requires students to imagine being in a hotel directly with all existing activities with a long enough duration. If this course is delivered only in words and sometimes monotonous delivery bores students so that they are less interested in difficulty in mastering the lecture material. One way that can be done to overcome this is to use visual equipment so that what is conveyed in a visual way makes students interested in the material presented and then brings the imagination that they are in a real hotel so that they live the learning in this hospitality course. However, visual delivery in the room is also a problem when the number of learners is large. For this reason, equipment is needed that can provide information visually and is easy to use or carry that can spur student activities to interact. Media augmented reality is a visual model that can provide new experiences in interacting between real objects and virtual objects that are formed in three-dimensional form, using augmented reality packaged as learning material can help students to understand the teaching material in l'hôtellerie lectures.

Keywords: Media, Augmented Reality, L'Hôtellerie course, French

1. INTRODUCTION

The role of learning media in the delivery of material in education is one of the inseparable parts of the implementation of teaching and learning. Material conversion in the form of symbols, both verbal and non-verbal, is called encoding, and the interpretation of these symbols is called decoding. The decoding process is very dependent on the educator in changing the material presented until it is understandable to the learners". Sometimes using visual media is not necessarily able to provide understanding to students about the material presented, especially subject matter that requires special equipment, in the course l'hôtellerie requires equipment that is not cheap when the material presented requires activities outside the hotel or if done in a hotel can only be done once for learning one semester.

Augmented reality is a visual model of combining the real world with the virtual world in a two-dimensional or three-dimensional form that is projected in a real environment at the same time. Augmented reality or Augmented reality can provide a new experience in terms of interaction between the user and the media to be conveyed. In learning models that require learning media that requires expensive equipment, augmented reality is a solution to overcome this. Students can understand a concept that is conveyed through interactive activities in augmented reality.

Augmented reality can be implemented into equipment that uses visual media such as computers and communication equipment so that it can be easily used by students and can carry out practicum in virtual form. As well as in explaining how the description of the location of the hotel, the types of rooms, front office activities, and restaurant activities in a hotel in the lecture material l'hôtellerie is certainly more interesting if it is conveyed visually using augmented reality, to save funds and time as well as achieve more support for students. The development of technology that is increasingly advanced, of course, has an effect on various sectors of human life. This development also plays a role in the development of a learning medium. Learning media is becoming more and more interesting and more concise, although it does not detract from the essence of the material. One of the developments of learning media that are currently still new is learning media using Augmented Reality.

2. SIMULATION MODEL

The augmented reality Villa web application is an application design that aims to support promotional media on a villa website. The app is built with the Flair Toolkit library to support rendering on the web and subsequently displaying 3-dimensional objects. The application runs on a hotel brochure, and visitors can scan the marker on the brake. The use case diagram helps explain the mechanisms that occur on the website. A use case is a diagram that shows the functionality of a system or class and how that system interacts with the outside world and describes the system functionally visible to the user. A clearer mechanism can be seen in Figure 1.
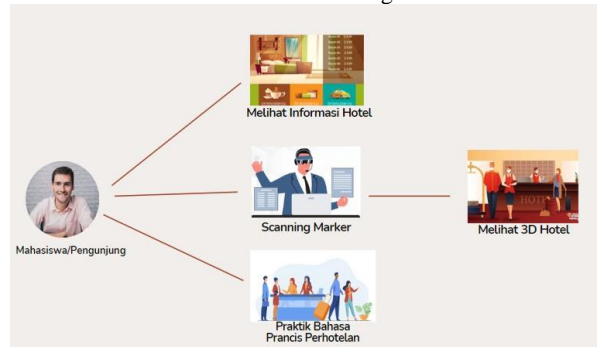

Figure 1. AR Usage Diagram

The flow contained in Figure 1 is an overview of the design of the villa's augmented reality web application system as a whole. Home, Scan Marker, Services, Rooms, Restaurants, swimming pool, and Contact pages, are found in the hotel brochure. Students are presented with information on each page provided. Students are faced with a space to display video from a webcam on a marker scan page. Students can scan the marker on this page by facing the marker on the webcam to display the villa's 3-dimensional object. The interface design is the initial design of the hotel's AR display. This interface design is intended to make it easier to create interfaces from the system. The design made is user-friendly which aims to make users feel interested, comfortable, and easy to use. The design of the AR interface is as follows.

a. Main Page Interface Design
The main page is a page that appears when visitors enter the website address in the address bar. Visitors can see the website menu, services, activities, photo slides, as well as hotel contact information.

b. Scan Marker Page Interface Design
The scan marker page is a page that appears when a visitor presses the scan marker button. Visitors can scan the marker using the marker contained in the hotel brochure.

3. RESULT

After analyzing the application overview, the next thing to do is design the application system. What is important to pay attention to in the process of making this application is how to create an application that is user-friendly, namely the user as the user of the application, in this case, especially Universitas Negeri Medan French students can easily understand using the application created.

The flowchart structure serves to define and illustrate the system workflow as well as the basic structure of designing an augmented reality hotel web application for use in the l'hôtellerie course. The structure can be seen in Figure 2:
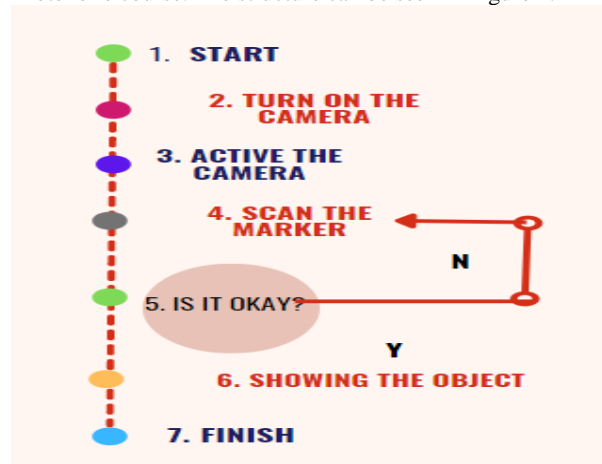

Figure 2. Flowchart Steps AR Usage Augmented Reality App Development

Hospitality intended for learning in l'hôtellerie courses for French students uses the FlarToolkit library as an augmented reality library which is used as a place to store and process 3-dimensional objects and tracking identification on camera devices. The application performs detection through a webcam camera to detect markers, then displays a 3-dimensional object (rendering) of hotel facilities if a recognized marker is found. Figure 2 shows the flow of the application's flowchart, when the camera is active automatically the system scans the marker on the captured image, when the marker is detected then the system displays a 3-dimensional object of the hotel just above the marker.

a. Brochure Design and Manufacture
The brochure that is made serves as a promotional medium as well as a medium for placing markers. Several pages are contained in the brochure, including cover, profile, location, hotel, price, activity, and restaurant. Brochure design created using Adobe Photoshop CS 5. Figure 3 is the result of designing a brochure.

Figure 3. Brochure Design and Manufacture

The last stage is to test applications that have been completed programmatically. Testing is carried out by debugging the application into a smartphone, to determine the success rate of the application when used. The application is tested on how many different types of smartphones. This is done to test the reliability of the application when used in various different types of smartphones trial or performance of the augmented reality villa web application aims to test whether the user can interact with the application, as well as whether the application can display information that is needed and expected. The results of the trials conducted are as follows:

1. The display of the scan marker page is a page that appears when the user presses the scan marker button found on the main menu.
2. The user first presses the allow button in the adobe flash player setting dialog box to activate the webcam contained in the video display space.
3. The next stage of the webcam is directed to the presence of the marker contained in the hotel brochure
4. Displays augmented reality video renderings that display marker detection results in the form of 3-dimensional objects of the hotel.

Application system analysis is the process of analyzing and evaluating a piece of software to test whether the software meets the requirements or not and to determine the difference between the expected results and the actual results. System analysis is carried out by survey research methods, data collection, data presentation, and analysis to manage data. The following describes the aspects of augmented reality villa testing:

1. Aspects of application process suitability, trial to the correctness of the hotel's augmented reality web application process. The test was carried out by looking at the suitability of the output produced by the application by applying it to the marker contained in the brochure. The application is run and then tracked against markers on brochures.

2. Aspects of user interface design, the trial of application appearance, suitability of scan marker feature, ease of use of the application, and the ability of the device to run augmented reality hotel web applications.

b. Calculation and Presentation of Data

Perhitungan dan penyajian data dilakukan untuk mengetahui hasil akhir dari survey yang telah dilakukan. Berikut merupakan perhitungan dan penyajian data hasil survey.

1. Process Conformity Aspects
   The results of the assessment of 20 respondents regarding the conformity aspects of the application process can be seen in Table 1.

Table 1. Hotel AR Process Conformance Trial

Statement	Valuation			
	Not Good Enough	Good Enough	Good	Very Good
Suitability of AR display on hotel brochures	0%	7,2%	92,6%	0%
Suitability of AR display on hotel brochures	0%	12,3%	81%	7,6%
Average	0%	9,9%	87,3%	4,3%

2. User Interface Aspects and Features
   The results of the assessment of 15 respondents regarding aspects of user interface and features can be seen in Table 2.

Table 2. User Interface and Features Trial

Statement	Valuation			
	Not Good Enough	CukupBaik	Not Good Enough	Sangat Baik
Conformity of scan marker feature	0%	72,6%	90,6%	0%
Ease using the App	0%	72,6%	71%	60,6%
The application can run well	0%	72,6%	71%	60,6%
Average	0%	72,6%	89,6%	60.6%

The user interface and features aspects obtained the highest average on good answers of 89.6% and the second highest score of 60.6% on excellent answers. Based on this magnitude, it can be interpreted that the user interface and application features are running well, so this augmented reality hotel application is easy to understand and easy to use.

4. CONCLUSIONS

Based on the results of trials and analysis from the Augmented Reality Hotel Application, several things can be concluded, namely the Augmented Reality Hotel Application is able to display 3-dimensional objects of the hotel's interior and exterior and can be a supporting tool for information media. Media augmented reality is a visual model that can provide new experiences in interacting between real objects and virtual objects that are formed in three-dimensional form, using augmented reality packaged as learning material can help students to understand the teaching material in l'hôtellerie lectures.

5. REFERENCES

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