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INLA GOES TO SCHOOL AUGMENTED REALITY ANALYSIS AND DESIGN

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Abstract: This study describes the INLA Goes to School Gymnastics activities which have temporarily not been running for a year due to the pandemic. Therefore, this study makes analysis and design which will later be made into applications for further research so that INLA goes to school Gymnastics activities can be carried out again during a pandemic and after a pandemic. *Augmented Reality* is a technology that allows users to see a combination of real and virtual objects in a real environment and run in real time or realtime. In this study, the author makes a 3-dimensional animation design to make it look more attractive and increase interest in using the INLA Goes to School Augmented Reality Gymnastics application. The INLA Goes to School Gymnastics Application Based on Augmented Reality was created using the Unity application and in the animation stage using the Blender application.

Keywords: analysis; Android; application; augmented reality; INLA

Abstrak: Penelitian ini mendeskripsikan tentang kegiatan Senam INLA Goes to School yang sementara belum berjalan selama setahun dikarenakan oleh pandemi. Maka dari itu penelitian ini membuat Analisa dan desain yang nantinya akan dibuatkan aplikasi dipenelitian selanjutnya agar kegiatan Senam INLA goes to school dapat dilakukan kembali disaat pandemic dan sesudah pandemi. *Augmented Reality* merupakan teknologi yang memungkinkan pengguna melihat gabungan benda nyata dan maya di lingkungan yang nyata dan berjalan pada waktu yang nyata atau realtime. Dalam penelitian ini, dapat membuat desain animasi 3 dimensi agar tampilan lebih menarik dan menambah minat dalam penggunaan aplikasi *Augmented Reality* Senam INLA Goes to School. Aplikasi Senam INLA Goes to School Berbasis *Augmented Reality* ini dibuat dengan menggunakan aplikasi Unity dan dalam tahap animasi menggunakan aplikasi Blender.

Kata kunci: analisis; android; aplikasi; augmented reality; INLA

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INTRODUCTION

Indonesia's wealth of art and culture is so diversified that it may be found practically wherever in the country. Each region has its own cultural and artistic features that are distinct and unique in light of the circumstances. Place and location, as well as people's customs, beliefs, ethnicity, race, and technology, all have an impact[1]. Augmented Reality is widely employed in a variety of industries, including E-commerce, real estate, courier services, online transportation, banking, video game industry, and event organizers, especially as a marketing approach in business[2], because no face-to-face meetings are required. with customers[3]. Although video conferencing can be used, there are still restrictions in terms of discussing the items available. Here, augmented reality technology comes in handy because it allows you to communicate details about your product or service without having to meet face to face. In the current environment, digital marketing is highly helpful and is the best solution for driving destination marketing, especially for those who shun low-contact methods[4]. Because of the Covid-19 outbreak, which is linked to the prohibition of crowds and gatherings[5]. Covid-19's effects on tourism and activities are not immune to the prospect of a pandemic[6]

INLA (International Nature Loving Association) is a non-profit organization dedicated to disseminating moral principles, life values, and universal culture through arts and culture activities and education in order to foster a peaceful and joyful family, community, nation, and globe[7]. The culture of universal love is one that values the sky, the planet, mankind, and all nations equally. 8 INLA dance was born from a form that is expressed as having symbols and meanings that resemble logical abstractions, and it was formed traditionally based on experience with its supporting parts[8].

AR (Augmented Reality) is a technology that allows a user to see a mix of actual and virtual items in real time[9]. This technology will assist in providing consumers with more engaging information.[10] Visualization and information distribution are handled differently in Augmented Reality. Information can be presented in two dimensions as well as three dimensions[11]. AR is made up of two types of markers: marker-based tracking and markerless tracking[12]. The marker-based technique is a tracking method that uses virtual objects that can be displayed to track movement. Meanwhile, a markerless method is one that does not require the use of a marker. [13]. Have a high success rate in bringing up useful items [14].

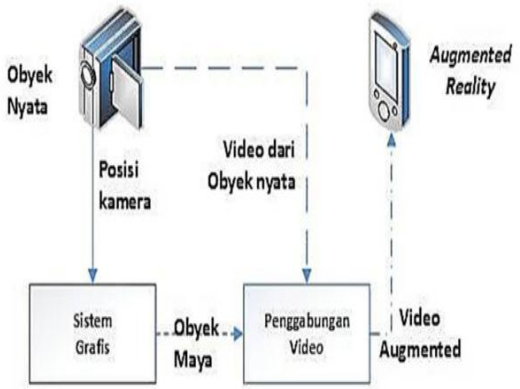

Figure 1. Augmented Reality working diagram [15]

The use of Unity is good and full of integration with professional applications [16], As well as having a basic process, 3-dimensional objects (mesh) and transport systems that are

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connected to the data material that is inserted by processing (rendering)[17]. Meanwhile, Vuforia uses Computer Vision technology to be able to recognize and track simple 3-dimensional images and objects in real time [18]. Mobile Learning is a learning model that has the benefits of information and communication technology that can be accessed at any time and the visualization of interesting material [19].

In this study, there are comparisons and descriptions of previous research such as Making Augmented Reality Implementation using the OpenSpace 3D application[20], Implementation of Augmented Reality using the Mixare application in the Introduction to the Sam Ratulangi University Campus Building[21], Implementation of Augmented Reality Home Marketing PT. Rika Brothers Sakti Using Marker Based Tracking Method on Housing Brochure [22], Augmented reality mobile application based on Vuforia and unity on 3-dimensional object recognition with a Case Study of M Building, Semarang University [23], Augmented Reality as an educational medium for the history of buildings inherited from the Ottoman Empire using marker based tracking methods and fast corner detection algorithms [17] and android applications as learning media for human organs by applying Augmented Reality [24].

Based on several previous studies, it can be concluded that a problem can be identified regarding the inhibition of INLA Goes to School activities and the absence of technology that supports INLA Goes to School activities during the Covid-19 pandemic.

To answer this need, we will design a design and analysis in making AR INLA Goes to School to make it more attractive and practical in supporting INLA Goes to School activities.

METHOD

The research method used in the implementation of this final project is the System Development Life Cycle Waterfall model [25] .

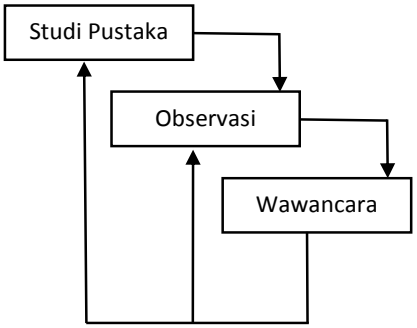

Figure 2. System Development Life Cycle (SDLC) Waterfall [26]

Study of literature

At this stage, conducting a literature study, which is the process of collecting references from various journals and books related to the topics discussed in this study, the author uses the Mendeley application.

Doing Observations

At this stage, the review was carried out directly to the object of research, namely the INLA Goes To School Team to look closely at the implementation carried out and real problems related to INLA Goes to School activities.

Conducting interviews

At this stage, you can analyze the needs and design problems to develop solutions in Augmented Reality. According to Mrs. Julianti ST. MM as an

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INLA Goes to School teacher cannot do INLA training due to the impact of Covid-19 and it is hoped that the analysis and design of AR Go to School can provide convenience later.

RESULT AND DISCUSSION

System Analysis

The system analysis stage carried out is the technique before the design stage which is an important part, because errors at this stage result in errors in the next stage. This system analysis is in the form of a description for a system that explains component parts to identify and evaluate problems, opportunities, and obstacles that occur so that they can be proposed for change. The basic steps of system analysis:

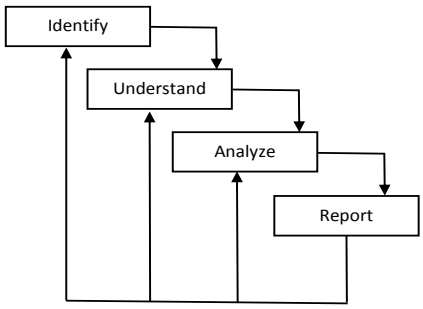

Figure 3. Basic Steps in System Analysis [26]

Identify

Problems that are often encountered are how to make Augmented Reality INLA Goes to School to attract users and audiences to see INLA dance activities or performances.

Understand

This stage is carried out in detail regarding the design that will be made to help digital shows in the form of Augmented Reality INLA Goes to School, which is needed for this, such as the type of research, scheduling, and the results of this research

Analyze

At this stage an analysis is carried out to obtain system weaknesses and problems that can be found in solving problems in the study.

Report

This stage makes the results or summary of the research obtained and later a report will be made to find out the truth of the data obtained by the author.

Design

The design stage carried out by the author is the design stage in Augmented Reality INLA Goes to School.

Desain Storyboard

Based on the existing INLA Goes to School gymnastics movement, the author makes a storyboard.

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Table 1. Storyboard Augmented Reality Gymnastics INLA Goes to School

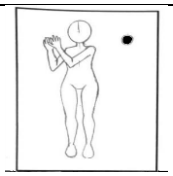
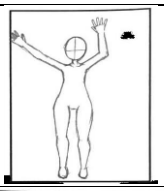
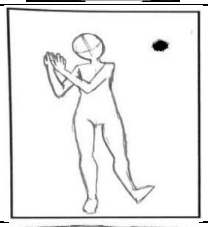
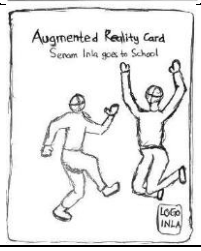
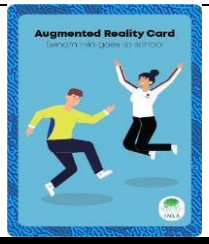
Gambar	Detail
	Intro Movement : • Clap both hands 2x and alternate directions to the right and left. • Movement is performed 4 times repetition • The direction of the head is tilted to the right and left according to the direction of hand movement .
	Intro Movement : • Both hands are waved to the right and left alternately and performed 4 times. • The direction of the head is tilted to the right and left according to the direction of hand movement
	Intro Movement : • The arms are swung to the right and left alternately, and the palms are facing forward. • Position the foot sideways with the heel supporting and the other foot supporting. • Perform the movement with 4x repetition.
	Augmented Reality Marker Cards: • Cards are made to be marker based which is used as a marker so that objects from the Augmented Reality application can be displayed.

Table 2. Display Design of INLA Gymnastics Augmented Reality Goes to School

Gambar	Detail
	*Marker Based* : The card is made to be a marker based that is used as a marker so that objects from the Augmented Reality application can be displayed. The marker card is designed as attractive as possible to increase user interest.
	Logo INLA Goes to School: Logo INLA disematkan dalam Logo Aplikasi agar pengguna dapat mengetahui bahwa aplikasi berkaitan dengan INLA. Logo didesain agar terlihat menarik oleh para pengguna.
	The character will be created using the Blender application. The author uses the rigging method in moving the character to suit the gymnastic movement, as well as modifying the character as needed.

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CONCLUSION

The needs analysis and design carried out by the author is to produce a precise and accurate analysis which will later be implemented in the Augmented Reality application at INLA Goes to School, while the design made is beautifying and attracting visitors or viewers in accessing the INLA Augmented Reality application. School in the form of an application later.

BIBLIOGRAPHY

[1] P. I. Rahman and A. Budiman, "Tari Oyag Karya Anjar Purwani Di Sanggar Seni Kusuma Kecamatan Taruma Jaya Kabupaten Bekasi," *Ringkang Kaji. Seni Tari dan Pendidik. Seni Tari*, vol. 1, no. 2, pp. 79–94, 2021.

[2] Y. Pernando and E. L. Febrianti, "RAWAT INAP (STUDI KASUS : RUMAH BERSALIN AZIMAR ANAS PADANG) PENDAHULUAN Di era globalisasi sekarang semakin berkembang nya sistem informasi serta merupakan hal yang sangat penting dan utama dalam membantu proses kinerja perusahaan , dalam waktu dekat y," vol. V, no. 2, pp. 139–146, 2019.

[3] Y. Pernando and N. Putra, "APPLICATION FAULT POINT UNTUK SISWA YANG BERMASALAH DI SMK IT RISALAH BATAM BERBASIS MOBILE," *J. Digit*, vol. 11, no. 1, pp. 9–19, 2021.

[4] E. Tambunan and A. Masatip, "Konsep Augmented Reality Sebagai Pengembangan Pemasaran Pariwisata dalam Menghadapi New Normal Masa Pandemi Covid-19," *J. Ilm. Akomodasi Agung*, vol. 7, no. 2, 2020, doi: 10.51827/jiaa.v7i2.47.

[5] M. N. Tika Purnamasari, "ANALISIS MINAT BELAJAR MAHASISWA PADA MASA PERKULIAHAN ONLINE MENGGUNAKAN ROUGT SET," *JURTEKSI (Jurnal Teknol. dan Sist. Informasi)*, vol. VII, no. 3, pp. 251–258, 2021.

[6] B. Arianto, "Dampak Pandemi COVID-19 terhadap Perekonomian Dunia," *J. Ekon. Perjuangan*, vol. 2, no. 2, pp. 212–224, 2021, doi: 10.36423/jumper.v2i2.665.

[7] R. G. Asra, "Relevansi Antara Bentuk Penyajian Tari Inla Dengan Fungsinya di Masyarakat," *J. Seni Tari*, vol. 9, no. 1, pp. 85–93, 2020.

[8] D. F. Hendra, "Tari Inla Membangkitkan Nilai Spiritualitas Manusia dengan Pendekatan Etnokoreologi," *J. Pendidik. dan Kaji. Seni*, vol. 3, no. 2, pp. 149–165, 2018, doi: 10.30870/jpks.v3i2.4582.

[9] E. P. Senduk, A. Sinsuw, and S. Karouw, "M-Learning Pendidikan Karakter untuk Anak Usia Dini Berbasis Augmented Reality," *J. Tek. Inform.*, vol. 9, no. 1, pp. 1–5, 2016, doi: 10.35793/jti.9.1.2016.14929.

[10] J. M. Christoffel, V. Tulenan, R. Sengkey, T. Elektro, U. Sam, and J. K. B. Manado, "Aplikasi Augmented Reality Pengenalan Rambu Lalu Lintas Menggunakan Metode User Defined Target," *J. Tek. Inform.*, vol. 14, no. 3, pp. 349–356, 2019, doi:

10.35793/jti.14.3.2019.27127.

[11] R. Sengkey, S. D. E. Paturusi, J. T. Elektro, U. Sam, and R. Manado, "Aplikasi Pembelajaran Reproduksi Tumbuhan Pada Siswa SMA menggunakan Augmented Reality," pp. 1–8.

[12] D. W. T. Putra, P. Windyana, A. Syahrani, and P. Mandarani, "Pengaruh Jarak Deteksi Marker Terhadap Waktu Delay Pada Augmented Reality," *Edik Inform.*, vol. 6, no. 2, 2020.

[13] I. D. Perwitasari, "TEKNIK MARKER BASED TRACKING AUGMENTED REALITY UNTUK VISUALISASI ANATOMI ORGAN TUBUH MANUSIA BERBASIS ANDROID MARKER," vol. 1, no. 21, pp. 1–9, 2018.

[14] R. A. Setyawan and A. Dzikri, "Analisis Penggunaan Metode Marker Tracking Pada Augmented Reality Alat Musik Tradisional Jawa Tengah," *Simetris J. Tek. Mesin, Elektro dan Ilmu Komput.*, vol. 7, no. 1, p. 295, 2016, doi: 10.24176/simet.v7i1.517.

[15] N. K. Ilmawan Mustaqim, "Pengembangan Media Pembelajaran Pai Berbasis Augmented Reality," *Lentera Pendidik. J. Ilmu Tarb. dan Kegur.*, vol. 21, no. 1, pp. 59–72, 2018, doi: 10.24252/lp.2018v21n1i6.

[16] J. M. Sondakh, V. Tulenan, and A. Jacobus, "Implementasi Kartu Augmented Reality Untuk Pengenalan Penyakit Jantung Koroner," *J. Tek. Inform.*, vol. 14, no. 3, pp. 357–364, 2019, doi: 10.35793/jti.14.3.2019.27128.

[17] M. Fayiz, N. Hilmy, U. Darusalam, and A. Rubhasy, "Augmented Reality sebagai Media Edukasi Sejarah Bangunan Peninggalan Kesultanan Utsmaniyah menggunakan Metode Marker Based Tracking dan Algoritma Fast Corner Detection," *J. JTIK (Jurnal Teknol. Inf. dan Komunikasi)*, vol. 4, no. 2, p. 138, 2020, doi: 10.35870/jtik.v4i2.162.

[18] R. T. Lolowang, A. S. M. Lumenta, M. D. Putro, K. Perabot, and A. Reality, "Penerapan Augmented Reality 3 Dimensi Berbasis Android Untuk Menentukan Letak Perabot Dalam Rumah," *J. Tek. Inform.*, vol. 11, no. 1, 2017, doi: 10.35793/jti.11.1.2017.16921.

[19] B. S. Habrian Y. O. Suprapto, Arie Lumenta, "Aplikasi Pembelajaran Bahasa Tontemboan Berbasis Augmented Reality," *J. Tek. Inform.*, vol. 13, no. 4, 2018, doi: 10.35793/jti.13.4.2018.28094.

[20] H. Sujadi, "IMPLEMENTASI AUGMENTED REALITY (AR) PADA PENGEMBANGAN MEDIA PEMBELAJARAN PEMODELAN BANGUN RUANG 3D UNTUK SISWA S ..."

[21] T. W. Ginting, V. Tulenan, and H. Wowor, "Pengenalan Gedung Kampus Universitas Sam Ratulangi Dengan Pemanfaatan Augmented Reality Dan Layanan Berbasis Lokasi," *J. Tek. Inform.*, vol. 9, no. 1, 2016, doi: 10.35793/jti.9.1.2016.13754.

[22] A. W. S. Ekawati Yulsilviana, Basrie, "IMPLEMENTASI AUGMENTED REALITY PEMASARAN RUMAH PT . RIKA BERSAUDARA SAKTI MENGGUNAKAN METODE

JURTEKSI (Jurnal Teknologi dan Sistem Informasi) ISSN 2407-1811 (Print)
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Available online at http://jurnal.stmikroyal.ac.id/index.php/jurteksi

MARKER BASED," pp. 11–15.

[23] A. Nugroho and B. A. Pramono, "Aplikasi Mobile Augmented Reality Berbasis Vuforia Dan Unity Pada Pengenalan Objek 3D Dengan Studi Kasus Gedung M Universitas Semarang," *J. Transform.*, vol. 14, no. 2, p. 86, 2017, doi: 10.26623/transformatika.v14i2.442.

[24] Y. Irawan, "APLIKASI ANDROID SEBAGAI MEDIA PEMBELAJARAN ORGAN TUBUH MANUSIA DENGAN MENERAPKAN AUGMENTED REALITY (Studi Kasus: SDN 005 Makmur Pangkalan Kerinci)," *J. Ilmu Komput.*, vol. 9, no. 2, pp. 102–106, 2020, doi: 10.33060/jik/2020/vol9.iss2.173.

[25] Y. Pernando, E. L. Febrianti, and A. Andhika, "ANALISA DAN PERANCANGAN SISTEM INFORMASI PASIEN RAWAT INAP (STUDI KASUS: RUMAH BERSALIN AZIMAR ANAS PADANG)," *JURTEKSI (Jurnal Teknol. dan Sist. Informasi)*, vol. 5, no. 2, pp. 139–146, 2019.

[26] F. Ningsih, L. Rusdiana, and Rudini, "Analisis Dan Desain Aplikasi Pembelajaran Metamorfosis Kupu-Kupu Berbasis Augmented Reality," *SINTECH (Science Inf. Technol. J.*, vol. 2, no. 2, pp. 118–123, 2019, doi: 10.31598/sintechjournal.v2i2.390.