International Journal of Computer and Information System (IJCIS)
Peer Reviewed – International Journal
Vol : Vol. 04, Issue 04, October 2023
e-ISSN : 2745-9659
https://ijcis.net/index.php/ijcis/index

Design of 3-Dimensional Simulation in Marching Drill Multimedia- Based for Junior High School Students

1st Lahmudin Sipahutar
[1]Faculty of Engineering and Computer Science
Universitas Potensi Utama Medan, Indonesia
e-mail: *[1]mudinsipa@gmail.com

Abstract-With multimedia-based technology, this is one area that is commonly used in learning methods. Computers also provide 3-dimensional (3D) technology which can become a new interest for students in the teaching and learning process. One of them is Marching Training (PBB). This application discusses marching, the benefits and objectives and regulations of marching. Therefore, a tool is needed to help learn commands and marching rules. So that a child can more quickly capture and understand what is conveyed through an interesting picture. In this way, students' interest in learning can be more motivated and can increase children's knowledge in using computers. Design is a creative activity towards something new and useful that did not exist before. According to Al-Bahra (2005: 51), design is the ability to create several alternative problem solutions. Meanwhile, according to Azhar Susanto (2004: 332), design is a general and detailed specification of computer-based problem solving that has been selected during the analysis stage.

Keywords : 3- Dimenssion, Application, Marching Training

I. INTRODUCTION

Marching is a physical form that is needed to instill the habits of a community organization's way of life which is directed towards the formation of a certain character. In these marches, scout members can learn about discipline, teamwork, teamwork, and strengthen their sense of nationality. (Khairul Ummi, 2014: 35). In its implementation, the Marching Regulations (PBB) are often carried out by Scout members using marching methods or techniques without sticks, the same as the marching carried out by members of the TNI/POLRI. (Sarkonah, 2013: 94).

The use of multimedia technology in learning is based on the assumption that multimedia information can help learning. By reviewing various research, multimedia can help students learn more information more quickly compared to normal classroom learning.

With multimedia-based technology, this is one area that is commonly used in learning methods. Computers also provide 3-dimensional (3D) technology which can become a new interest for students in the teaching and learning process. One of them is Marching Training (PBB). This application discusses marching, the benefits and objectives and regulations of marching. Therefore, a tool is needed to help learn commands and marching rules. So that a child can more quickly capture and understand what is conveyed through an interesting picture. In this way, students' interest in learning can be more motivated and can increase children's knowledge in using computers.

Design is a creative activity towards something new and useful that did not exist before. According to Al-Bahra (2005: 51), design is the ability to create several alternative problem solutions. Meanwhile, according to Azhar Susanto (2004: 332), design is a general and detailed specification of computer-based problem solving that has been selected during the analysis stage. According to Emshoff and Simon (1970), simulation is defined as a system model where the components are represented by arithmetic and logic processes that are carried out by a computer to estimate the dynamic properties of the system.

In general, animation is an activity that animates, moves inanimate objects. An object is given a boost of strength, enthusiasm and emotion to become alive and moving or just appear alive. (Yunita Syahfitri, 2011: 4). Commands are voice commands given by leaders to those they lead to be carried out simultaneously or successively at the same time. (Zuli Agus Firmansyah, 2015: 124). As for marching without using sticks, follow the procedures set out in the TNI/POLRI Marching Regulations. (Sarkonah, 2013: 92). In general, animation is an activity that animates, moves inanimate objects. An object is given a boost of strength, enthusiasm and emotion to become alive and moving or just appear alive. (Yunita Syahfitri, 2011:4)

A. Introduction to 3Ds Max

3D Studio Max (3Ds Max) is a popular and versatile 3-dimensional visualization (modeling and animation) software. The results created in 3D Studio Max are often used in television, print media, games, web, etc. (Hendi Hendratman, 2014).

The advantage of 3Ds Max is its ability to combine image, vector and three-dimensional objects, and can immediately animate these objects. 3Ds Max is also capable of producing objects in the form of images or

in the form of interactive files such as animated images saved in the form of *.avi (Audio Video Interleave) or *.mov (Movie) files. (Galih Pranowo, 2010:6).

B. Introduction to Adobe Flash CS6

Adobe Flash is an authoring tool that makes it easier for us to organize and process assets. Basically, we only use Adobe Flash and Flare3D to create a 3-dimensional based game or application. (Wandah Wibawanto, 2013:29).

Adobe Flash is multifunctional software that makes it easier to create animation, web, games and other multimedia applications. The latest version of Flash starting from CS5.5 Professional version up to the latest is currently equipped with the AIR for Android extension. No additional installation required. (Wahana Computer, 2014: 3, 4).

Adobe Flash CS6 is the latest version of the previous version, Adobe Flash CS5. This program has many functions, such as creating object animations, creating presentations, advertising animations, games, supporting web page animations, and can be used to create animated films. (Wahana Computer, 2012: 2).

II. RESEARCH METHODS

Simulation design is a design carried out to design an application using one of the programming languages, in this case the author designs 3-dimensional objects which are then combined into a video which must be compiled by the author into a complete animation. The results of the analysis are used as a reference in preparing a line-up training animation framework. An animation framework for viewing the overall results of the line-up training animation and as a learning tool.

A. UML (Unified Modeling Language)

The data structure used by the author in software design is Unified Modeling Language (UML). UML is a standard specification language for documenting, specifying and building UML software systems which are used to include designing use case diagrams, ac

B Use Case Diagram Design

*Use case diagrams*describes the simulation that will be created for a line-up training. Meanwhile, the user or user sees the system via video. So that users can more easily remember the equipment used in the marching training simulation. *A*tivity diagrams and sequence diagrams.

Adobe Flash is an authoring tool that makes it easier for us to organize and process assets. Basically, we only use Adobe Flash and Flare3D to create a 3-dimensional based game or application. (Wandah Wibawanto, 2013:29).

Adobe Flash is multifunctional software that makes it easier to create animation, web, games and other multimedia applications. The latest version of Flash starting from CS5.5 Professional version up to the latest is currently equipped with the AIR for Android extension. No additional installation required. (Wahana Computer, 2014: 3, 4).

Adobe Flash CS6 is the latest version of the previous version, Adobe Flash CS5. This program has many functions, such as creating object animations, creating presentations, advertising animations, games, supporting web page animations, and can be used to create animated films. (Wahana Computer, 2012: 2).

III. RESULT AND ANALYSIS

It is explained and shown how the results of the system design were created along with a discussion of the system. The results of the experiments carried out are software, namely Multimedia-Based 3-Dimensional Simulation Design for Middle School Students. Designed using the Autodesk 3D-Max application and the Adobe Flash Professional CS6 application. When the Adobe Flash Professional CS6 application is run, the display will be in 3D-Max. The Adobe Flash Professional CS6 application was used to create scripts for the 3D-Max design display. Based on the results of the application design that has been carried out in the analysis and design chapter, several views of the 3-dimensional row-by-line simulation design application for multimedia-based junior high school students can be displayed.

A. App View

Based on the results of the application design that has been carried out in the analysis and design chapter, several views of the 3-dimensional row-by-line simulation design application for multimedia-based junior high school students can be displayed as in Figure 1.

International Journal of Computer and Information System (IJCIS)
Peer Reviewed – International Journal
Vol : Vol. 04, Issue 04, October 2023
e-ISSN : 2745-9659
https://ijcis.net/index.php/ijcis/index

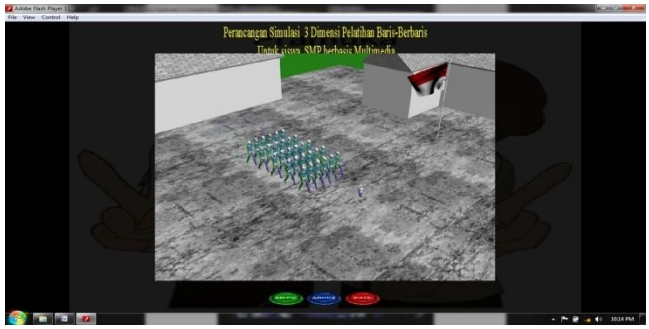

Figure 1. App View

B. Initial view

Initial display of a multimedia-based 3-dimensional simulation application for junior high school students. There is a main menu button and an about button as in Figure 2.

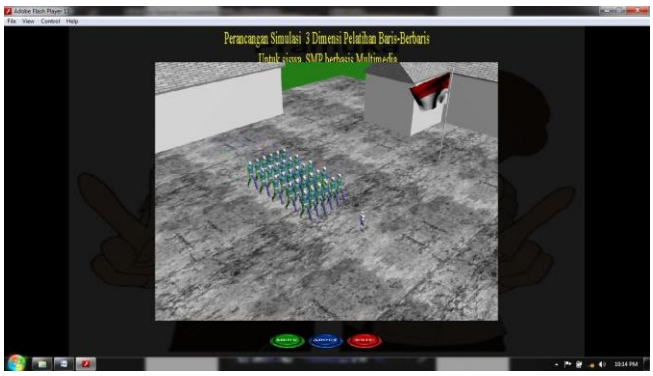

Figure 2. Initial View

C. Dres Right display

This display is a display for viewing information about the author. We can see the about display in Figure 3 below.

Figure 3. Dres Right display

D. Main Menu Display

In this display we can choose to play the application using the buttons on the main menu display. display in Figure 4 below.

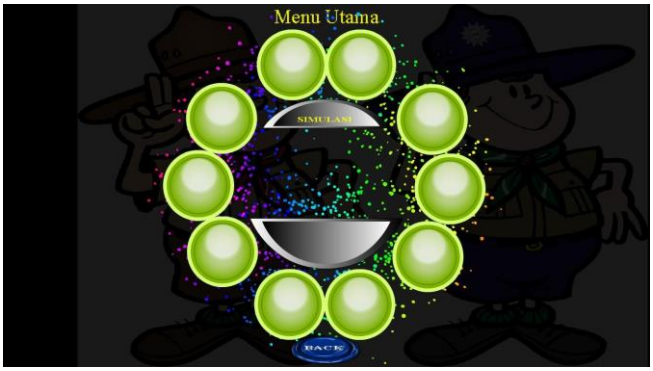

Figure 4. About display

E. View of the Parts of the Marching System Movement

In this display we can choose to play the application using the buttons on the system parts in rows. The main menu display can be seen in Figure 5.

Figure 5. About display

VI. CONCLUSION

The designed object animation is 3-dimensional based, The object parts and movements in the simulation resemble the original situation so that this application can be used as teaching material about lines, With this application, it can provide information and learning for users, The disadvantages of designing row-by-line 3-dimensional simulations are as follows: Macromedia Flash Software ScriptThe one used is relatively simple. The information conveyed in this multimedia application is still incomplete and needs to be supplemented. It is necessary to add animation to make the application more attractive. The members of the editorial team of IJCISextend the gratitude to all of the reviewers who have contributed to the peer review process of the manuscripts in this issue. Professional support and assistance from all respected reviewers have made this journal qualified to be published.

REFERENCES

[1] Adriyanto Bambang, 2010, Making Animation with Macromedia Flash 8, Center for Educational Information and Communication Technology, Ministry of National Education, 2010.

[2] Anditya, Tanjung Syukri, 2015, Designing ArchiCAD & 3d Max House Designs, CV Andi Offset (Andi Publisher), Yogyakarta.

[3] Firmansyah Zuli Agus Firmansyah, 2015, Official Scout Guide, Satyaku Kudarmakan, Darmaku Kubaktika, CV Wahyu Media, Jakarta.

[4] Galih Pranomo, 2010, Studio MAX 2010 Basics and Applications, Andi Offset, Yogyakarta.

[5] Hendratman Hendi, 2014, The Magic of Studio Max, Informatika-Bandung. Wahana Computer, 2010, Architectural Design Using AutoCAD and 3D Max 2010,CV Andi Offset (Andi Publisher), Yogyakarta.

[6] Sarkonah, 2013, Enforcement Pocket Book, CV Nuansa Aulia, Bandung.

[7] Ummah Khairul, 2014, We are Indonesian Scouts, PT. Masmedia Buana Pustaka, Sidoarjo.A. K. Fauziyyah, "Analisis sentimen pandemi Covid19 pada streaming Twitter dengan text mining Python", Jurnal Ilmiah SINUS, vol. 18, no.2, pp. 31-42, 2020, DOI : http://dx.doi.org/10.30646/sinus.v18i2.491

[8] S. Symeonidis, D. Effrosynidis, and A. Arampatzis, "A comparative evaluation of pre-processing techniques and their interactions for twitter sentiment analysis", Expert Systems with Applications, vol.110, pp. 298-310, 2018, DOI : https://doi.org/10.1016/j.eswa.2018.06.022.

[9] N. Hafidz, and D. Y. Liliana, "Klasifikasi Sentimen pada Twitter Terhadap WHO Terkait Covid-19 Menggunakan SVM, N-Gram, PSO", Jurnal RESTI (Rekayasa Sistem Dan Teknologi Informasi), vol.5, no.2, pp. 213-219, 2021, DOI : https://doi.org/10.29207/resti.v5i2.2960.

[10] A. Salam, J. Zeniarja, and R. S. U. Khasanah, "Analisis Sentimen Data Komentar Sosial Media Facebook Dengan k-Nearest Neighbor (Studi Kasus Pada Akun Jasa Ekspedisi Barang J&T Ekspress Indonesia)". Proceeding of SINTAK, pp. 480 - 486, 2018.

[11] G. Mostafa, I. Ahmed, and M.S. Junayed, "Investigation of different machine learning algorithms to determine human sentiment using Twitter data", International Journal of Information Technology and Computer Science, vol.13, no.2, pp. 38-48, 2021, DOI : 10.5815/ijitcs.2021.02.04.

[12] E. R. Kalaivani, and E. R. Marivendan, "The Effect of Stop Word Removal and Stemming In Datapreprocessing", Annals of the Romanian Society for Cell Biology, vol.25, no.6, pp. 739-746, 2021.

[13] E. Mulyani, F. P. B. Muhamad, and K. A. Cahyanto, "Pengaruh N-Gram terhadap Klasifikasi Buku menggunakan Ekstraksi dan Seleksi Fitur pada Multinomial Naïve Bayes", Jurnal Media Informatika Budidarma, vol.5, no.1, pp. 264-272, 2021, DOI : http://dx.doi.org/10.30865/mib.v5i1.2672.

[14] F. Z. Ruskanda, "Study on the effect of preprocessing methods for spam email detection", Indonesia Journal on Computing (Indo-JC), vol.4, no.1, pp. 109-118, 2019, DOI : https://doi.org/10.21108/INDOJC.2019.4.1.284.

[15] A. Deolika, K. Kusrini, and E.T. Luthfi, "Analisis Pembobotan Kata Pada Klasifikasi Text Mining", (JurTI) Jurnal Teknologi Informasi, vol.3, no.2, pp. 179-184, 2019.

[16] B. J. Sowmya, C. S. Nikhil Jain, S. Seema, and S. KG, "Fake News Detection using LSTM Neural Network Augmented with SGD Classifier", Solid State Technology, vol.63, no.6, pp. 6985-9665, 2020.

[17] F. T. Admojo, and Y. I. Sulistya, "Analisis performa algoritma Stochastic Gradient Descent (SGD) dalam mengklasifikasi tahu berformalin", Indonesian Journal of Data and Science, 3(1), pp. 1-8, 2022, DOI : https://doi.org/10.56705/ijodas.v3i1.42.

[18] A. Tuomo, J. Suutala, J. Röning, and H. Koskimäki, "Better classifier calibration for small datasets", ACM Transactions on Knowledge Discovery from Data (TKDD), vol. 14, no.3, pp. 1-19, 2020, DOI : https://doi.org/10.1145/3385656.

[19] F. Pedregosa, G. Varoquaux, A. Gramfort, V. Michel, B. Thirion, O. Grisel, ... and E. Duchesnay, "Scikit-learn: Machine learning in Python", the Journal of Machine Learning research, vol.12, pp. 2825-2830, 2011.

[20] J. Xu, Y. Zhang, and D. Miao, "Three-way confusion matrix for classification: A measure driven view". Information sciences, vol.507, pp. 772-794, 2020, DOI : https://doi.org/10.1016/j.ins.2019.06.064.J.