DEVELOPMENT OF INTERACTVE MULTIMEDIS APPLICATIONS IN FISRT AID (PMI BANDUNG)

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ABSTRACT

Augmented Reality is the media to explain the introduction of tools related to first aid , the introduction of personal protective equipment (tools that must be used by rescuers during rescue the victim) , as well as an introduction to a variety of injuries . Where the facilitator will present materials with the help of a marker will display the material, so that the delivery can be different from the usual. Augmented Reality technology to maximize the use of technology also Speech Recognition, Speech Recognition which is a navigation application on the main menu and navigation in determining when facilitators are using the marker .

Keywords : Multimedia Learning , First Aid , PMI Bandung

1. Prelimiry

The Indonesian Red Cross (PMI Bandung) is a national association of organizations engaged in social kemanusiaan.Dimana Indonesian Red Cross (PMI Bandung) overshadow related organizations who are diinstansi-education institutions that exist in this city. In Indonesia there are 3 levels of PMR known in accordance with the level of education or age. PMR PMR Mula is similar to the level of elementary school students (10-12 years old). Color light green slayer. PMR PMR Madya is similar to the level of junior high school students (12-15 years old). Slayer color sky blue. PMR PMR Wira is similar to the level of high school students (15-17 years old). Slayer bright yellow color.

PMI always scheduling training to every member of PMR with various levels to gather together to learn about first aid material to deepen more first aid materials as well as stock preparation at the time facing a race. Based on the interviews that have been done to Mr. Nana S as the representative of PMI emerging problems that could hinder the training process as the material presented too much while the allotted time is very limited, participants who are members of the youth red cross which is usually at the age they very quickly get bored and saturated due to the amount of material that must not ektif diterimasehingga delivery of materials, delivery methods that are not attractive and there is no standardization of the material to be delivered (each facilitator can submit any material to the trainees). Along with the development of technology, media to do the learning becomes more diverse. One of them is the development of interactive multimedia. Interactive multimedia is a multimedia equipped with a controller that can be operated by the user, so the user can choose what you want for the next process. The use of interactive multimedia is to help make the material submitted becomes more attractive. The most important characteristic of interactive multimedia are participants not only pay attention to media or objects, but rather are required to interact during the lesson. There is also Augmented Reality is as a medium to explain the introduction of tools related to first aid, the introduction of personal protective equipment (tools need to be used by rescuers at the time of the rescue to the victims), as well as an introduction to a variety of wound. Where the latter facilitators will deliver the material with the aid of marker which will feature material, so that the delivery can be different from the usual. To maximize Augmented Realityini also used technology Speech Recognition, Speech Recognition which is a navigation application on the main menu and navigation in determining when the facilitator is using marker.

1.1 Multimedia Definition

Multimedia is media that combine two or more media elements consisting of text, graphics, images, photographs, audio, and animation in an integrated manner. Multimedia is divided into two categories, namely: linear multimedia and interactive multimedia. Linear Multimedia is a multimedia that is not equipped with any control device that can be operated by the user. Multimedia is running sequential (sequential), for example, TV and movies.

While learning is defined as the process of creating an environment enabling the learning process. So in the main learning is how students learn. Learning in terms of mental activity of students in interacting

with the environment that produces behavioral changes that are relatively constant. Thus becoming an important aspect in learning activities and learning is the environment. How this environment created by arranging its elements so as to change the behavior of students.
From the above it can be concluded that the multimedia learning can be defined as multimedia applications used in the learning process, in other words, to deliver the message (knowledge, skills and attitudes) and can stimulate the mind, feelings, concerns and willingness to learn so as intentional learning occurred, aim and control.

1.2 Interaktive Multimedia

Multimedia is divided into two characteristics , namely :
a. Multimedia Linear , such as : Television , Radio , Magazines , Newspapers
b . Interactive Multimedia , such as : Games , Website
Based processes , multimedia divided into two categories:
a. Multimedia contentproduction , is the use and processing of multiple media (text , audio , graphics , animation , video , and interactivity) different to convey information or produce multimedia products (music , videos , movies , games , entertainment , etc.) or use a number of technologies which allows to combine different media (text , audio , graphics , animation , video , and interactivity) in a new way for communication purposes .
b . Multimedia communication , is using the media (period) , such as television , radio , print and Internet

1.3 Augmented Reality

Augmented Reality (AR) is a technology that combines virtual objects are two - dimensional (2D) or three-dimensional (3D) into a B F A 14 real environment , then projecting the virtual objects in real time . This system is closer to the real environment . This system is different from the virtual reality (VR) which is entirely virtual environment . Augmented Reality allows users to interact in real -time with the system. According to T. Azuma (1997) defines augmented reality as a merger of real and virtual objects in the real environment , run interactively in real time , and there is integration in three dimensions , namely integrated virtual objects in the real world .

1.4 Development of Augmented Reality

Augmented reality first started in the year 1957-1962, Morton Heilig is the inventor and cinematographer who invented and patented a simulator called Sensorama with visual, vibration and odor. In 1996, Ivan Suntherland find a head-mounted display which he claims is a window to the virtual world. In 1975 a scientist named Myron Krueger find Videoplace that allows users to interact with virtual objects for the first time. In 1989, Jaron Lanier introduce Virtual Reality and created the first commercial business in the virtual world. 1992 developing Augmented Reality to make improvements at Boeing and in the same year LB Rosenberg developed one system function Augmented Reality called Virtual fixtures, which are used in the US Air Force Armstrong Labs and shows benefits in humans, and in 1992 Steven Fainer Blair MacIntyre and Doree Seligmann, they were introduced for the first time Major Paper on the development of Augmented Reality Prototype.
In 1999, Hirokazu Kato develop ARToolkit in HITLab and demonstrated at SIGGRAPH, in 2000, Bruce.H.Thomas develop ARQuake, a Mobile Game AR shown at the International Symposium on Wearable KOMPUTERS.
In 2008, Wikitude AR Travel Guide Android Gl Telephone introducing the AR technology. 2009. Saqoosha introduce 15 FLARToolkit which is the development of ARToolkit. FLARToolkit allows us to install Augmented Reality on a website, because the output produced FLARToolkit shaped Flash. In the same year, Wikitude Drive AR tech navigation system launched on Android Platform. In 2010, Acrossair using AR technology on the I-Phone 3GS.

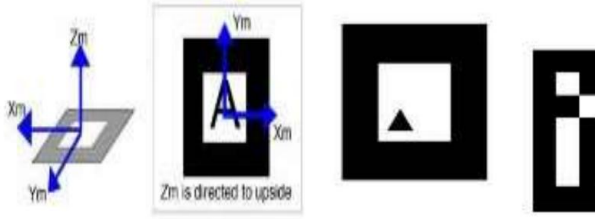
1.5 Method of Augmented Reality

The method developed at the Augmented Reality is now divided into two methods, namely Marker-Based Tracking and Markless Augmented Reality.
1. Augmented Reality Marker (Marker-Based Tracking)
Marker is usually a black and white illustration of a square with a thick black border and white background. The computer will recognize the position and orientation of the marker and create a 3D virtual world that is the point (0,0,0) and three axes, namely X, Y, and Z. Marker-Based Tracking has long been developed since the 1980s and in the early 1990s began developed for the use of Augmented Reality.
2. Markerless Augmented Reality
One method of Augmented Reality which is currently being developed is a method of "Markerless Augmented Reality", with this method users no longer need to use a marker to display digital elements, with tools provided by Qualcomm for the development of Augmented Reality-based mobile devices, enabling developers to create applications that Markerless (Qualcomm 2012) .As currently being developed by the world's largest company Total Immersion and Qualcomm, they have made a variety of techniques Markerless

Tracking as their flagship technology, such as Face Tracking, 3D Object Tracking, and Motion Tracking ,

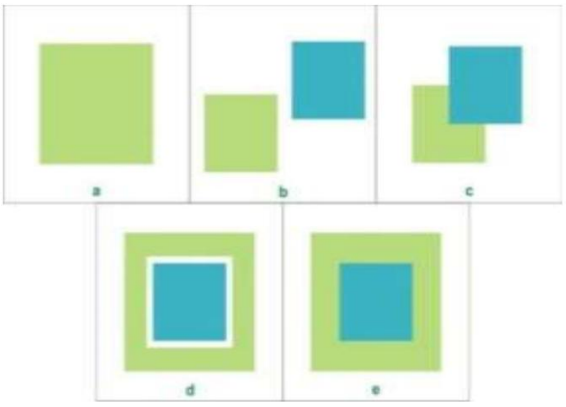
1. Face Tracking
Algorithms on computers continue to be developed, it makes the computer can recognize human faces in general by identifying the position of the eyes, nose, and mouth of man, then ignore the other objects in the vicinity such as trees, houses, and others - others. This technique has been used in Indonesia at the Jakarta Fair 2010 and Toy Story 3 Event (Widiansyah, Word, 2014).
2. 3D Object Tracking
Unlike the Face Tracking which only recognize human faces in general, the technique of 3D Object Tracking can recognize all the forms that exist around the objects, such as cars, desks, televisions, and others.
3. Motion Tracking
The computer can capture motion, Motion Tracking has been used extensively to produce films that try to simulate movement.
4. GPS Based Tracking
Mechanical GPS Based Tracking is currently gaining popularity and many developed smartphone applications (iPhone and Android), by utilizing the features GPS and compass that is in smartphones, the application will retrieve the data from the GPS and compass and displays them in the form of the direction we want it in realtime, there are even some applications menampikannya in 3D.

Marker -based tracking is a method that is applied to the use of augmented reality . Marker is usually a black and white illustration of a square with a thick black border and white background . How it works is that the computer will recognize the position and orientation of the marker and create a 3D virtual world that is the point (0,0,0) and 3 axes , namely X, Y , and Z



Gambar 2.1 Contoh *marker Augmented Reality*

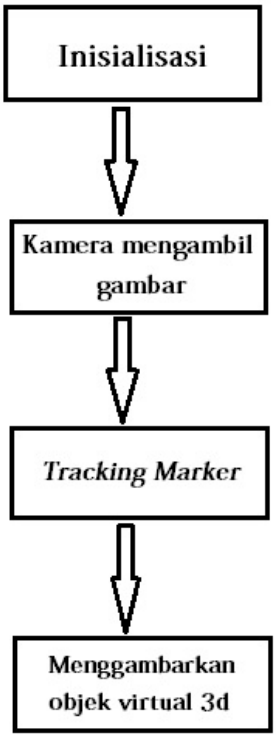
As for Occlusion is the relationship between an object to another object if we see from a viewpoint . This obviously reduces the information between objects in a 3D environment , as if seen from the viewpoint of the 3D environment will be projected onto a field that seems to be a 2D environment . This leads to dimensional reduction of information interactions between objects such circumstances intersect , intersect .



Gambar 2.2 *Occlusion* yang terjadi karena interaksi antar objek *(a) None (b) Proximity (c) Intersection (d) Enclosement (e) Containment* [3]

Occlusion detection is a method to detect the presence or absence of occlusion in the appearance of 3D objects . In [Gun A, Mark , and Gerard , 2004] simple occlusion detection simply defines the circumstances in which a marker was not detected because they are covered by other objects . While in [Volkert , Stephen , Mark , 2004] using occlusion detection based on the position coordinates of the two 2D objects exist .

1.6 Alur Sistem *Augmented Reality*



1. Initialization
Initialization in the application phase detecting camera on hardware availability user .
2. The camera takes pictures
In this stage the camera function to take a picture of the real world .

3. Tracking marker
In this phase the system will convert the image into greyscale images that intensity , then the system is looking for some form of a square after that the system will detect areas within the square (Pattern Recognition) which will then be compared with the marker pattern match in the database . The position and orientation of the marker obtained from tracking markers ditansformasi with traslasi operation and rotation , while the position and orientation of which is on a projection on the screen obtained from the calculation of a perspective projection transformation .
4. Describe a 3D virtual objects
A marker that is detected by the camera so that the virtual object will appear above the marker

1.7 Pengertian Speech Recognition

Speech recognition is an identity recognition system which is claimed by a person of his voice or by the person who spoke. For example in the form of intonation, the depth of sound, and so on. Speech recognition is also known as automatic speech recognition or computer speech recognition is the translator words spoken into text. Speech recognition technology has been around a long time and now many types of applications developed using this technology.
Application introduction of speakers including the user interface like the sound of voice calls (for example, "Call home"), call routing (eg, "I want to make a collect call"), appliance control domotic, search (eg, find a podcast where particular words pronounced), simple data entry (for example, entering a credit card number), preparation of structured documents (eg, a radiology report), the processing of the speech-to-text (eg, word processor or email), and aircraft (usually disebutInput direct sound) ,
Generally, speech recognition process the incoming sound signals and store them in digital form. The result of the digitization process is then converted in the form of the sound spectrum to be analyzed by comparing with the database templates on the sound system. Previously, the input voice data sorted and processed one by one based on the sequence. Sorting is done so that the analysis can be performed in parallel.

1.8 Pemodelan *Speech Recognition*

There are two basic modeling for speech recognition are:
1. Hidden Markov model (HMM) -based speech recognition
2. Dynamic time warping (DTW) - based speech recognition.
Modern general-purpose speech recognition system generally uses Hidden Markov models. This model is a statistical model in which the output is a sequence of symbols or quantities. Reasons for using Hidden Markov models because a signal of the pronunciation can be seen as a piecewise stationary signal or a short-time stationary signal. This method is very popular, simple and computationally could digunakan.pada Dynamic time warping that is an approach that has been used for speech recognition that has now been replaced by modelHidden Markov.
In its development, speech recognition is implemented using Dynamic Time wraping Algorithm (DTW) is used to translate the words that require a comparison between the incoming signal of the word and an assortment of words in the dictionary by measuring similarity between two sequential at different times in terms of both speed. DTW algorithm implemented on video, audio, and graphics and of course the data can be converted into a linear representation can be analyzed by DTW.DTW first introduced in the 1960s and explored until the 70s that the tool generates speech recognizer.

1.9 Prinsip Kerja *Speech Recognition*

The working principle of speech recognition systems is to compare the information contained in the reference speech with speech information input into speech recognition system tersebut.Blok speech recognition by HMM can be divided into three stages: the front , the stage of feature extraction and recognition system HMM stage . At the first stage done filtering the voice signal and convert analog voice signals into digital . Feature extraction stage is to obtain parameters that can represent the voice signals and analysis and vector quantization . The third phase , can be divided into two tasks , namely the introduction of modeling assignments and tasks . For modeling assignments made an HMM models from the data in the form of a word speech samples . HMM used is a discrete density .

1.10 Tahap pengenalan suara

2 To turn the conversation into text on-screen or a specific command, the computer performs some complex steps. When speaking will emit vibrations in the air. Then, the analog-to-digital converter (ADC) that is in soundcard translate this analog waves into digital data that can be understood by computers. To do this, speech recognition systems perform sampling or digitizing sound by taking the most appropriate size of the waves. Noise filtering system which has been digitized it and remove interference (noise), and sometimes separated them into different frequency bands. Frequency is the wavelength of the sound, which is heard by the human ear as the pitch (pitch) are different.

3 The system also normalize the sound, or set into a fixed volume level, sometimes flattening voice. Humans do not speak the same speed so that the sound should be set at the same speed with sound samples templates stored in the computer. The next step is to split the signal into small parts, with a duration of one hundredth of a second, or even a thousandth in the case of consonant sounds or die. Dismiss consonant sound production by blocking the flow of waves on the field vocals, such as "p" or "t".

4 Program in computer then matches these small parts with a known phoneme in a particular language. Phoneme is the smallest element in a language, represent the sound that we produce, and put them together in the form of speech that have meaning. The next stage looks simple, but is basically the most difficult process completed, once at the core of most of the research in the field of Speech Recognition. Computer check phonemes in context (relations) with other phonemes that accompany it. Computers running groove (plot) through a complex statistical models, and compare it with a collection of words, phrases, and sentences that have been known. Speech Recognition program further define what may be said by the user, and also typing as text or removing it as a command on the computer.

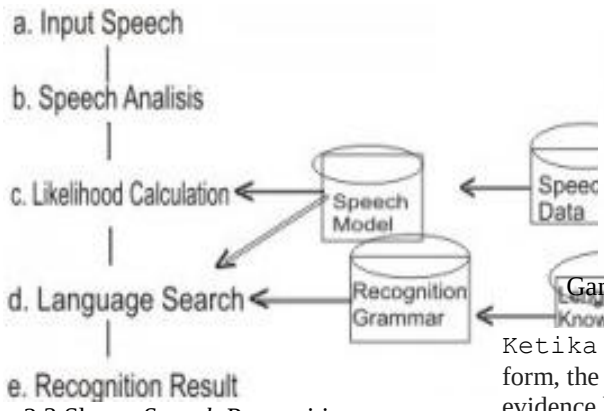
5 There are four main steps in the speech recognition system:

6 1. Acceptance of input data

7 2. The extraction, which is at the same input data storage for database creation templates.

8 3. Benchmarking / matching, ie matching stage new data with voice data (matching grammar) on the template or database.

9 4. Validate the user's identity.



Gambar 2.3 Skema *Speech Recognition*

In general, the speech recognizer to process incoming sound signals and store them in digital form . The result of the digitization process is then converted in the form of the sound spectrum to be analyzed by comparing it to sound template in the database system



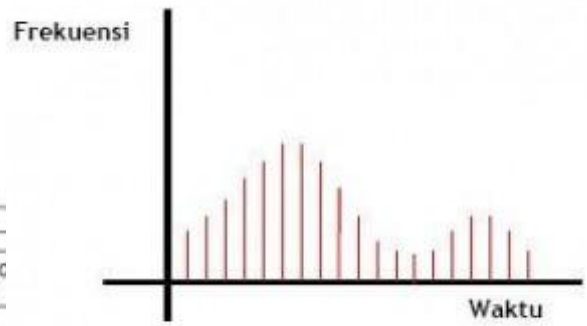
Gambar 2.4 Spektrum Suara

Previously, the input voice data sorted and processed one by one based on the sequence . Sorting is done so that the analysis can be performed in parallel . The first process performed is process continuous wave sound spectrum into discrete shapes . The next step is the process of calculation is divided into two parts :

1. Transformation of the wave into an array of discrete data.
2. For each element in the data aiTay , calculate the " high" waves (frequency) .

Permasaiahan objects to be shared is the input size n , in the form of sound waves discrete data . When converting sound waves into a discrete form , the wave is widened by way of detailed evidence based on time . This is done so that the subsequent algorithms (matching) easier is practiced . However , the bad effects of the array is an array of data that is formed will be more

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Gambar 2.5 Hasil Kontinu Sinyal Diskrit

`Ketika` converts sound waves into a discrete form, the wave is widened by way of detailed evidence based on time. This is done so that the subsequent algorithms (matching) easier is practiced. However, the bad effects of the array is an array of data that is formed will be more.

Of each element of the array data, converted into binary form. The binary data that will be compared with the sound data template.
The process of divide and conquer:
1. Choose a number N, where N is an integer multiple of
2. This number is used to calculate the number of elements FFT transformation.
3. For two discrete data is (by applying the divide and conquer algorithm) into the discrete data more kecii size N = N, .N2.
1. The data object is inserted into the table (a table element).
2. For each eiemen of data, matched with the data in the template (the template data is also done digitaiisasi into discrete data processing, in a manner similar to the process input data digitaiisasi bam being matched).
4. Each issue put back together and analyzed as a whole, a match in terms of grammar and whether the data in accordance with the spoken word provided in the template data.
5. Verification of the data.

9.1 Proses Kerja Alat *Speech Recognition*

10 Speech recognition tool has four stages in the process, namely:

11 1. Stage acceptance input

12 Put the form of words spoken over the loudspeaker.

13 2. Phase extraction

14 This stage is penyimpanaan input in the form of sound as well as building a database as a template. The extraction process is based on Hidden Markov Model method or Hidden Markov Model (HMM), which is a statistical model of a system that is assumed by Markov as a process with unknown parameters. The challenge in this statistical model is to determine the parameters of the hidden parameters can be observed. The parameters that we have set is then used for further analysis on the process of introduction of the spoken word. Based HMM, speech recognition process generally produces output that can be characterized as a signal. The signals can be discrete (characters in the alphabet) or continuous (measurement of temperature, music). Signals can also be stable (statistical value does not change with time) and nonstabil (the signal value varies with time).

15 By modeling the signals correctly, to do simulation of inputs and training as much as possible through the simulation process so that the model can be applied in the prediction system, the introduction of the system, as well as identification systems. Broadly speaking signal model can be categorized into two groups, namely: deterministic models and statistical models. Deterministic models using the property values of a signal such as amplitude, frequency, and phase of the sine wave. Statistical models using statistical values of a signal such as Gaussian processes, Poisson processes, Markov processes, and Hidden Markov process. A HMM models generally have the following elements:

16 1. N, the number of parts in the model. In general, these parts are connected to one another, and a portion could reach all parts of the other, and vice versa (so-called ergodik models). But it is not absolute because there are other circumstances in which a part can only spin it to yourself and move on to the next section. It relies on the implementation of the model.

17 2. M, ie the number of observation symbols uniquely to each part, for example: the characters in the alphabet, which is defined as the part of the letters in the word.

18 a. Probability Transfer Section {} = ij A a

19 b. Probability Symbol Observations on the part j, {} () = j k Bb

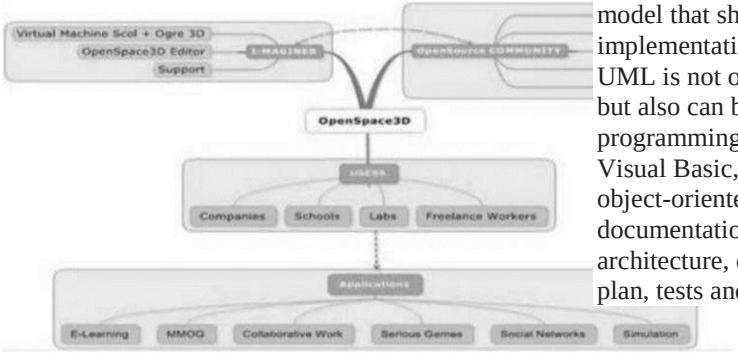
20 c. Initial Distribution Section i pp

After giving the value of N, M, A, B, and p, then the extraction process can be sorted. Here are the stages of extraction of speech recognition by HMM.
1. Phase extraction display, filtering the voice signal and converting analog voice signals to digital
2. Stage modeling assignments, preparation of a HMM models from the data in the form of samples of speech a word that is already in the form of digital data
3. Phase HMM recognition system, the discovery of the parameters that can represent the voice signal for further analysis.
4. Stage benchmarking, this stage is the stage of the new data matching with the voice data (matching grammar) on the pattern. This phase begins with the process of converting digital voice signals result from the extraction process in the form of the sound spectrum to be analyzed by comparing it with the sound patterns in the database. Previously, the input voice data sorted and processed one by one based on the sequence. The selection is done so that the analysis can be performed in parallel. The first process performed is process kontinuspektrum sound waves into a discrete form. The next step is the process of calculation is divided into two parts:
1. Transformation of discrete waves into data sequences
Wave-shaped discrete input size n which is the object to be divided on the conversion process by means sharing the details of time

2. Calculate the frequency of each element data sorted. Furthermore, each element of the sorted data is converted into binary form. The binary data will be compared with the pattern of voice data and then output that can be translated as a form of writing or orders on the device.
5. identits user validation phase, speech recognition tool that already has a system of verification / identification sound will identify the person speaking is based on the words spoken after translating voice into text or commands.

20.1 OpenSpace3D

An editor or manager scene three-dimensional object that is open source by using OGRE as Graphic Rendering . Openspace application with 3D or three-dimensional simulation game can be made easily without engaging directly with programing . Openspace 3D application is as a scene manager and editor in the scenario settings so users only need to enter resource or resources needed such as three-dimensional objects in the form of mesh OGRE , material , texture and other multimedia including audio and video . To avoid difficult programming , Openspace 3D provides a relational relationships between objects consisting of plugin is quite complete in
makes a good three-dimensional simulation application or game and many more features that are provided by this 3D Openspace application [6] .



Gambar 2.6 Alur Kerja *OpenSpace 3D*

Openspace 3D application is based Scol programming language, which is a programming language that comes from France and has recently developed. Openspace 3D using OGRE 3D graphics engine that has quite a lot of the community but not in Indonesia. Weakness
Openspace 3D is its output is not compatible, to run the application, are required to install SCOLVOY @ GER, which is a runtime of Scol. There is a reason why you should install Scol, because the actual Openspace 3D is intended for browsers, so applications or simulations created can be displayed on a personal website, though the latest version of the 3D Openspace has been providing facilities to create an executable file so that it becomes a stand alone application for Windows. Other advantages of 3D Openspace is compatibility with 18 other multimedia files such as Youtube Video, Chat, Mp3, Wav, SWF and others. Openspace 3D also supports input from the joypad controller, keyboard, mouse, joystick Nintendo Wii, and also voice controler.

20.2 UML

UML (Unified Modeling Language) is a language based on graphics / images to visualize, specify the building, and documentation of a system based software development OO (Object-Oriented) [7].
UML itself also provides a standard for writing a blue print system, which includes the concept of business processes, writing classes in a specific programming language, database schema, and components required within the system software. UML is one tool / model for designing development object oriented software based. UML as a language that provides vocabulary and writing the order of words in the 'MS Word' for the purposes of communication. A model of language is a language that has the vocabulary and concepts of structure / rules of writing and are physically present on a system.
UML is a standard language for the development of a
software that can convey how to create and establish modelmodel, but not delivering what and when a model that should be made which is one of the implementation process of software development. UML is not only a visual programming language, but also can be directly linked to a variety of programming languages, such as JAVA, C ++, Visual Basic, or even be connected directly into an object-oriented database. Likewise concerning the documentation can be done like; requirements, architecture, design, source code, project
plan, tests and prototypes.

1. ISI PENELITIAN

2.1 Analisis Sistem Yang Sedang Berjalan

System analysis or analysis of the process is the stage that gives an overview of the system is running now . This analysis aims to provide an overview of the more detailed description of the workings of the system that is currently running . So it can be used as a reference for system development to the next stage with a goal as expected . Here is the flow of the current system :
1. Training is done on a regular basis based on the existing schedule in accordance with the agenda of the Indonesian Red Cross
2. The trainees are members of the Youth Red Cross Mula , Madya and Wira .

3. Submission of materials made by the facilitator and delivery methods that use the lecture method
4. Trainees listening to the material presented

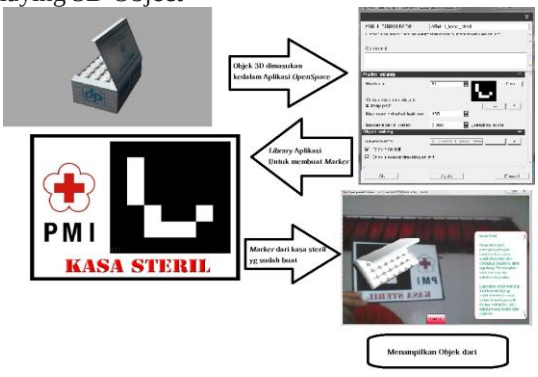
2.2 Analisis Arsitektur Sistem Yang Akan Dibangun

he analysis process architecture to be built which use a marker to detect objects such as the introduction of the tools menu first aid, introduction of personal protective equipment. Which is expected to help the users to be able to explain the material is concise and clear and trainees to understand the material presented well.

Use of Speech Recognition on the menu aims to facilitate the selection menu by clicking on the voice-input, it is also to increase the attractiveness of trainees as the audience of the event.

1. Users are facilitators of the PMI.
2. Users have the authority to set the course of training, as well as the duty to explain the material to the trainees.
3. First aid guide book is a first-aid information media that contain material along with the pictures.
4. Produce a description of the first aid materials. The material of the introduction of first-aid equipment and the introduction of personal protective equipment by the method of Augmented Reality.

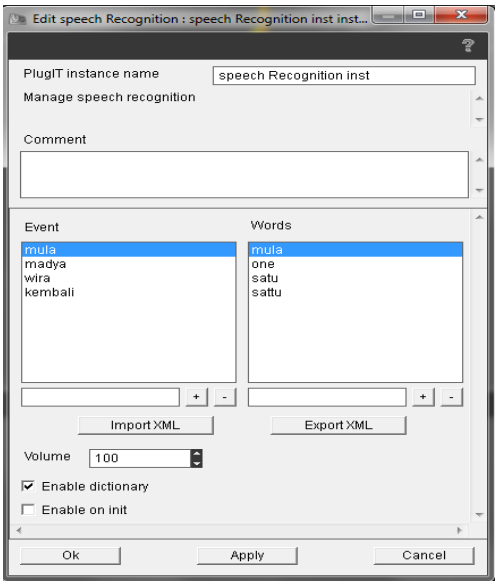
Analysis of Augmented Reality is an analysis that describes how the process of displaying a 3D object from scratch manufacture 3D objects to the process of displaying 3D objects. In the process of displaying a 3D object using a marker then ditracking by the camera, After the marker can be recognized by the camera, the application will display the 3D object marker used in accordance with the flow of the process of displaying 3D Object



Gambar 3.7 Analisis *Augmented Reality*

Analisis *Speech Recognition*

Analysis Speech Recognition is an analysis that describes how to add a new data dictionary to be run on the application in accordance with the instructions mentioned

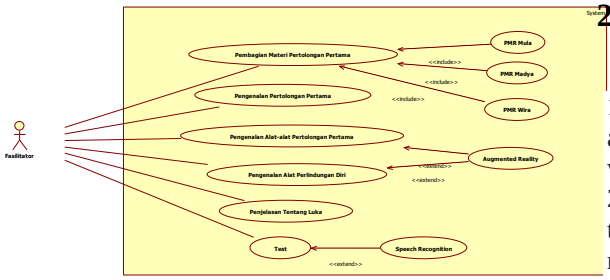


Gambar3.8 *Speech Recognition* pada *Openspace3D*

a. PlugIT instance name is naming for Speech Recognition. Giving a name can be filled in accordance with user needs .
b . Event is an action that will be displayed when one of dictionary words that have been added to the " words " is mentioned .
For example in the event there is a first event and the word there are some words like "one , one , Sattu " . When the user mentions the word "one or one or Sattu " then that will be displayed is the first, where the first here is part of the Division of Materials menu - > PMR Mula .
c . Words is a collection of dictionary words that will be directly related to the event. Such as an instruction to execute the speech recognition application .
d . To be able to add words or remove Word can use the icon [+] to add and [-] to remove the word .
e . Then click Apply then click Ok

2.3 Analisis Kebutuhan Fungsional

Analysis of functional requirements describe the process frontend activities that will be implemented in the system and explain the necessary requirements for the system to learn well and in accordance with the needs of the system. Analysis conducted modeled using UML (Unified Modeling Language) . Here is the Use Case Diagram.



Gambar 2. 1 Use Case Diagram

2.4 System Architecture

The planning stage in the development of this software include designing and shooting which includes some elements present. Planning made is planning interface . Here is a plan that will be built android .

2.5 System Impementation

2.5.1 conclusion

Beta testing results with observations based on interviews conducted before and after using the application can be summed up with a few points as follows:

a. Based on the interview with Mr. Nana as the representative of the Red Cross Indonesia (Bandung) that this application is to help trainees to be able to understand the material presented, because the delivery of content that is different from the previous delivery, so that trainees are more enthusiastic to accept the material.

b. This application has been able to assist the training activities that have been scheduled by PMI, in addition to the application already has standardize delivery of material, which it helps the facilitator to simplify deliver material in accordance with standardization should be.

c. There is no difficulty in using these applications because there is a prior explanation on how to use this application, in addition to the menu in this application is also not difficult for facilitators to use during training activities.

d. The enthusiastic trainee level increases when training is already using this application, because the delivery of the material is different even though the material presented is still the same but anyway of participants was curious about the other material after this application.

e. These applications provide new innovations and increase interest in the audience to pay attention to the material

f. The level of enthusiasm of participants in receiving the material better than before

g. Selection menu in this application may be appeal to the trainees as required in accordance with the input voice commanded.

2.6 Conclusion

The conclusion of this study are as follows :

1. The time given can be maximized by using this application , because it can help deliver material with concise and clear .
2. The trainees become more enthusiastic to be able to receive the material as a way of delivering the material is not as usual, so the level of curiosity about the material was greater .
3. The existence of standardization of the material to be delivered. So if there is a sudden change of the facilitator , the facilitator is ready to deliver material due to the need to select the material which will be delivered .

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