Virtualization by Integrated Lightweight Development Tool (VILD)-For Multimedia application

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Abstract – **The implementation of the Virtual Development tool which can be used by the developer as well as normal user or amateur user. In the 21st century Virtual Reality and Augmented reality is leading key technology which been liked by people but only the expert coders can develop all virtual stuff so we are building the platform to make this easy to implement and this will work on the systems which have a lightweight configuration as well. And this platform could be applicable to make the applications for the Smart Multimedia Applications i.e classroom. Combining the IOT technology with social and behavioural analysis an ordinary classroom into the smart classroom for Eg(Normal presentation of the solar system into the real virtual world), entertainment or gaming purpose. As per the user's requirement to make their life easy to understandable and more convenient to interact.VILD framework which is completely based on web technologies like HTML5 which includes JavaScript CSS(cascaded style sheets) and basic HTML.VILD could be easily crack with all the external peripheral devices on the basis of ASCII values such as each device can also send the ASCII values as per the pre-set settings.VILD can be used at: public use entertainment Purpose, corporate presentation purpose,health-oriented usage with the hardware interference, the educational purpose and as well for all the multimedia interaction related.**

Keywords- Virtual-Reality;Augmented-Reality;ASCII; IOT;CSS;Development Platform;Scripting;HTML5

I. INTRODUCTION

In past history when there are no multimedia technology available people used to deliver share their contain by using real life stuff like hand made sketches , some props, blackboard or directly by verbal communication were used to be demonstrated but later on they try to make it more interactive by using colour posters and relative audio records but all this techniques were not so interactive and people were always want to get the fast and rapid and easy to make and present. So people always try to adapt new , attractive, user friendly and easy tools. just like the most 21st century presentation or content delivery tool like images, symbols, gifs, ppts, audio and videos the need and usability of this tools increase day by day.So the accuracy and technique should be as well improve hence we try to propose the system which is easy to implement and highly interactive and feasible to make and present this tool is the platform which will help to describe and simulate the content more vigorously.

A. OVERVIEW OF THE VIRTUAL REALITY TECHNOLOGY

In the todays market, time is precious and we need to develop our products presentation in short time and effective way to fulfill this thing in better way by

eliminating all the tools. Need is to build the tool to create the virtual world that is our platform VILD(virtualization by integrated lightweight development tool .We will be creating this tool based on javascript so it doesn't even require any type special compiler to compile our platform it could be easily run in the web browser.

II. LITERATURE SURVEY

Authors :John Edison Muñoz Madeira-ITI, Universidade da Madeira Funchal, Portuga Teresa Paulino Madeira-ITI, Universidade da Madeira Funchal, Portugal Harry Vasanth Madeira-ITI, Universidade da Madeira Funchal, Portugal Karolina Baras Madeira-ITI, Universidade da Madeira Funchal described the novel approach, to Implement system is known as Physio VR a framework

for virtual reality facilitate the integration of physiological signals measured through wearable devices in mVR applications based on unity3d IDE took a kit for android. Physiol VR framework includes:1) heart rate (HR) signals from Android wearables 2)electroencephalography (EEG) signals from a low-cost brain-computer interface and electromyography (EMG) 3) signals from a wireless armband and So on.These signals are tracked into smartphones By wireless medium over a UDP communication channel System over a Bluetooth interface and hear the framework provides a bidirectional communication with the VR content allowing an external event triggering within a Unity3D game engine to demonstrate this workflow the game project is created and is called Emo Cat Rescue which encourages players to modulate HR levels in order to successfully complete the in-game mission. Emo Cat Rescue is included in the Physio VR.[1]

Authors :Maria Roussou is with the Department of Informatics and Telecommunications, University of Athens, Panepistimioupoli, Ilissia, GR 157 03, Athens Greece based on the notion that interaction with evolving Virtual Reality (VR) technology environment, in which children can transform objects in a virtually simulated world, this technology can improve the observation which leads to analyse the understanding of arithmetic fractions .VR in education has been used before for subjects that naturally lend themselves to visual display users to create the educational content themselves. Human computer interaction which uses interactivity and virtual technology which include focus on learning environments and experience by the children in their behaviour in VR.Classified based on three condition i.An interactive VR ii.A "passive" (or guided) VRiii.A non-VR condition Using LEGO bricks(a toy plastic brick with studs which can be connected to other plastic bricks and used to construct toy buildings, vehicles , etc)- each with different levels of interactivity, were designed to evaluate how children accomplish the various conceptual tasks . Pre-tests, post-tests, interviews, video, and computer logs were collected for each participant, and analyzed both quantitatively and qualitatively.[2]

Authors;Zhihan Lv1*, Tengfei Yin 3, Xiaolei Zhang 2, Houbing Song4, Ge Chen2 in This paper is based on building a smart city using virtual reality environment and webvr gis.The development course of the smart city is divided into three stages according to 1.information2. digitization 3. Intelligence.Today, massive information has bit by bit infiltrated into each side of our social life.

With the increase of social networks, an oversized variety of content, audio, text info, video, pictures, etc... The amount of data from other external things is even greater. like the accurate and faster collection of user information, such as location, life information and other data via the mobile internet. The pace of development of data is very fast and leads to higher requirements for hardware, which will be a technical problem in the development of large data.Virtual scene, seen from a certain building to the city scale, increases the data amount, while the increasing number of users increases the server load. All these problems and challenges have directly caused the situation where the current networking as well as the the online virtual reality technology is unable to offer superior-quality service to public frame. The Combination of virtual reality technology and geographic information system technology is the technology of VR-GIS, which includes the combination of network and geographic information technology (WebGIS).WebVR GIS can give support to data publishing on the Internet, mass data transmission and large amount of users online simultaneously on the basis of peer-to-peer technology.Virtual city simulation deals with massive data problems, i.e. there are at least dozens GB of data, which is too large to be loaded into the memory at one time. To support massive data, the WebVR GIS engine is designed. Having been applied in WebVR GIS engine, data transfer methods have made it possible to make large-scale scenes present online perfectly. [3]

Authors:Jixia Li Zhengzhou University This paper describes the to propose novel interior design framework based on Virtual Reality Technology.The main plan of this paper is to represent a video game style supported internet technology. VR Technology based Interior Design method Includes:Design process divided in two stages: Hard decoration design and Soft decoration design Application of computer aided design software made up of: 1) Modelling 2) visualization.The Web Based VR Technology Based On:1)The effect of using 2D create 3D image. Create 3D effect by image rendering , realistic graphics transform , image synthesis and also compared with related geometry model.2)To implement web based VR, languages are used JAVA3D and VRML.Thus This framework simplifies new interior design based on VR technology consist three modules 1]hard decoration design 2] soft decoration design 3] visual design.[4]

III. SYSTEM ARCHITECTURE OF VIRTUAL REALITY TECHNOLOGY

Figure1. System Architecture of Virtual Reality Technology

We have seen virtualization require very heavy system mostly the normal personal computers not suitable this, it requires the graphic card.To implement or develop we required the heavy tools like OpenGL which itself is the complex to use. Only the experts and core developer can develop VR and AR Apps and application.It's complex to understand and build.most of them have tried to create the application which just gives the experience of virtual reality but the user cannot make the change to their basic structure as per user requirement. but in our system user can make virtualization as per their imagination or their requirement and that too in a very easy manner just like creating the simple web page.we are implementing the Virtual Development tool which can be used by the developer as well as normal user or amateur. in the 21st century Virtual Reality And Augmented reality are leading key technology which has been liked by people but only the expert coders can develop all virtual stuff so we are building the platform to make this easy to implement and this will work on the systems which have a lightweight configuration as well. and this platform could be applicable to make the applications for the smart school system for(education), entertainment or gaming purpose. as per the user's requirement to make their life easy to understandable and most convenient to interact.Virtualization helps businesses reduce costs in several ways, according to Mike Adams, senior director of cloud platform product marketing at VMware. Capital expenditure savings. Virtualization lets firms scale back their IT prices by requiring fewer hardware servers and connected resources to realize an equivalent level of computing performance, convenience and quantifiability. Operational expenditure savings. Once servers area unit virtualized, your IT employees willgreatly cut back the continuing administration and management of manual, long processes by automating operations, so leading to lower operational expenses. Data center and energy-efficiency savings. As firms scale back the dimensions of their hardware and server footprint, they lower their energy consumption, cooling power and knowledge center sq. footage, so leading to lower prices.The main objective of this project is to cut back and eliminate time taken is to deliver the event tool for virtualization that may be simple to use simple to implement the Virtual Worlds world and quicker to implement with top quality of output in minimum threshold in terms of central processor consumption.As in VILD framework that is totally supported net technologies like HTML5 which has JavaScript CSS(cascaded vogue sheets) and basic hypertext mark-up language.Likewise this paper VILD we tend toll be} simply crack with all the external peripheral devices on the premise of American Standard Code for Information Interchange values like every device can even send the American Standard Code for Information Interchange values as per the pre-set settings and likewise they needcreated a demo comes like Emo Cat Rescue we are making an attempt to implement some demo use cases which might be created on VILD. Advertisement

IV. DEVICE REQUIRED

Arduino : The Arduino UNO R3 is a microcontroller board that is based on the ATmega328 normally consisting of 14 digital input/output pins. The Arduino board that is kept fixed to that of the rack is programmed with the product information that is kept in the rack. This information is transferred to the Arduino board in the trolley which in turn is capable of storing the product list in the trolley that has been purchased by the customer.

Fig.1.1 Arduino

Emotiv EPOC EEG : The Emotiv System, whose slogan is you think, hence you can, charges itself as progressive new individual interface for human PC interaction.It is based around the EPOC headset for recording EEG estimations and a product suite which forms and breaks down the information. Emotiv offers both a purchaser headset for RS.8000 which just works with endorsed applications and an engineer headset which underpins item advancement and incorporates a product package for Rs.1500. The two headsets are remote and use a restrictive USB dongle to impart utilizing the 2.4GHz band. This examination utilized the designer EPOC headset which contains a rechargeable 12 hour lithium battery, 14 EEG sensors (in addition to CMS/DRL references), and a whirligig, and has a compelling transmission capacity of 0.16-43Hz. Emotiv offers 6 diverse programming advancement units which allow different control over the EPOC headset API and location libraries and accompany up to 4 unique projects.

Fig.1.2 Emotiv EPOC EEG

Google Cardboard : A virtual reality (VR) platform developed by Google for use with a head mount for a smartphone. Named for its fold-out cardboard viewer, the platform is intended as a low-cost system to encourage interest and development in VR applications.Users can either build their own viewer from simple, low-cost components using specifications published by Google, or purchase a pre-manufactured one. To use the platform, users run Cardboard compatible applications on their phone, place the phone into the back of the viewer, and view content through the lenses.

Fig.1.3 Google Cardboard

V. SOFTWARE REQUIRED

HTML5: Extraordinary compared to other purposes behind you to grasp HTML5 today is that it works in most existing programs. HTML5 and CSS3 are something beyond two new guidelines proposed by the World Wide Web Consortium (W3C) and its working gatherings. They are the following cycle of advances you utilize each day, and they're here to enable you to assemble better present day web applications.

Javascript : JavaScript is an incredible programming dialect to learn in light of the fact that it's utilized all over. Web programs like Chrome, Firefox, and Internet Explorer all utilization JavaScript. With the energy of JavaScript, web developers can change pages from straightforward reports into out and out intelligent applications and diversions. In any case, you're not restricted to building site pages. JavaScript can keep running on web servers to make entire websites,android web application , IOS web App , windows Web App ,Desktop Web App and can even be utilized to control robots and other equipment. JavaScript frequently truncated as JS, is an abnormal state, dynamic, feebly composed, model based, multi-worldview, and deciphered programming dialect. Nearby HTML and CSS, JavaScript is one of the three center innovations of World Wide Web content creation.

CSS:
Cascading Style Sheets (CSS) is a stylesheet language used to describe the presentation of a document written in HTML or XML(including XML dialects such as SVG or XHTML). CSS describes how elements should be rendered on screen, on paper, in speech, or on other media. CSS (Cascading Style Sheets) is the code you use to style your webpage.CSS Basics takes you through what you need to get started. We'll answer questions like: How do I make my text black or red? How do I make my content show up in such-and-such a place on the screen? How do I decorate my web page with background images and colors? Like HTML, CSS is not really a programming language. It is not a markup language either it is a style sheet language. This means that it lets you apply styles selectively to elements in HTML documents.we still need to apply the CSS to your HTML document. Otherwise, the CSS styling won't affect how your browser displays the HTML document. (If you haven't been following on with our project, read Dealing with files and HTML basics to find out what you need to do first.) The whole

structure is called a rule set (but often "rule" for short). Note also the names of the individual parts:

Selector:
The HTML element name at the start of the rule set. It selects the elements to be styled (in this case, p elements). To style a different element,just change the selector.

Declaration:
A single rule like color: red; specifying which of the element's properties you want to style.

Properties:
Ways in which you can style a given HTML element. (In this case, color is a property of the ¡p¿ elements.) In CSS, you choose which properties you want to affect in your rule .

Property value:
To the right of the property after the colon, we have the property value,which chooses one out of many possible appearances for a given property.

Document Object Model (DOM): The Document Object Model (DOM) is a cross stage and lingo self-sufficient application programming interface that treats a HTML, XhtML, or XML record as a tree structure where in each center point is an inquiry addressing a bit of the report. The articles can be controlled consequently and any undeniable changes happening hence may then be reflected in the show of the report. To render a record, for instance, a HTML page, most web programs use an inward model like the DOM. The centers of each report are dealt with in a tree structure called the DOM tree, with the most astounding center point named as "File question". Right when a HTML page is rendered in programs, the program downloads the HTML into adjacent memory and normally parses it to demonstrate the page on screen. Exactly when a page is stacked, the program influences a Document To protest Model of the page, which is an inquiry orchestrated depiction of a HTML record, that goes about as an interface among JavaScript and the report itself and grants the arrangement of dynamic site pages.

*PhoneGap :*Versatile, handhelds and simple to-convey gadgets have begun another upheaval in programming designing. These little yet effective gadgets are skilled to run applications made with top of the line programming dialects. Individuals who claim these gadgets tend to utilize them at their most extreme as these gadgets, for example, cell phones, are exceptionally advantageous to

utilize whenever, anyplace. The engineering of a cell phone is like that of a PC framework. It has custom assembled equipment, firmware, and working frameworks. These three things are for the most part restrictive and are designed, created, and gathered under one lead association. Applications (Application Software) are produced both by lead association and designers from outside the association. Various all around perceived versatile working frameworks are accessible in the market in both exclusive and open-source classifications. Most widely used mobile operating systems are"
Android
● IOS
● BlackBerry
● Windows

Fig.2.1 PhoneGap

Apache Cordova : Apache Cordova (in the past PhoneGap) is a versatile application advancement structure initially made by Nitobi. Adobe Systems obtained Nitobi in 2011, rebranded it as PhoneGap, and later discharged an open source variant of the product called Apache Cordova. Apache Cordova empowers programming developers to fabricate applications for cell phones utilizing CSS3, HTML5, and JavaScript as opposed to depending on stage particular APIs like those in Android, iOS, or Windows Phone. It empowers wrapping up of CSS, HTML, and JavaScript code contingent on the stage of the gadget. It expands the highlights of HTML and JavaScript to work with the gadget. The subsequent applications are mixture, implying that they are neither really local portable application (since all format rendering is done by means of Web sees rather than the stage's local UI system) nor simply Web-based (in light of the fact that they are not simply Web applications, but rather are bundled as applications for appropriation and approach local gadget APIs). Blending local and half breed code bits has been conceivable since adaptation 1.9.

Fig.2.2 Apache Cordova

VI. CONCLUSIONS

On the basis of above topics we can conclude that this is to create virtualization using lightweight development tool. Even though current technology achieves a very high level, there are still some technical problems and difficulties in current VR.

VII. REFERENCES

[1] John Edison Muñoz ,PhysioVR: A Novel Mobile Virtual Reality Framework for Physiological Computing " 18th International Conference on e-Health Networking, Applications and Services (Healthcom) "(16 2016 IEEE)

[2] kai-uwe Doerr,CGLX: A Scalable, High-Performance Visualization Framework for Networked Display Environments "CVMS: Cloud based vehicle monitoring system in VANETs"(07 April 2016)

[3] Prashant A. Shinde,Y. B. Mane, PAndurang H. Tarange,"Real time vehicle monitoring and tracking system based on embedded Linux board and android application"(16 July 2015)

[4] Majid Abarghoei,"Designing a Pull-Based Automated System of Mobile Mechanic Service"(August 2015)

[5] Dennis Wiebusch Decoupling the Entity-Component-System Pattern using Semantic Traits for Reusable Realtime Interactive Systems .

[6][1] R. Bakeman and J. M. Gotman, Observing Interaction: An Introduction to Sequential Analysis. Cambridge, UK: Cambridge University Press, 1997.

[7] S. A. Barab, M. A. Evans, and E. Baek, "Activity Theory as a Lens for Characterizing the Participatory Unit," in Handbook of Research on Educational Communication and Technology, D. H. Jonassen, Ed. Mahwah, NJ, USA: Lawrence Erlbaum, 2001, pp. 199–214.

[8] K. Cramer, M. J. Behr, T. R. Post, and R. Lesh, "Rational Number Project:Fraction Lessons for the Middle Grades," Evaluation, vol. 2, p. 190, 2003.

[9] M. W. Daudelin, "Learning from experience through reflection," Organ.Dyn., vol. 24, no. 3, pp. 36–48, 1996.

[10]D. Rauf, Virtual Reality. Rosen Publishing Group, Incorporated, 2016.

[11]V. M. Penichet, A. Peñalver, and J. A. Gallud, New Trends in Interaction, Virtual Reality and Modeling. Springer, 2013.

[12]T. Parisi, Learning Virtual Reality: Developing Immersive Experiences and Applications for Desktop, Web, and Mobile. O'Reilly Media, Inc.,2015.