Augmented Reality for Smart Profile Display

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Abstract - Augmented Reality is a on demand technology that eases the execution of complicated processes. Augmented Reality is a mixture of virtual world and the real world. This technology can be used in educational institutes to get the information about the students. Augmented reality enriches user interface and also provides an interactive experience with the real world. 2D or 3D objects can be scanned and corresponding information stored in the database is retrieved and augmented on the application interface. Thus augmented reality in the educational field brings out the effective retrieval of the student's information at reduced time. The paper analyses different augmented reality techniques.

Keywords - Augmented reality, Unity 3D, Vuforia, Database.

I. INTRODUCTION

In recent times, the technology is growing vastly enriching security, operations, user interface and so on. All these grow instantly so as to make life simpler. One of the examples is smart phones where it is accessible by most of all humans and technology has been updating vigorously and fast. One of the main and important aspect of these ongoing updation is user interface (UI). Rich user interface can be seen in many branches like web pages, android, iOS , windows user interfaces. Most recent technologies like Virtual reality gives well developed and real time experience for the users. By extending the Virtual Reality, Augmented reality (AR) is invented to make very rich and realistic experience for the users. AR is widely used in all sectors of society like medical, civil engineering, machine design, entertainment and so on. This paper tells about using Augmented reality in education field that is in educational institutes like schools, colleges, universities etc for displaying the person's information smartly through the electronic devices or in hand held devices. Augmented reality driven smart profile display enables easy retrieval of information about a student just by scanning a student's face. This can be used widely in educational institutes. It reduces the time consumption and also enriches user experience which is one of the biggest requirements in the modern world.

The application when opened on a mobile device, the camera scans the face and searches the image on the database. If the image matches any of the image present on the database, it augments the corresponding information regarding the student whose face is recognized on the screen. If the image target is not found on the database, the camera tries to scan a new image. It uses the hardware of the mobile device, online augmented reality database such as vuforia, unity 3D to scan the target image. Augmented reality is now emerging as one of the most important technology in the IT industry as it acts as a connecting bridge between the virtual and the real world and gives its user a better experience.

The rest of the paper is organized as follows, section II tells about the related work, section III tells about the application of the technology, section IV concludes the work.

II. RELATED WORK

This paper proposes a system that will be using AR technology to improve better understanding of a product for electronics products customers such as teachers and in manufacturing sector. In teaching, this system will make the teachers to make the students learn effectively. In manufacturing sector, this product will help workers understand a manufacturing process and assist them in doing so. They included the components helping to achieve augment reality such as Smartphone/Computer where application going to launch, Unity engine which is the game engine used to develop the augmented reality interface, Vuforia which is the database used to store the image targets which is to be scanned and server where all information is retrieved and processed. It aims at developing better training systems for the people [1].

This paper is about usage of new version of game development software unity 3D where development process is simplified. Using Unity 3D and Vuforia sdk, live locations can be detected and the virtual calory bombs are augmented. This bombs should be detected from a player and defuse it. As the bombs are virtually placed in different locations, player has to move to that location which avoids obesity. It aims at providing physical activity for children. This includes improved user experience by using virtual buttons. The study further shows that any object can be augmented easily with using unity 3D engine and vuforia and live location can be used to augment the 3D objects. [2].

This paper is based on detecting the human face which tries to stick the jewellery. It requires a webcam to receive input of human face whereby face is detected and the corresponding jewellery is augmented on the real environment through the screen. Human face is detected using Haar algorithm. Even though the person does not exist in reality, the system will take the decision of fashion jewelleries for the face that the person can try and watch in front of a mirror. In Try Live for eyewear is the fully cross-platform available. This project mainly aims at manual shopping [3].

This paper gives an idea and the scope of augmented reality technology in various sectors and levels of education. Augmented reality is used in medical fields, army, marketing, engineering fields and all the other important fields. In all these aspects and fields, AR is used to make work easier and efficient [4].

This paper proposes the concept of mobile augmented reality (MAR) that has features such as real time interface, the combination of virtual and real world and 3D location. It gives an overview of how an application is developed using augmented reality can enrich user's experience, the hardware necessary and the various techniques of MAR [5].

This paper gives the basic idea of how 3D objects can be scanned. It also describes how the objects must be registered in the cloud and the information to be displayed on the mobile device after the object is detected must be stored in the cloud before hand.[6]

This papers gives us a great impact and connection the augmented reality(AR) is providing the youth in the field of education, gaming, health etc .AR plays a major role in guiding and educating the youth helping them to understand much deeper and being specific about the subjects .It acts as a bridge between humans and virtual reality [7].

This paper combines both the augmented reality and cloud computing technologies to provide a transformation from traditional to augmented approach towards learning. This paper proposes auducation which is a augmented reality platform to provide an interactive and digital leaning experience. Thus the education combines both the Augmented reality cloud computing technologies to enhance the learning experience for students in education. The cloud based application generates an augmented view on the screen after the camera is focused on the image. It describes about the smartphone which can serve as a platform to implement augmented reality as it is portable and the information about a particular topic required for the students can be available from anywhere at any time [8].

This paper works on mobile AR and social networking field that can be used to create AR applications. It describes how the developments in web and mobile technologies allow AR applications to be deployed on a worldwide scale and used by lakhs of people simultaneously. The AR platform is used to cater location-based mobile AR experiences which enhances experience [9].

This paper gives you the limitations and opportunity inherent in current pervasive sensing application and also the current state of the art that enable application such as Pokemon go to thrive. Through stabilized camera the smartphone improves our photography skills and tells us what to have for lunch. We explore world of pervasive sensing using the augmented reality smartphone app Pokemon go as a case study [10].

III. APPLICATION

Augmented reality (AR) is one of the most developing technologies at present. It is emerging in all aspects of IT industries. Due to the rich user interface and less time complexities, many industries prefer this technology way much better than other.

The applications of Augmented reality in educational institutes. Here are of them:

1. **Augmented reality methodology of teaching** - Using augmented reality in classroom, students can be enriched with the knowledge provided by the AR experience. Any topics can be explained using AR visualization in the classroom which enhances the memory power and strength to understand the things in a better way.
2. **Smart classroom** - Using AR technology, smart classroom can be achieved.
3. **Augmented Reality enabled Worksheets** - AR helps students complete their homework and assignments better when they are not communicating with their tutor. Teachers might start giving their students AR enabled worksheets in future. The aim of this study is to help students use educational content at their own house.
4. **High Level Safety: Augmented Reality Lab** - Lab demonstrations and experiments are one of the most powerful practical choices to bring challenging theory into reality. Due budget limit cross, safety hazards or available equipment's, many schools limit the scope of practical demonstrations that students are supposed to be open to.
5. **Distance Learning** - AR makes sure that students learn even in their absence in the classroom. Online learning is made easier and effective with Augmented Reality educational materials. For example, Modly, a language-learning app, has incorporated an Augmented Reality-based virtual teacher to help distant or nearby users of their application to practice their skills to make them feel as if they are learning in the real world.

IV. CONCLUSION

This paper briefly reviews the possible applications and various ways of implementation of augmented reality in every aspects of industry. Using unity 3D and vuforia and some online database, the virtual student profile can be augmented on the screen of Smartphone or computer. When the student's face is recognized, that particular student's academics information and usual details like name, college and so on will be displayed virtually on real environment. Face can be detected using Opencv asset in vuforia, sdk or using any face detection algorithms or APIs. The user interface and interactions can be enhanced by using virtual buttons. The 2D images like barcodes can be easily made as image target which is scanned and profile is augmented. The further extensions of the project is using voice recognition in the absence of 2D and 3D objects, where the student name is pronounced to the application and then the corresponding information is augmented.

V. REFERENCES

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