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Augmented Reality to Enhancing Learning Experience in Education

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ABSTRACT: Augmented Reality is associate rising technology and also the applications of technology ar still not totally unveiled .This system explores a brand new application of increased reality for a brand new direction in instructional book commercial enterprise, that aims to bring interactive learning expertise to life. The project takes written pictures on book to future level by applying increased Reality technology to produce a singular fascinating expertise to its readers on mobile devices. Augmented Reality (AR) technology composing with animation brings new digital amusement expertise to the reader of books. The key feature of this technique uses the technology presents auxiliary data within the field of read of associate object written on book mechanically while not human intervention. The project uses the technology with iPad mobile device to show 3D models, 3D animations, video splaying, net sites and web server property for youngsters education. The results and analysis of the project shows the interactive 3D animation and self -assessment functions considerably support students to boost their learning expertise and performance. The product of this project, from the business perspective, creates a brand new business promoting dimension in digital commercial enterprise and will increase the merchandising profits within the book publication business.

KEYWORDS: Augmented Reality, Mobile Computing, Multimedia Services, and E-Learning.

I.INTRODUCTION

All Augmented Reality is a variation of Virtual Reality and is used with visual object tracking devices. Augmented Reality permits the user to examine the important world, with virtual objects superimposed upon or composited with the important world. However, Virtual Reality completely engages a user inside a synthetic environment. While engaged, the user cannot see the real world surrounding. Therefore, increased Reality supplements reality, rather than completely replacing it. In an application, you can expect that it would appear to the user that the virtual and real objects coexisted in the same screen on device. Augmented Reality (AR) is a multi-discipline research area. The two main technological tasks of Augmented Reality are to keep track of video objects with their movement and position accurately [1][2] and to render a virtual image seamlessly with shadow and colour of real time background environment [3][4]. We engage the innovative application of Augmented Reality technology for digital entertainment with educational book publishing. Augmented Reality enhances a user's perception of and interaction with the important world. The virtual objects display information conveyed by the virtual objects could help a user to perform real-world tasks or provide auxiliary information for training and learning environment. This paper illustrates Augmented Reality (AR) technology composing with animation brings new digital entertainment experience to the reader of books. The key feature of this paper uses the technology presents auxiliary data within the field of read of AN object written on book mechanically while not human intervention.

II. SIGNIFICANCE OF THE SYSTEM

Posters, digital illustrations, physical models, prototypes AR terribly pricey and it's not possible for colleges to seek out enough cash to buy all the supplementary materials they'd wish to. Using AR technology permits to avoid investments within the physical materials. Besides, students will get access to learning materials and act with them anytime. When AR technology is employed in school rooms, students can view models on their own smartphones and get a better idea of the concepts they are studying. That increases engagements and reinforces the learning. When academics integrate



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increased reality into their lectures, they attract the attention of their students and make lessons more effective. When students have an interest, it is much easier to make them work more productively. Using AR app, students will get access to increased models that represent any real objects from a far-famed monument or work of art to a molecule. Besides, students will get access to an internet site with specific info. When learning with AR technology, students use totally different senses and retain additional data for long a time. Augmented reality makes students a lot of excited regarding learning sure subjects. Modern students were born in an exceedingly digital era in order that they can continually be excited with innovative technologies which will facilitate them learn new ideas and develop their vital thinking skills. When victimisation AR technology within the schoolroom, lecturers will produce AN authentic learning atmosphere for college kids with completely different learning designs.

III. LITERATURE SURVEY

Examples of improved user experience With Augmented Reality

- **Story of the Forest at National depository of Singapore**

Making art and history come alive is one of the main objectives of museum curation. At the National Museum of Singapore, there is an immersive exhibit “Story of the Forest” that transforms 69 images from the William Farquhar Collection of Natural History Drawings –the museum’s most prized assortment– into three-dimensional digital animations. The exhibit boasts interactive elements designed to engage visitors of all ages. Little ones can interact with the animated wildlife native to Singapore while older visitors can download a mobile app that lets you “capture” (Pokemon Go-style) flora and fauna from the exhibit and learn more about them in AR experience.

- **Heroes & Legends, Kennedy Space Center**

The Kennedy Space Centre presents the incredible history of NASA’s space exploration, from moon landings to space walks. It’s has numerous displays of NASA artifacts. With the addition of Heroes and Legends, visitors are treated to a combination of virtual and augmented reality presentations with astronauts telling their stories in their own words. Through this integrated visual experience, visitors are taken beyond facts and figures to get a true taste of space exploration.

- **Guerilla AR**

Right outside PTC’s new global headquarters in Boston is an interactive exhibit highlighting the history of the neighbourhood and the discovery of a shipwreck that dates back to the 1800s during the building’s construction. Created by Skanska, the developers of the property, the open-air museum features sculptures and an immersive augmented reality experience powered by Vuforia. Augmented reality technology has the capacity to both tell and enhance important stories from our past, present, and future. It’s also emerging as a powerful learning tool with diverse applications, Museums are using it to enhance how visitors experience art and history, while manufacturers are implementing the technology to drive efficiency, improve training, and reduce errors. However, these use cases can be distilled to something that’s universal: education. AR provides a seamless way for learners to view and absorb information.

IV. METHODOLOGY

The system uses the client-server architecture, where the mobile application communicates with the Vuforia Cloud. Scanned AR Markers are sent to the cloud as requests and the corresponding metadata is returned as response. Fig. shows the relationship between all the system modules. The mobile application was implemented as an Android application using Java as the primary programming language. This component is responsible for controlling the viewfinder of the camera for scanning Quick Response (ThingMark) codes and Augmented Reality (AR) Markers, recognition of ThingMark codes, giving the appropriate interpretation, sending requests based on the scanned AR markers, sending those requests to the cloud for recognition to obtain metadata and displaying the interpreted information from the metadata as augmented information on the phone’s display. The Vuforia Cloud Target Recognition System (VCTRS) is an enterprise class image recognition solution that enables developers to host and manage image targets online. It acts as a recognition system that compares requests from the mobile application with the targets saved in the cloud database to find a match, once a match is found, the appropriate metadata bound to the target is returned as response to the client.

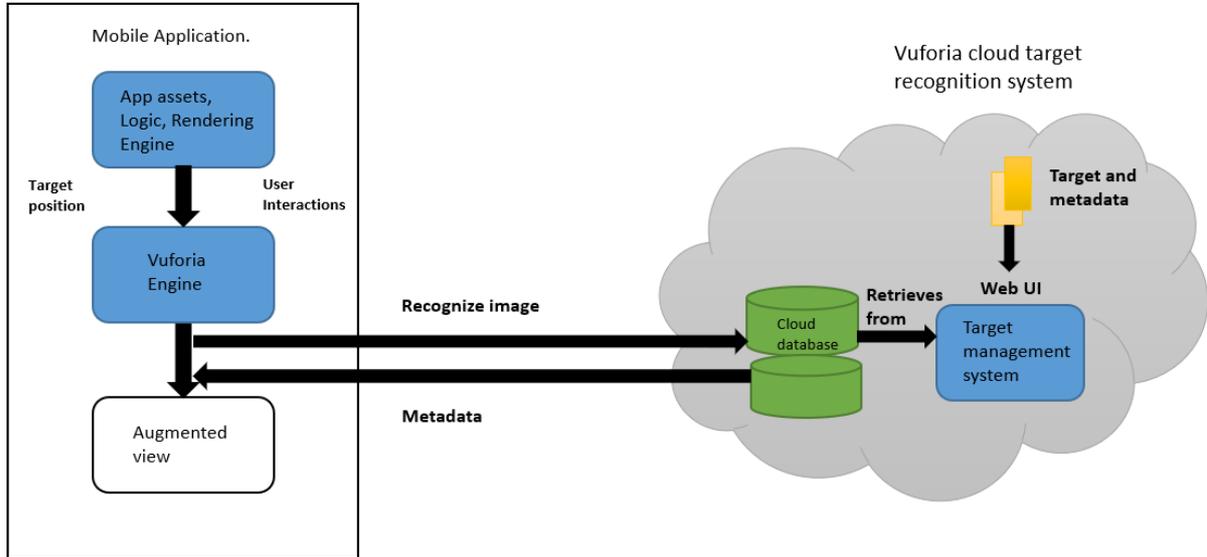


Fig1. System Architecture

V. EXPERIMENTAL RESULTS

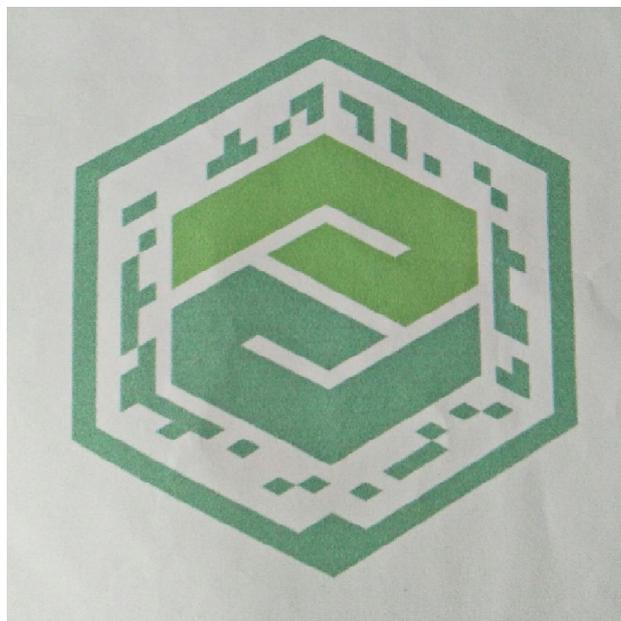


Fig2. Snapshot 1

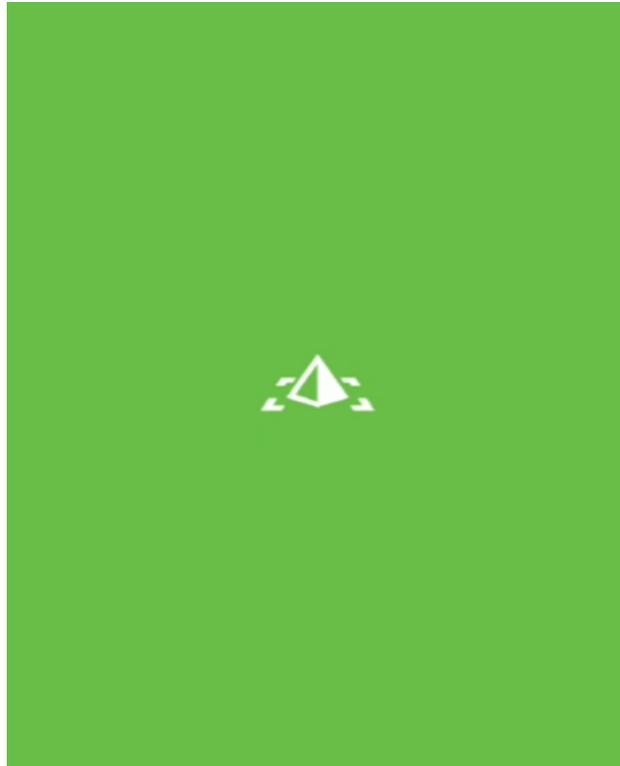


Fig3. Snapshot 2

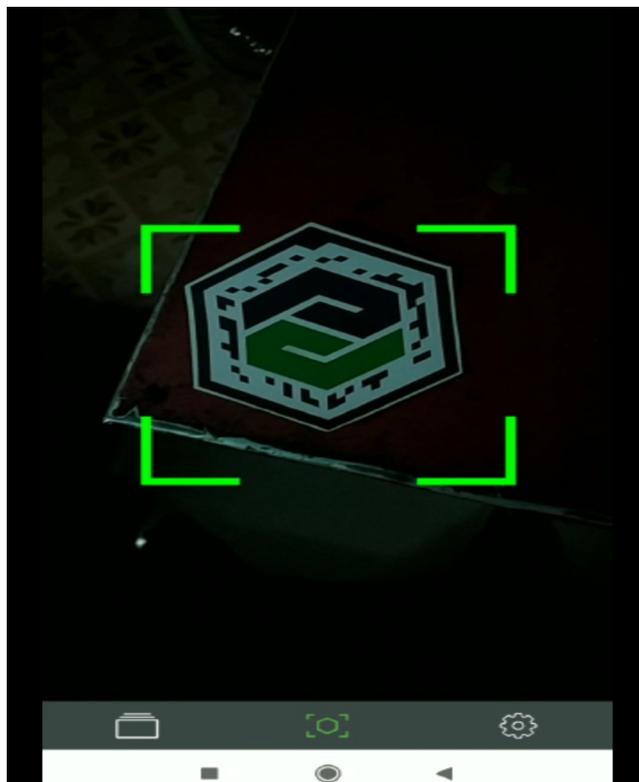


Fig4. Snapshot 3



Fig5. Snapshot 4

VI. CONCLUSION AND FUTURE WORK

Augmented reality in education has huge potential, that remains to be uncovered. With the current adoption of mobile technologies and the recent advances in hardware, AR is becoming more accessible and broadly used. Therefore, immediately may be an honest time to form the primary steps during this direction. Augmented Reality was once the things of solely dreams. But so were the internet, computers and smartphones. The future is thus coming and the sooner Indian companies can jump upon this trend, the better. India was yet slowly changing into a vicinity of this international trend however the recent increase in smartphone penetration and web services is definitely progressing to offer impetus to Asian country's desire for Augmented Reality. Instead of using mobile application we will use Google glasses or Microsoft HOLO lens to improve user experience. Mainly used to add various 3D model as required. It can be used by Architects to show the internal structure of any building by showing 3D models of it. It can also be used for safety inspection and training. It can be used in E-Commerce website that will offer a virtual fitting room where apparel can be tried on live. It can be used by doctor in surgery, where a live image of a human subject will be accessible.

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