AN INTERACTIVE LEARNING PLATFORM BY PROVIDINGENGAGEMENT AND ENTERTAINMENT

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ABSTRACT

Nowadays students suffer from distraction and difficulty in the learning process. Trying to focus on problems that some people face in the process of learning. Proposing a new learning system based on Augmented Reality that overlays digital objects on top of physical cards/pages captured through camera and rendering them as a 3D object with text-note with information about that object on the mobile devices. It can also provide phrases and sounds related to the object which will improve the learning abilities to make it more interactive and enhanced.

Thus aim is to use the inseparable relationship between students and their mobile phones to create new options for education, converting their smartphones into study buddies.

Keywords: *Augmented Reality, Education, Learning, Marker-based Augmented Reality, Mobile Device, Android Application, Object Rendering, 3D Objects.*

INTRODUCTION

It is no news to us that making kids study is a cumbersome task. Even more so in the world of Covid. Covid has made studying completely online which seems to be a disaster for parents and teachers alike, children are unable to focus and easily get distracted while studying. The main culprit for this kind of distraction is smartphones/laptops, as they allow easy access to other media that could be present on those devices, like games, YouTube, etc. For some children they can't remember the lessons just by reading, they might need visualization of the concept to retain it properly. And visualizing is not a very optimal approach if it just uses a static image.

Proposing a new learning system based on Augmented Reality that overlays digital educational objects on top of physical cards/pages captured through the phone's camera and rendering them as a 3D object with text-note which contains information about that object. Phrases and sounds related to the object can also be provided which will improve the learning abilities to make it more immersive and enhanced.

Thus aim to use the inseparable relationship between students and their smart devices to allow more options for quality education by converting their devices into study buddies. Focus shall be on problems that some people face in the process of learning. Aim is to build an application which helps

students concentrate on their studies while also enjoying the process at the same time.

LITERATURE SURVEY

1. Flashcards are one of the most famous and efficient ways to learn and improve memory performance. Students of the modern age, who use smart technology and smartphones in their daily lives, often don't have time and motivation to make and use flash-cards properly.

2. The purpose of this research was to measure and understand the impact of an augmented reality mobile application on the learning motivation of undergraduate health science students at the University of Cape Town. We extend previous research that looked specifically at the impact of augmented reality technology on student learning motivation. The intrinsic motivation theory was used to explain motivation in the context of learning. The attention, relevance, confidence, and satisfaction model guided the understanding of the impact of augmented reality on student motivation, and the Instructional Materials Motivation Survey was used to design the research instrument. The research examined the differences in student learning motivation before and after using the augmented reality mobile application. The attention, satisfaction, and confidence factors of motivation were increased, and these results were found to be significant.

PROPOSED SYSTEM

Tools used: Unity3D - 3D Game engine, Vuforia SDK -facilitates easy AR integration with marker based systems.

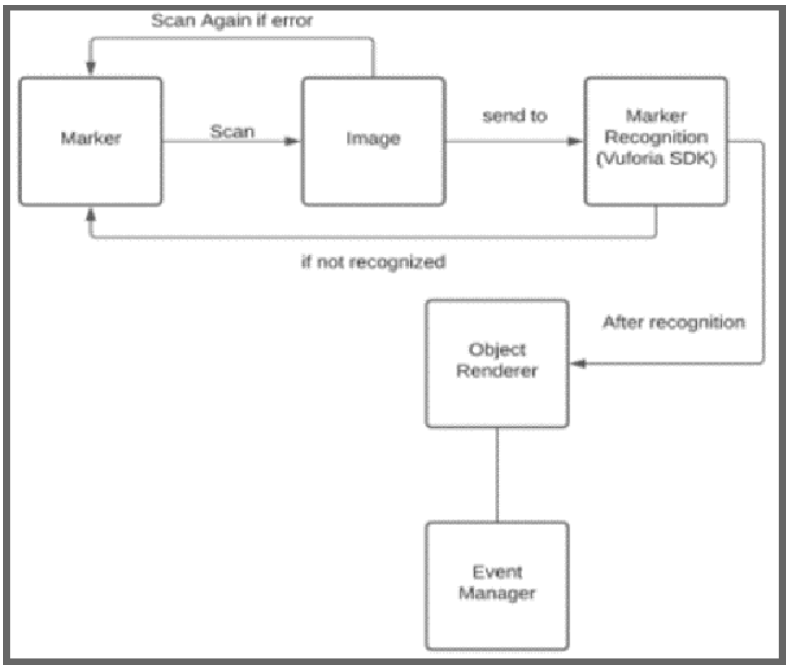

Fig.1. System Block Diagram

Working of the application:

- Initially the user of the application has to simply scan the given marker from the application on his/her smartphoneusing a camera.
- After the marker is recognized by Vuforia SDK, the 3Dmodel associated with that marker is rendered on the user's screen. While rendering the object system will also load andplay animations and sounds related to that 3D model.
- Text notes and quizzes related to the topic will also be shown to the user. there should be multiple questions and each of them should have multiple options with one correct answer.
- After the user chooses the correct answer, the next question will be displayed with 4 options.
- This is the basic loop of application which is simplifiedfor explanation purposes.
- Rendering of the model thoroughly depends upon the marker used by the user.
- No marker can have more than one 3D objectassociated with it.

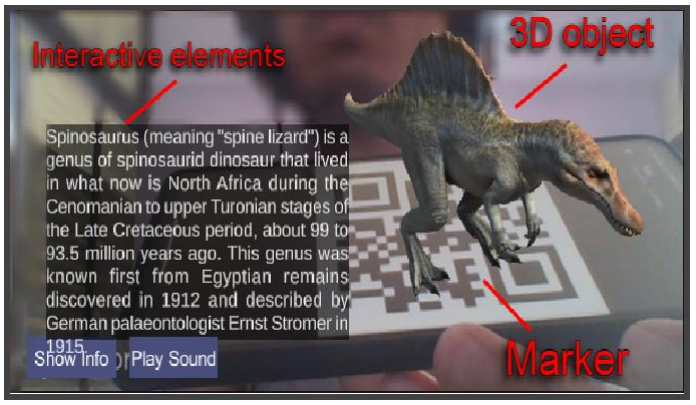

Fig.2. Application Screenshot of prototype showing marker,3d object and interactive elements.

CONCLUSION

Proposed a system which aims to improve students' education by enhancing the learning process of students by implementing an interactive learning platform / application which engages the students to study in a fun way, which will in turn enhance their education. There are phrases and sounds available related to the object or a 3D model which is visible on the smartphone which will improve the learningabilities to make it more interactive and enhanced.

This will also make education accessible to a wider variety of audiences/students

FUTURE SCOPE

An application is never perfect and having awareness of that here are few proposed points to improve or extend upon.

Extensibility: it is expected that the application would be available to a wider variety of audience as opposed to thecurrent state that mainly focuses on younger audiences. The application can also be extended in ways that was not currently expected by the developers and stakeholders

Reliability: while targeting wider audiences and adding more information it is important to keep that information consistent and reliable.

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