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3D Car Modelling Using Augmented Reality

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ABSTRACT: In recent years, a variety of ideas and the latest innovations about automotive by utilizing AR technology began to boom, especially in the area of car design aimed at car production companies. At the car production stage, human resources skilled in understanding the design and specifications of car features are required. The seeds of educated human resources start from vocational students in automotive engineering expertise programs. In particular, smart devices can be exploited for educational purposes. This work explores AR interactions at a distance, measuring how applications may support fluid, efficient, and intuitive interactive experiences in room-scale augmented reality. We conducted an empirical study to measure trade-offs between three interaction modalities–multimodal voice, embodied freehand gesture, and handheld devices–for selecting, rotating, and translating objects.

Keywords: Augmented Reality, Unity Game Engine, Automotive.

I. INTRODUCTION

Augmented Reality (AR) is an enhanced version of the physical world of the real world, realized using digital visuals, sounds, or other sensory stimuli delivered through technology. This is a growing trend, especially among companies interested in mobile computing and business applications. Augmented reality is evolving and becoming more ubiquitous in a variety of applications. Since that initiative, marketers and tech companies have struggled to realize that augmented reality is nothing more than a marketing tool. However, there is evidence that consumers are beginning to enjoy specific benefits from this feature and expect it as part of the purchasing process.

With the advent of Computer Augmented Reality (CAR), which blends computer-generated objects with real-world video images, many interesting new application areas have emerged. It is very useful to provide common lighting between real and synthetic objects, as additional visual cues (shadows, mutual reflections, etc.) are essential for seamless integration of the real synthetic world. Based on recent advances in computer graphics and computer vision, we present a new framework to solve this problem. Addresses three specific aspects of CAR's common lighting problems. refresh rates on midrange graphics workstations[2].

II. LITERATURE REVIEW AND MOTIVATION

Bobocet.la has covered the questions like: where AR technology has been applied within the automotive industry, what is the purpose of its application, what are the general characteristics of these systems, and what are the emphasized benefits and challenges of using AR in this field? The aim of this paper is to provide an insight into the AR applications and technologies in the automotive field[1]. Drettakiset.la has addressed three specific aspects of the common illumination problem for CAR: (a) simplification of camera calibration and modeling of the real scene; (b) efficient update of illumination for moving CG objects and (c) efficient rendering of the merged world. Novel advances in computer vision are used for camera calibration and user-friendly modeling of the real scene, a recent interactive ra- diosity update algorithm is adapted to provide fast illumination update and finally textured polygons are used for display. Our new framework will hopefully lead to CAR systems with interactive common illumination without restrictions on the movement of real or synthetic objects, lights and cameras[2]. Whitlock et.la in this work he explore AR interactions at a distance, measuring how applications may support fluid, efficient, and intuitive interactive experiences in room-scale augmented reality. We conducted an empirical study (N = 20) to measure trade-offs between three interaction modalities–multimodal voice, embodied freehand gesture, and handheld devices–for selecting, rotating, and translating objects at distances ranging from 8 to 16 feet (2. 4m-4. 9m)[3]. Kim et.la has performed with the smart devices can exploited for educational purposes or not. In this study, we implement a content

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delivery network system for AR e-training mobile applications, which supports real-time content update when the content is modified[4].

III. METHODOLOGY:-

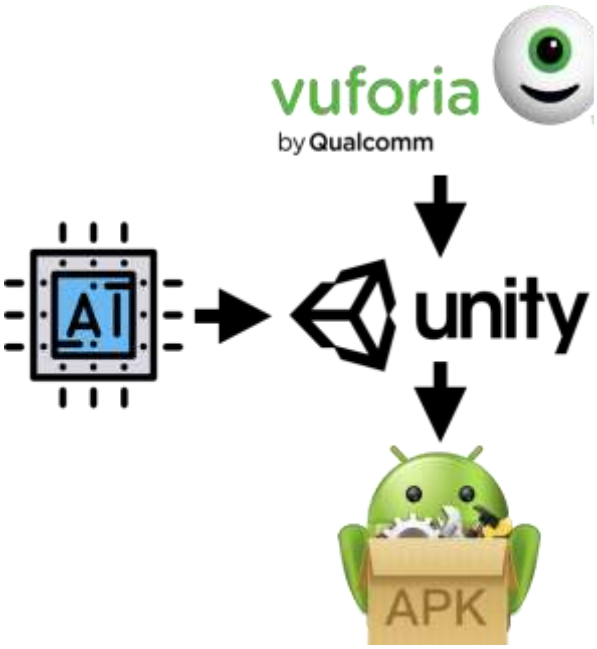

Fig. 1. System architecture

1.1 Untiy:

Unity is a cross-platform game engine for developing technologies such as games and augmented reality. You can use this engine to create experiences such as 3D, 2D, virtual reality, argument reality games, and simulations. However, Unity is cross-platform, so it's easy to create games for iOS, PC, and even game consoles. Unity also provides excellent VR support for developers interested in developing Oculus Rift or HTC Vive. From the developer's point of view, this means that there is no need to reinvent the wheel. Instead of creating a new physics engine from scratch and starting a new project, either calculate all the final movements of all the materials, or how the light bounces off different surfaces.

1.2 Vofuria:

Vuforia is an SDK that enables the detection and tracking of image targets using feature detection. A feature is any point in the image at the end of a section of multiple colors. The colored cube has four distinctive points. It is available as a Unity plugin and was integrated into the engine with the release of Unity version 2017.2.

1.3 Artificial intelligence:

Artificial intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think like humans and imitate their behavior. The term also applies to all machines that exhibit features related to the human mind, such as: B. Learning and problem solving.

An ideal feature of artificial intelligence is the ability to rationalize and perform actions that are most likely to achieve a particular goal. A subset of artificial intelligence is machine learning. This refers to the concept that computer programs can automatically learn from new data and adapt to it without human assistance. Deep learning technology enables this automated learning by capturing large amounts of unstructured data such as text, images and videos.

1.4 Android Apk:

APK stands for Android Package (which may also be Android Package Kit or Android Application Package). This is the file format that Android uses to distribute and install apps. Therefore, the APK contains all the elements needed to properly install the app on your device. In fact, most of Android is built in Java, so APK is a variant of the JAR (Java Archive) file format. All APKs are basically ZIP files, but they need to contain additional information to function properly as an APK. You can use the APK file to install the app on your Android phone. When developers create Android apps, they may use Android Studio, the official Android development tool. When your app is ready to ship, Android Studio compiles your app and puts it all in one container (APK).

IV. RESULT:

Fig. 2. Unity Window Development

As you can see the fig. the working of our AR technology based car. The future of automotive industry is AI and AR based only. This technology will help industry to build a powerfull and customer centric car.

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Fig. 3. Apk file

V. CONCLUSION:

AR technology aims to improve and enhance the life of normal people. AR is the possible thing of future to build more understandable concept for AI platforms and gaming Industry. Develop systems that use AR technology to improve product learning and understanding for consumers of electronics products.

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