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Changing Lives
and **Empowering
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Pemangkin Idea

AI-Augmented

Reality:

Transforming Design and Accessibility for a Better World



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Introduction

The creation of augmented reality (AR) - enabled smartphone apps would improve the ability to visualise the surroundings or scenario. Realistic designs are produced by any programmes that are compatible with 3D models and computer-aided design versions. This article explores the opportunity in utilising mobile apps as a consumer, when there are issues with calculating the location and size of objects.

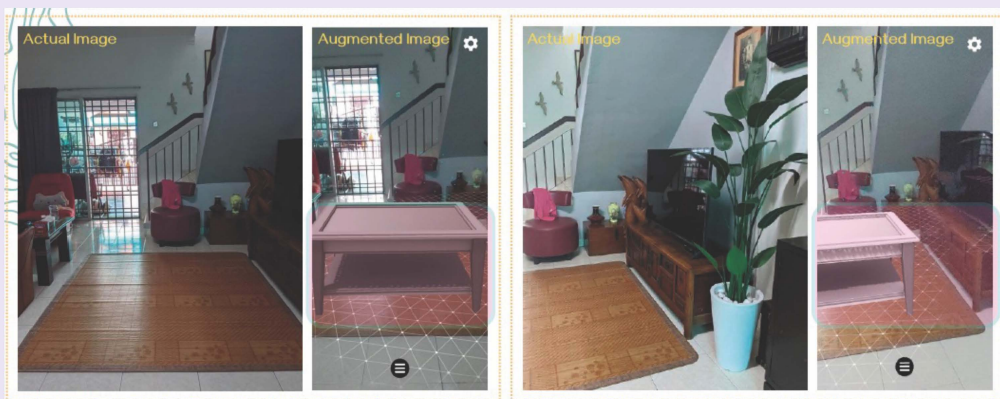
It is difficult to visualise an object information, and it is not always very obvious when it concerns with larger objects. At times, in real life, the goods could not fit in the designated space. The development of the mobile apps is to create augmented reality (AR) smartphone apps that allow users to scan and view their surroundings. Additionally, VSLAM was used to localise products in AR-based systems intelligently. PRO-VAS primarily uses Google's ARCore for interactive purposes and an RGB-D phone camera for depth mapping using a point plane generator and the VSLAM method. To improve the automated recognition of the scene's point plane, the markerless tracking technique is also used.

The set of objects from the Unity store, which consists of the objects that can be selected in PRO-VAS for the scanned

scene/area, is the final component. Based on the way the produced item interacted with its surroundings, PRO-VAS was tested, and VSLAM ensured that object localization was achieved. The selected object that users in a particular area have produced should remain in that location. Currently, PRO-VAS is only compatible with smartphones that have depth cameras and installed with Google Play Services for AR.

The success of PRO-VAS development, shows that Artificial Intelligence can be integrated with the mobile apps for the AI-Augmented Reality, with a great potential

of AI and AR technologies in shaping Malaysia's future. AI-powered AR solutions can revolutionize design processes, making them more intuitive, efficient, and accessible. This technology empowers Malaysian professionals in urban planning, infrastructure development, interior design, and product prototyping. It also enhances accessibility for individuals with diverse abilities and backgrounds. AI-Augmented Reality holds promise in various sectors, including education, healthcare, tourism, and manufacturing, driving innovation and improving quality of life.





Augmented Reality to Empower Humanity

AR's capacity to superimpose digital content on the real environment has revolutionised a number of sectors, including gaming, entertainment, healthcare, and education. Nevertheless, despite all the hype, augmented reality's potential to improve lives and empower people is still a very important subject. Researchers and businesses alike have realised how revolutionary augmented reality may be, especially when it comes to improving visualisation and changing user experiences. The fields of design and spatial visualisation are two areas where augmented reality has great potential. Through the use of AR-enabled mobile apps, designers and architects can benefit in delivering their works.

A new era of design realism has been brought about by the combination of augmented reality (AR) and computer-aided design (CAD) versions that feature 3D models. Imagine providing stakeholders with unparalleled clarity in project visualisation by enabling the seamless integration of virtual prototypes into physical locations. Consumers have encountered a problem: accurately estimating object placement and size

within the AR world. This problem is the impetus behind the creation of AR-capable smartphone apps that are meant to transform design visualisation. PRO-VAS (Product Visual Augmented System), a state-of-the-art programme, could offer a creative solution to the said problem. It is made to scan and visualise situations with unparalleled ease and accuracy.

A combination of cutting-edge technologies, each painstakingly merged to provide a flawless user experience, is at the core of PRO-VAS. By utilising Google ARCore for interactive applications, PRO-VAS enables users to easily superimpose digital content over their real environment. Moreover, the accuracy of Visual SLAM (VSLAM) algorithms combined with depth mapping from RGB-D phone cameras guarantees unmatched object location in the augmented reality space. In the context of PRO-VAS, the importance of markerless tracking cannot be emphasised. PRO-VAS improves automation by doing away with the requirement for physical markers, making it possible to quickly and precisely identify the point plane of the scene. This guarantees that items, regardless of their size or complexity, are smoothly incorporated into the environment and streamlines the user experience.

One of the main components of PRO-VAS's capabilities is its extensive library of Unity store objects. With this wide range of digital assets, users can add a variety of objects to their virtual surroundings, from fixtures and furniture to architectural details and more. The provision of an extensive object library guarantees that users can customise their designs to meet specific needs and tastes. Beyond its technological capabilities, PRO-VAS has the revolutionary potential to uplift people's lives and give them more power. Fundamentally, PRO-VAS is a platform that is democratised and allows for unrestricted creation, beyond traditional design tools. Through the democratisation of design visualisation, PRO-VAS enables anyone to realise their creative potential and realise their visions.

Think about PRO-VAS's influence on architectural design, for example.



Architects used to communicate their vision to stakeholders and clients via laborious tools and processes. But thanks to PRO-VAS, architects can now immerse their customers in realistic virtual worlds, giving them an unmatched level of realism while experiencing their future places. Along with increasing client happiness, this promotes better communication and understanding during the design process. Furthermore, PRO-VAS's accessibility goes well beyond the domain of design experts. The intuitive nature of augmented reality-based design tools can be quite beneficial for individuals who have restricted mobility or visual impairments. Through the provision of a real-time platform for virtual environment interaction, PRO-VAS dismantles obstacles and enables people with diverse capacities to engage in the design process. PRO-VAS has ramifications that go beyond the field of design and into other areas like healthcare and education. Within the field of education, PRO-VAS-powered augmented reality learning experiences provide students with engaging and interactive chances to investigate challenging ideas and topics. Through activities like dissecting virtual organisms and touring historical sites, PRO-VAS enhances educational opportunities and promotes a more profound comprehension of the world around us.



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