

Automobile Augmented Reality E-Catalogue

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Abstract

The automobile augmented reality (AR) E-catalogue is an imaginative application that employs augmented reality innovation to supply an immersive and intelligent way for clients to browse cars and other vehicles online. The application permits clients to see and associated with virtual 3D models of cars in a real-world environment, giving them a much better understanding of the estimate, plan, and highlights of the vehicle. The vehicle AR E-catalogue empowers clients to customize the car by changing the color, trim, and other highlights in real time, permitting them to see how distinctive varieties see some time recently making a buy. Also, clients can see nitty gritty determinations, highlights, and other data around the car, making a difference them make educated choices. This arrangement points to supply a more exact and locks in encounter for clients while browsing cars online, diminishing the require for physical visits to dealerships and showrooms. It can offer assistance to car producers and dealerships to exhibit their items more viably, separate their offerings, and drive deals.

Keywords: Augmented reality (AR), automobile E-catalogue, 360-degree view, visualization, simulation, features specifications, shopping, customer engagement, marketing strategies

INTRODUCTION

The vehicle augmented reality (AR) E-catalogue is an improved application that utilizes the latest AR innovation to provide a cutting-edge way for clients to browse and shop for cars online [1]. This inventive arrangement permits clients to see and connected with virtual 3D models of cars in a real-world environment, giving them a more precise and immersive experience. With the vehicle AR E-catalogue, clients can customize the car's color, trim, and other highlights in real time, empowering them to see how diverse varieties of the car would look before making a buy. They can moreover see point by point data of the car, highlights, and pricing, permitting them to form educated buying choices [2]. The vehicle AR E-catalogue gives a capable device for car producers and dealerships to showcase their items more successfully, separate their offerings, and drive deals. By leveraging the most recent

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AR innovation, this arrangement makes an immersive and outwardly engaging shopping involvement that can offer assistance for car producers and dealerships to stand out in a crowded commercial center. In general, the automobile AR E-catalogue speaks to a noteworthy step forward within the way clients browse and shop for cars online, advertising a more immersive and intuitively encounter that can improve engagement, drive deals, and make significant strides in client satisfaction [3]. The car AR E-catalogue is a revolutionary solution that offers numerous benefits for both customers and car manufacturers and dealerships. For customers, the AR-based application

The benefits of augmented reality retail

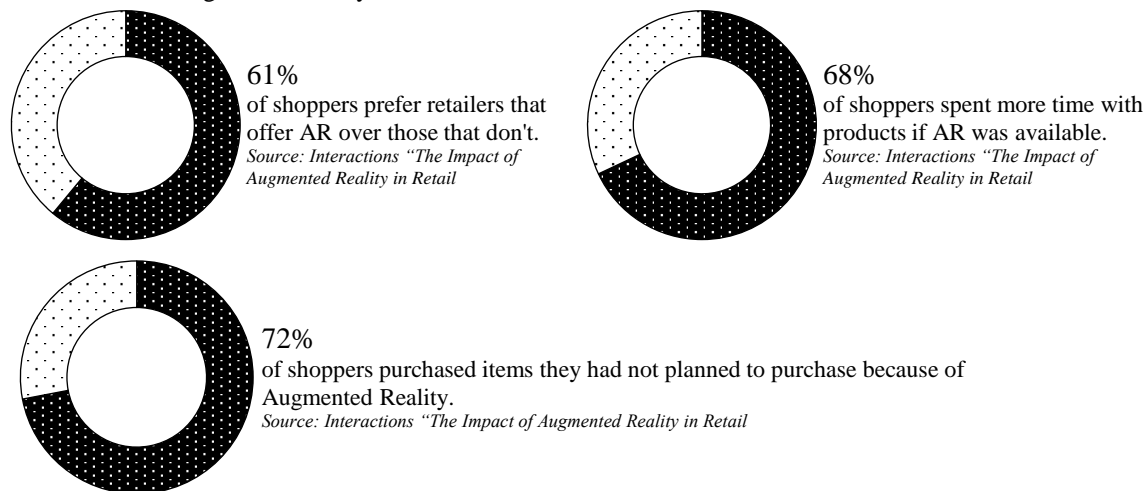


Figure 1. Marketing benefits of augmented reality (AR) [9].

provides a more engaging and interactive shopping experience, enabling them to view and interact with virtual 3D models of cars in a real-world environment [4]. This provides a more accurate representation of the car's size, design, and features, allowing customers to make better-informed purchase decisions. Furthermore, the automobile AR E-catalogue allows customers to customize the car to their liking, including choosing the car's color, trim, and other features. This feature enables customers to see how different variations of the car would look before making a purchase, reducing the chances of post-purchase regret [5]. For car manufacturers and dealerships, the automobile AR E-catalogue provides a powerful tool to showcase their products more effectively. The AR-based application can differentiate their offerings and drive sales by providing an innovative and visually appealing way for customers to browse and shop for cars online [6]. Additionally, the application can provide valuable insights into customer preferences and behavior, enabling car manufacturers and dealerships to refine their marketing strategies and offerings [7]. Overall, the automobile AR E-catalogue represents a significant advancement in the way customers shop for cars online, providing a more engaging, interactive, and personalized experience [8]. It also offers car manufacturers and dealerships a powerful tool to differentiate their offerings and drive sales, making it a win-win solution for both customers and businesses as shown in Figure 1.

LITERATURE SURVEY

Literature survey on the automobile AR E-catalogue reveals that the use of AR technology in the automobile industry is still relatively new and not yet widely adopted. However, there have been several studies and projects exploring the potential of AR in the automotive industry.

A study by Pismag et al. [10] showed the potential of AR in enhancing the car sales process. The study concluded that AR technology can significantly improve the sales process by providing customers with an immersive and interactive experience that increases engagement and satisfaction.

Another study by del Amo et al. [11] investigated the use of AR in enhancing the car maintenance process. The study concluded that AR technology can be used to provide real-time visual instructions and guidance to mechanics, reducing the time and cost of maintenance while improving the quality of service.

Several car manufacturers and dealerships have also explored the use of AR technology in their sales process. For example, BMW launched an AR-based application that allows customers to explore their cars in detail and customize them to their liking. Similarly, Hyundai launched an AR-based application that enables customers to view and interact with virtual 3D models of their cars in a real-world environment.

Additionally, the literature survey also highlights the potential of AR technology in improving the car design and engineering process. A study by Şen and Şener [12] explored the use of AR technology in the car design and prototyping process. The study concluded that AR technology can provide designers and engineers with a more accurate and immersive way to visualize and interact with 3D models of cars, allowing them to make more informed decisions and improve the design process. Another study by Boboc et al. [13] investigated the use of AR technology in improving the car safety inspection process.

The study proposed an AR-based application that can provide inspectors with real-time visual guidance and instructions, reducing the time and cost of inspection while improving the accuracy and reliability of the process [14].

In terms of challenges, the literature survey identifies several factors that can hinder the adoption of AR technology in the automobile industry, including the high cost of development and implementation, the need for specialized hardware and software, and the requirement for skilled personnel to operate and maintain the technology.

Overall, the literature survey highlights the potential of AR technology in enhancing various aspects of the automobile industry, including sales, maintenance, design, and engineering. The automobile AR E-catalogue represents a significant contribution to this field, offering an innovative and cutting-edge solution that can provide customers with a more immersive and interactive way to browse and shop for cars online while providing car manufacturers and dealerships with a powerful tool to showcase their products and drive sales [9].

IMPLEMENTATION

The implementation of an automobile AR E-catalogue in Figure 2 involves several key steps:

1. *Developing the 3D models:* The first step in implementing an AR E-catalogue is to develop accurate and detailed 3D models of the cars to be included in the catalogue. This may involve working with car manufacturers or creating the models from scratch using specialized software.
2. *Integrating augmented reality technology:* Once the 3D models are ready, the next step is to integrate AR technology into the E- Catalogue. This may involve working with specialized AR software and hardware, such as AR headsets or mobile.
3. *Building the e-catalogue platform:* The AR-based E-catalogue platform needs to be built, which includes designing the user interface, integrating the 3D models and AR technology, and developing the backend infrastructure to support the platform.
4. *Testing and refinement:* After the E-catalogue platform is built, it needs to be thoroughly tested to ensure that it functions correctly and provides a smooth and seamless user experience. Any bugs or issues need to be identified and addressed, and the platform may need to be refined based on user feedback.



Figure 2. E-catalogue design.

5. *Launching and marketing the e-catalogue:* Once the E-catalogue is fully functional and refined, it can be launched to the market. This may involve marketing efforts to drive traffic to the platform, such as advertising campaigns or social media marketing.
6. *Maintaining and updating the e-catalogue:* Finally, the AR-based E-catalogue needs to be maintained and updated regularly to ensure that it remains relevant and functional. This may involve updating the 3D models or AR technology, adding new features or content, or addressing any technical issues that arise over time.
7. *User experience:* One of the primary goals of an AR-based E-catalogue is to provide customers with an immersive and interactive experience that allows them to visualize and explore the cars in a more detailed and engaging way. Therefore, it is important to focus on the user experience and ensure that the platform is intuitive, easy to use, and provides a seamless and responsive experience across different devices.
8. *Device compatibility:* AR technology requires specialized hardware and software to function, which means that the E-catalogue platform needs to be compatible with a wide range of devices, including smartphones, tablets, and AR headsets. This requires careful planning and testing to ensure that the platform works effectively across different devices and operating systems.

Overall, the implementation of an automobile AR E-catalogue requires a combination of specialized skills and technologies, including 3D modeling, AR technology, software development, and marketing. However, with careful planning and execution, an AR-based E-catalogue can provide a powerful and innovative solution for car manufacturers and dealerships to showcase their products and improve the customer experience.

RESULTS

The results of an automobile AR E-catalogue implementation can be measured in a number of ways, including:

1. *Improved customer engagement:* An AR-based E-catalogue provides customers with an immersive and interactive experience that allows them to explore the cars in a more detailed and engaging way. This can help to improve customer engagement and increase the likelihood of making a sale.
2. *Increased sales:* By providing customers with a more engaging and interactive way to explore and compare different car models, an AR-based E-catalogue can help to drive sales and increase revenue for car manufacturers and dealerships.
3. *Enhanced customer experience:* An AR-based E-catalogue can help to enhance the customer experience by providing a more intuitive and user-friendly way to explore and compare different car models. This can help to improve customer satisfaction and increase the likelihood of repeat business.
4. *Valuable data insights:* An AR-based E-catalogue generates a large amount of data, including 3D models, images, and user interactions. This data can provide valuable insights into customer behavior and preferences, which can be used to optimize marketing strategies and product development.
5. *Competitive advantage:* By adopting an innovative and cutting-edge technology like AR, car manufacturers and dealerships can gain a competitive advantage over their rivals and position themselves as leaders in the industry.

Overall, the results of an automobile AR E-catalogue implementation can be significant, providing a range of benefits to both customers and car manufacturers/dealerships alike.

CONCLUSION AND FUTURE SCOPE

In conclusion, an automobile AR E-catalogue is a powerful and innovative solution for car manufacturers and dealerships to showcase their products and drive sales. By providing customers with an immersive and interactive experience that allows them to explore and compare different car models in a more detailed and engaging way, an AR-based E-catalogue can help to improve customer engagement,

enhance the customer experience, and increase sales. The future scope of an automobile AR E-catalogue is vast, with a range of potential applications and use cases. Some of the key areas for future development include the following:

- *Integration with other technologies:* An AR-based E-catalogue can be integrated with other technologies, such as artificial intelligence and machine learning, to provide more personalized and targeted recommendations to customers based on their preferences and behavior.
- *Expansion to other industries:* While an AR-based E-catalogue is primarily used in the automotive industry, it has the potential to be applied to other industries, such as fashion, home decor, and furniture.
- *Enhanced social media integration:* An AR-based E-catalogue can be integrated with social media platforms to provide customers with a more social and collaborative experience, allowing them to share and discuss their favorite cars with friends and family.
- *Improved data analytics:* An AR-based E-catalogue generates a large amount of data, which can provide valuable insights into customer behavior and preferences. Future developments may focus on improving data analytics capabilities to better understand customer needs and optimize marketing strategies.

Overall, an automobile AR E-catalogue is a highly promising technology with a range of exciting possibilities for future development and application. As technology continues to evolve and mature, it is likely that we will see even more innovative and creative uses for this technology in the years to come.

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