

# Development of a mobile application for placing objects in augmented reality

**Ruslan Myhal, Viktors Gopejenko**

*ISMA University of Applied Sciences, Riga, Latvia*

*\*Corresponding author's e-mail: viktors.gopejenko@isma.lv*



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## Abstract

Augmented reality is the technology that expands our physical world, adding layers of digital information onto it. Unlike Virtual Reality, AR does not create the whole artificial environments to replace real with a virtual one. AR/VR technologies are growing very vast, the market is projected to reach \$5B by 2025, according to HackerNoon [1]. With both ARKit and ARCore available to public, augmented reality is now enabled on over 500 million devices.

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## 1 Introduction

Augmented reality in retail may act to bring better customer engagement and retention, as well as brand awareness and more sales. Providing product data with 3D models of any size or color – one of the best ways to help customers make wiser purchases.

Buying furniture can be difficult, as items rarely look the same on display in the store, or in the online staging, as they do when they become part of your space, so it was necessary to develop software that would make it possible to view furniture in your interior before purchasing it.

ARCore is Google's platform for building augmented reality experiences. Using different APIs, ARCore enables your phone to sense its environment, understand the world and interact with information. ARCore uses three capabilities to integrate virtual content with the real world as seen through the Android phone's camera [2]:

- Motion tracking, which allows the phone to understand its position relative to the real world
- Environmental understanding, which allows the mobile device to detect the size and location of horizontal, vertical and angled surfaces
- Light estimation, which allows the mobile device to estimate lighting conditions

ARCore can detect flat surfaces, like table or the floor, and can also estimate the average lighting in the area around it.

## 2 Overview

This work is aimed to improve and personalize customer needs, by being at the forefront of modern technology like

## References

[1] *Predictions for the Future of Augmented Reality*  
<https://hackernoon.com/predictions-for-the-future-of-augmented->

augmented reality. The benefits from AR for business:

- Showcasing – furniture store may offer customers to see how a table or a bed would look like in their house
- Trials free of risk – with AR people can place a bookshelf in their rooms in a few taps on a phone. The risk of product return and logistical expenses is minimized
- New marketing opportunities – AR offers new ways to promote brand, to offer product information, to present new products, to offer helpful 3D experiences
- Clearer understanding of products – AR visualization works much better than both photos and videos with text description
- Save time and resources – augmented reality in real estate may significantly lower the numbers of exploratory visits

Augmented reality suits the furniture business perfectly. People want to see virtual interior design ideas in real time, and AR provides them with such ability.

## 3 Conclusion

Augmented reality is a fresh direction in the mobile industry, which has great potential and more and more companies are paying attention to this technology and adjusting their businesses to make their customers' lives better and easier. Giants like Google and Apple are investing huge amounts in the development of these technologies, so the technology of augmented reality is backed up and will only develop further.

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[2] *ARCore overview* <https://developers.google.com/ar/discover>