ARt: Bringing Art closer to you. Introducing an interactive purchasing approach

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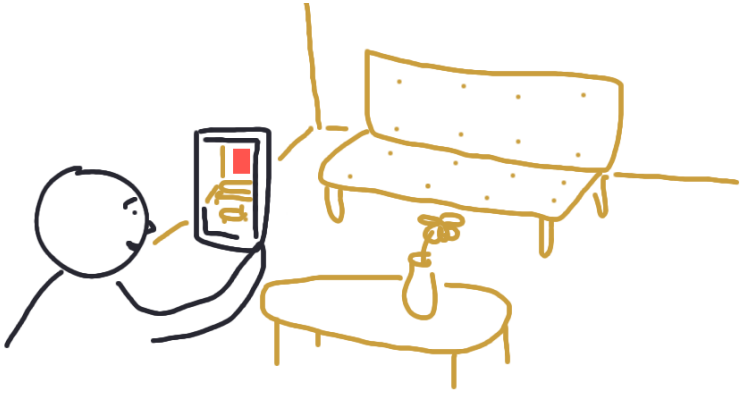


ABSTRACT

Millennials are changing consumer habits, demanding more and more digitisation of traditional industries and expect the use of modern technologies such as mixed reality and deep social media integration in their everyday interactions. Our purpose in this paper is to explore this notion to bring this digital revolution in the art industry and to democratise Art via an open marketplace where Artist have complete control.

Specifically, we present the project "ARt" that explores the potential of technologies such as Augmented Reality to enhance gallery experiences and improve the art purchase intentions. ARt is an interactive AR application that allows the user to visualise art in their personal spaces.

Author Keywords

Art, Art purchase, Virtual Reality, Mixed Reality, Augmented Reality, e-commerce, Human Computer Interaction

ACM Classification Keywords

D.2.10 Design, H.5.2 User Interfaces - Prototyping, Screen design, Graphical user interfaces

1. Introduction

ARt aims to be a vessel for artists to share their work with their peers. ARt is developed and presented in respect as a project and research work done in a course during our study in Masters in Human Computer Interaction and Design at the University of Paris-Sud.

The main focus of this application is to examine and explore the potential of using technologies such as Augmented Reality in enhancing gallery experiences and improving the art purchase intentions.

The conceptual strategy of AR art is to display a layer of the imaginary over the natural visual field; to intermix the real and the virtual; to make visible and tactile the surrounding environment and to indicate the potential for modification and intervention. The virtual here is always an addition to the already given: it implies a doubling of realities.

The paper is structured as follows. First we present related work and similar applications and how they validate the need for further research and experimentation. Second we present the motivation behind the idea and the application. Next we go through the design process of the application and explain the study that was conducted in users' personal space. At the end, we discuss the potential impact of Augmented Reality in the Art industry and how consumer preferences and attitudes will be impacted by the use of interactive computer systems.

2. Related Work

Similar applications can be found by many big industry players, such as IKEA's "IKEA Place", the app uses Apple's augmented reality technology to help make the IKEA pin shop.

VRALLART is an art focused service that offers mixed realty services to Art galleries and artists. Their services include QR codes for AR visualisation of their own gallery.

Big art resellers such as ART.COM have introduced augmented reality in their mobile applications as an additional visualisation tool for their customers.

AUGMENT is using a diverse library of 3D objects, from a Pepsi bottle to a dinosaur, you can augment these objects anywhere.

3. Motivation and Problem

The driving force behind designing this application came to one of the authors while browsing in an art gallery. The author was intrigued to purchase a painting by a young painter but he felt uncertain about his purchase. Is this new purchase a right one? The author needed confirmation of their decision, to visualise this art piece in their space and confirm if it matches the decor and surrounding pieces. This experience triggered our curiosity to explore if the same uncertainty occurred with other buyers, and quickly we realised that it was the norm.

We decided to explore how interactive technologies such as mixed reality can affect the psychological mechanism of mental imagery(visualisation) of the consumers and therefore pursue them to purchase more.

4. System Design

- Design Process

The ARt project was created by a team with experience in Mixed reality technologies, programming and design. The design process was situated in the University of Paris Saclay campus as a shared space of innovation, creation and experimentation allowing us to test the artwork throughout the design process.

- Initial Design Constructs

We initiated the design starting from our vision to: "We want to bring Art closer to everyone. We want people to feel confident about their art purchases by providing Artists, galleries and museums a tool to help them create AR experiences for art enthusiasts and purchasers ". We want to explore how within the space of Human Computer Interaction we could design and implement a solution that can democratize the Art industry.

• Our users' problem

Consumer hesitate to purchase art objects without visualising it in their personal space.

• Collecting Information

We interviewed three professional artists and three consumers to identify their pains and understand the future users of our solution. All the three consumers identified the need to visualise an art piece before purchase. One mentioned that he has used a similar solution for furniture provided by IKEA and that made him more confident about his purchase. An artist pointed several times how he uses many different services to share their art, concluding that no matter which platform still their consumers needed a better way to "feel" the art piece. In addition to the pains we identified our potential users to be Art lovers / purchasers, Art creators / designers / Content creators, Gallerists and Museum shops.

• Developing the solution

Deciding on an art piece either created by a top renowned artist or a local independent young artist can be a daunting experience. You want to be sure that you both like it and that it suits your decor. So, what if an Artist had a platform to monitor and share their Art, and what if their customers had a way to visualise the piece in their personal space. ARt main customers are Artists and Galleries who actively sell and promote their work. ARt offers an e-commerce platform and a set of accompanying supportive tools for Artists to sell and monitor their performance.

Specifically, we are launching a service that allows using a web-app to maintain an online gallery that helps monitor, track and report on e-sales made via the platform. In addition, artists, galleries and museums will be able to use Augmented Reality to improve their customers purchasing experience so they will be able to make purchasing decisions confidently. They will be able to visualise any ART in their space and purchase it on the spot, the moment they are more confident about it. Our solution will be independent, customisable, personalised and can be integrated with most of the services used by our customers.

• First Design attempt, screens

1. Art collection and artist exploration
2. AR - Visualise Art
3. AR - Capture Art

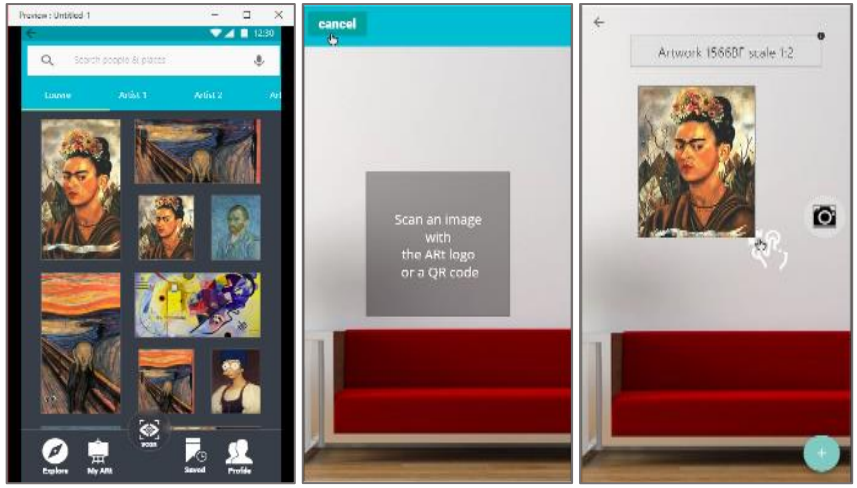


Figure 1, 2 & 3

Screen one (*figure 1*): users get access to a list of paintings, photographs and sculptures grouped in categories and collections. Each collection/group belongs to a tab and these tabs are customised extending the design notion of reuse.

Screen two (*figure 2*): Users have clicked the scan now option and they are presented by a scanner that enables them to scan an AR marker or QR code from a physical gallery or shop and load the art piece in their collection. These is for art pieces that are not publicly available, thus this becomes part of the traditional art purchase process.

Screen three (*figure 3*): Users can add from the collection an art piece and visualise it in their living room, we designed based on the principles of reuse and polymorphism to offer manipulative tools for the adjustment of the paintings and sculptures in the physical space as well as for the use of the application. Examples can be the guidelines for adjusting a painting in the augmented space or the buttons that functionality changes depending on the screen the user is at.

• Feedback

Low fi testing and feedback. We tested the low-fi version with several users we received very important feedback that drove us to Refine & reiterate our designs. Some of the feedback we received were:

- Focus more on the total experience of the user
- Consider adding solutions that do not involve only AR but provide a solution of the same nature
- Artist and galleries content representation on the app should be in collections or similar form.

5. Improvements (Iterations)

• High-fi prototype and Interactive system

The team has already started working on an interactive system for Android. A High fi prototype was created to provide users with the main augmented reality functionality supported by Unity (*figure 4*), where users pointed via a smartphone app could point towards the wall, where an AR marker was placed, and manipulate, point and resize an object. Then they were asked to answer one question before and after use of the app

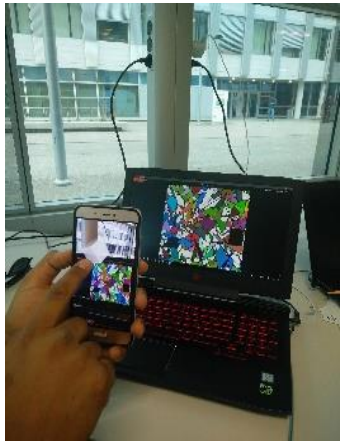


Figure 4

"Would you purchase this art piece?" 87% of users who were asked replied yes the second time, 80% of the one who initially declined our offer changed their minds.

• Further Iterations and improvements

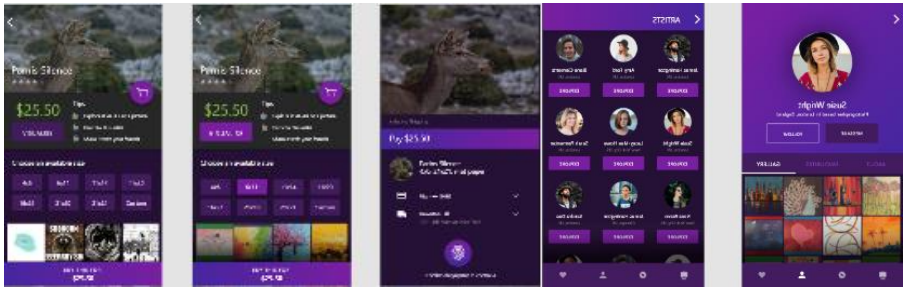
Following our first attempt, we collected more feedback from users (consumers and artists) and we redesigned the UI and developed an alfa version of the application featuring the main feature of our service, the Augmented Reality functionality.

The iterated design incorporates a new feature that enables users to use existing photos of their spaces from their phone's gallery. Allowing full liberty of place and time for the use of the application.

1. Offline (Gallery)
2. Art collection and artist exploration
3. AR - Visualise Art
4. AR - Capture Art

• Visuals

The aim for this new design approach is to create a simple yet usable interface that incorporates the notions of reuse, reification and polymorphism.



• Alfa version

The alfa version of the ARt mobile app was created using the AR

Vuforia Engine integrated within the UNITY platform. The aim of this application is to create a tool for Artist to enhance their shoppers experience. The alfa version supports augmentation of an initial collection of paintings and photographs provided by the first users of this platform.

6. Discussion

AR's popularity is expected to continue with the market estimated to reach $117.4 billion by 2022 at a compound annual growth rate of 75.72% (Forbes Agency Council, 2017).

While experience design researchers argue that well-designed experiences may increase customers' willingness to pay (Pine & Gilmore, 1999), the relationship between AR design elements and customers' paying behaviour warrants further investigation.

Currently we can identify similar approaches in the art industry such as VRAllart and Art.com as well as in other industries that aim to enhance customer affinity for online offerings and facilitate online decision making, many firms (e.g., IKEA, L'Oréal, De Beers, Westpac, UPS, American Apparel, Volvo, Marriott) have adopted a strategy of service augmentation, focusing not on the core product but on the interaction between customers and the organizational frontline (Grönroos 1990).

To simulate aspects of service that normally are reserved for in-store shopping experiences, they leverage augmented reality (AR) applications (Brynjolfsson et al. 2013) that contextualize products by embedding virtual content into the customer's physical environment, interactively and in real-time (Azuma et al. 2001). According to Apple CEO Tim Cook, AR-based experiences allow for Ba more productive conversation∧ (CNBC 2016). Apple refers to AR as a core technology and actively pursues an AR-related acquisition strategy. With AR, customers can dynamically engage with goods and services, for example by virtually placing an IKEA sofa in a real-time view of their living room, changing the Dulux colour of their wallpaper, or trying paintings in their living room.

Thus, AR helps customers see how paintings, photographs and sculptures can fit them personally or in their environments, while still maintaining the convenience of online purchasing. From a service augmentation perspective, AR is a technology set to enhance online service experiences through a more intuitive, context-sensitive interface that aligns with the ways customers naturally process information. Such an advanced frontline interface can improve service quality and offer customers more effective, enjoyable online shopping (Huang and Liao 2015).

7. Conclusion

We have seen so far remarkable examples of the use of AR in the Art industry such as the projects by artists, associated with the Manifest. AR platform, famous for their interventions at the Venice Biennale in 2011, at MoMA, Occupy Wall Street, as well as others. In addition, we have also seen many new implementations in the art industry, one cannot argue the potential of the use of Augmented Reality in the art purchasing process. actions involving politically charged statements.
These and similar projects always targeted a new representation or medium for Art using AR, what we are targeting is not to introduce a new art form but rather a new medium that enables artists to share physical art such as photographs, paintings and sculptures using AR.
In addition, we can see how augmented reality (AR) has been increasingly adopted by various other industries as a marketing tool, artists have come to recognise its promising potential in staging experiences. Building on this emerging stream, the current paper attempts to examine the impact of augmenting art creations purchasing intentions. By offering a solution called ARt we aim to demonstrate that compared with traditional art purchasing our approach leads to visitors' higher levels of willingness to purchase an art piece.

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