VIRTUAL AND AUGMENTED REALITY
Ideas for the Future - Retail Industry

UST Global Inc,
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Introduction

The Retail industry is an ever evolving one, with prime focus on keeping customers coming back for more. Retailers who promote product quality and transparency are flourishing at higher rates. Unique in-store experiences like Omni channel shopping empowered by virtual and/or augmented reality can push the retailer ahead of peers.

Personalized shopping experience where the shoppers can customize the products they are in search of, is in vogue.

Smaller stores and retail outlets will be preferred over bigger ones, as they boast of ease and efficiency with specialized selections. Specialty stores will be more productive than department stores.

Online payment modes will be common in future. Tech crunch projections show that 70% of the customers will opt for mobile payment modes, with mobile payments reaching a total of $60 billion.

With more of the incoming data being utilized to provide the best service, retailers will turn to apps, services and third parties to fulfil the needs of shoppers.

At the end of the day, retail industry and technology become inseparable. 2017 will see more of AI, augmented/ virtual and mixed reality and IoT driven changes in the industry.

Focus on Shopping Experience

Virtual Reality

Virtual reality is one of the trend-setting technologies that has brought fresh customer experiences in the industry over the past few years. Virtual reality or VR has already been in use in various industries since a few years; studies suggest that this will reach 171 million by 2018, compared to the 43 million figure in 2016. Studies by different organizations reveal that VR applications have already started impacting shoppers positively.

What is VR?

VR or Virtual Reality can be termed as an immersive 3D computer generated environment in which the user interacts and navigates using a special headset. As it eliminates the limitations of time and space, retailers think of better ways to enhance customer experience, like a totally immersive view of a VR home interior setting.

Virtual reality has been proven as a successful new addition to the retail industry, with some totally out-of-the-box use cases. Pioneered by Oculus Rift, and followed by Google cardboard and Samsung Gear VR, these virtual reality devices were used by several retailers to enhance their customer’s shopping experience. A particular application of VR was done by the outdoor apparel company "North Face", where they gave their customers an immersive experience by transporting them to Yosemite National Park while shopping at their retail outlet.
VR and AR have been disrupting the retail industry and paving way for a Mixed Reality (MR) concept, which we believe will drive it further.

Clinical and home monitoring of patients has become more widespread with the growth of telemedicine:

**Augmented Reality**

Augmented reality, a later addition to the retail industry is the new non-immersive, digital shopping experience provider. **Augmented reality or AR is the latest trendsetter, which bridges the gap between the physical and the digital world by overlapping information obtained from both.** Like virtual reality, augmented reality is also taking up the retail space through innovative ideas and garnering positive feedback from shoppers all over the world.

**What is AR?**

AR is a less immersive, which the user can experience via a mobile device, where the digital information is overlapped above the real world, and can be viewed using the device camera.

Augmented reality has provided some pretty innovative use cases to retailers, leaving satisfied shoppers behind. **Pioneered by Oculus Rift, and followed by Google cardboard and Samsung Gear VR, these virtual reality devices were used by several retailers to enhance their customer’s shopping experience.**

AR has been used by several famous retailers across the globe. One of them is the augmented reality makeup mirror from Shiseido, which takes an image of a shopper’s face, before showing them what the latest cosmetics products will look like on their face.

Similar to Shiseido, Topshop, a British brand, has partnered with Kinect to create AR dressing rooms. This allows shoppers to virtually try on their purchases quickly and easily saving time and effort.

**What we can do at UST Global**

VR and AR have been disrupting the retail industry and paving way for a Mixed Reality (MR) concept, which we believe will drive it further.

Clinical and home monitoring of patients has become more widespread with the growth of telemedicine:
This is the real world or the natural environment we see everyday. This includes all the living and nonliving things that are visible to humans. Most of the virtual environments are modelled after this.

Learn and Grow:
A team of dedicated individuals, who are ready to explore and work in the VR, AR and MR technology platforms.

Think and Do:
Bringing fresh and innovative ideas in VR, AR and MR space and implementing them in the retail sector.

Give the Best:
Focus on solutions that gives the best shopping experience - customer satisfaction at its best!

Introducing Mixed Reality into the Mix

With the introduction of Microsoft HoloLens, Mixed Reality or MR is the latest addition to the technology family. MR works by scanning the physical environment and creating a 3 dimensional map of the surroundings. This enables it to place digital content into that space in a realistic manner and allow the user to manipulate it with gestures. It differs from Virtual Reality where the user is immersed in a totally virtual world, where as MR experiences combine and display digital over real-time surroundings, allowing the user to interact with them.

As it is still early to exactly understand the applications of mixed reality devices, it is crucial for us to consider their primary advantages and learn how they can impact the industry through trial and error methods. Use cases, interaction methods, applications as well as hardware of MR will evolve similar to all other mobile device in the market. Being in the game by asking the right questions, learning and experimenting will put our solutions a notch above the rest.

Our solutions focus on using one or a mixture of these technologies to get the best results!

When talking about mixed reality, there are four environments that should seamlessly blend together:

- **Real environment**
  This is the real world or the natural environment we see everyday. This includes all the living and nonliving things that are visible to humans. Most of the virtual environments are modelled after this.

- **Augmented reality**
  Augmented reality brings aspects of the virtual world into the real environment. The users remain in the real world, while experiencing virtually enhanced visuals and feelings. This is done by layering digital information above the users’ view of the real world scene.

- **Augmented virtuality**
  Augmented Virtuality is the reverse of augmented reality, where real world objects are inserted into the virtual world. Here, the real world objects are layered over a virtual environment with which the user can interact.

- **Virtual reality**
  Virtual reality is a total immersion of the user in a virtual world where the environment as well as the objects are digitally created. Here, it is necessary to have specifically designed devices to stimulate the VR, which the user accepts as the real world.

From big to small retail brands, powering them through VR, AR or MR will bring in the best shopping experience!

**Virtual Reality**
Experience a walkthrough of your physical architecture digitally using VR technology. The idea is to digitally create a fully immersive experience of seeing your architecture and interior before actually building it. Digital model, in essence. E.g. Checking how a home decor item looks good in a bare room, and seeing how a store will look after it is set up completely.
A completely virtual environment is designed, including the physical space as well as the objects according to the floor map presented by the client. Using a VR device like oculus rift, the user can experience a walkthrough of the digital setting, thus getting to know how exactly it will look in real life after physically building it.

The branding for a company would be through marketing and advertising. Using VR will give a retailer more flexibility for creating an experience that is unique for the brand. E.g. VR experience offered to shoppers in retail outlets as they walk by. This lures more customers in.

Stores will have a section planned out for customers to experience the VR. Here, a live action advertisement in which a shopper can walk through will be designed, which can be viewed by the customer using a HMD (Head Mounted Device).

Virtual shops or shop setting where customers can shop in a virtual environment is something that many retailers will choose to have in future. Themed shops or retail outlets especially will opt for this technology.

Here, all the customers can move around the shop donning an HMD which gives them the feeling of walking through a totally different setting, while doing their necessary shopping.

**Augmented reality offers a new way of shopping, with information digitally overlapped onto anything and everything you need.**

### Augmented Reality

#### Virtual Mirrors and trial rooms

One of the most rated use of augmented reality is virtual trial rooms and virtual mirrors. In this application, a camera (camera fitted in a retail outlet, webcam or smartphone camera) captures the user’s image and uses it as the subject of trial. The shopper can change the apparel/cosmetic brands, types as well as colors till they find the one they prefer.

Virtual trial rooms and mirrors support Omni channel retailing as this application has the flexibility of working with personal computers as well as mobile phones.

#### Aisle shopping experience

Brick and mortar shops will be the next exciting place to shop with AR. A mobile device powered by an AR application can be used as a tool for finding product information, sales and offers while walking down shopping aisles.

The AR powered app will capture the aisle details using the device camera, identify the products displayed and retrieve information and offers/discount details if applicable to those products enriching the shopping experience.

#### Visualizing product catalogues/magazine advertisements

Similar to aisle shopping, brand catalogues or magazine advertisement of a particular brand can be visualized and purchased online if the brand has an AR powered mobile application.

Imagine the user liking a particular pair of shoes, which he/she finds in a catalogue. Using the AR application in their device, they will be able to get more details about the product, color and size options as well as a buying online option. Shopping made easy as pie!

### Mixed Reality

Brands can get information about what the shopper is trying to click or interact with, thus gaining insight into their personal preferences and patterns. This enables the retailers to provide the best possible shopping experience to them.
MR powered devices can act as virtual shopping assistants by possibly helping the user choose the right product for the right price. Combined with AI capabilities, future shopping experiences will be much more than just shopping for necessities!
ABOUT UST GLOBAL®

UST Global® is a fast-growing digital technology company that provides advanced computing and digital services to large private and public enterprises around the world. Driven by a larger purpose of Transforming Lives and the philosophy of "fewer Clients, more Attention", we bring in the entrepreneurial spirit that seeks the fastest path to value in today’s digital economy. Our innovative technology services and pioneering social programs make us stand apart.

UST Global is headquartered in Aliso Viejo, California and operates in 21 countries. Our clients include Fortune 500 companies in Banking and Financial Services, Healthcare, Insurance, Retail, High Technology, Manufacturing, Shipping, and Telecom. UST Global believes in building long-lasting, strategic business relationships through agile and client-centric global engagement models that combines local experts and resources with cost, scale, and quality advantages of global operations.

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