



Focus on the  
Table AND Find  
**The Light Stand**

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Can you see it?

I'm Sorry! I had  
to Zoom Out!

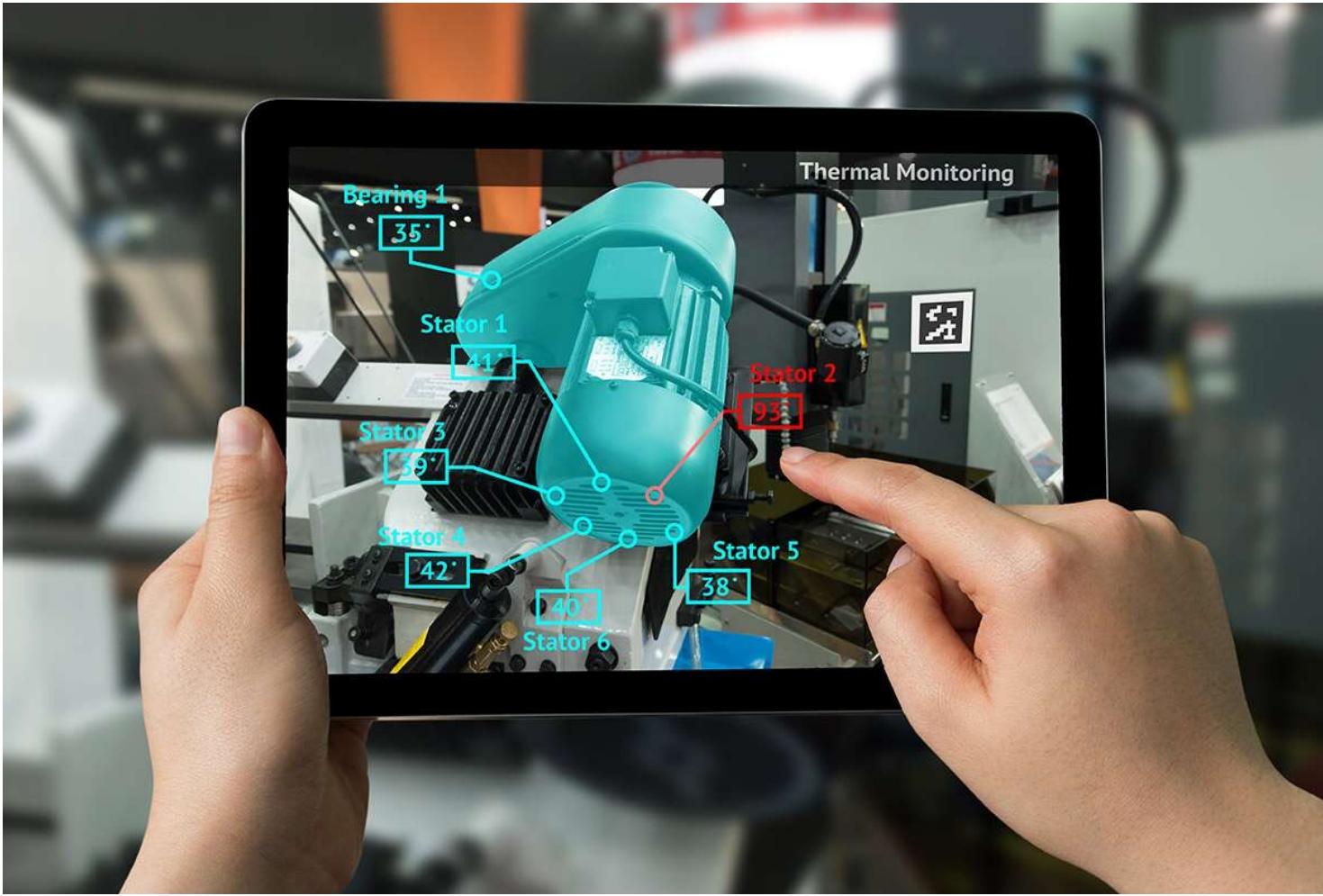
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My Bad!!!





The Practical Technology



# Mixed Reality

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**VISHAV PATEL**

# Agenda

Quotes

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Project Scope

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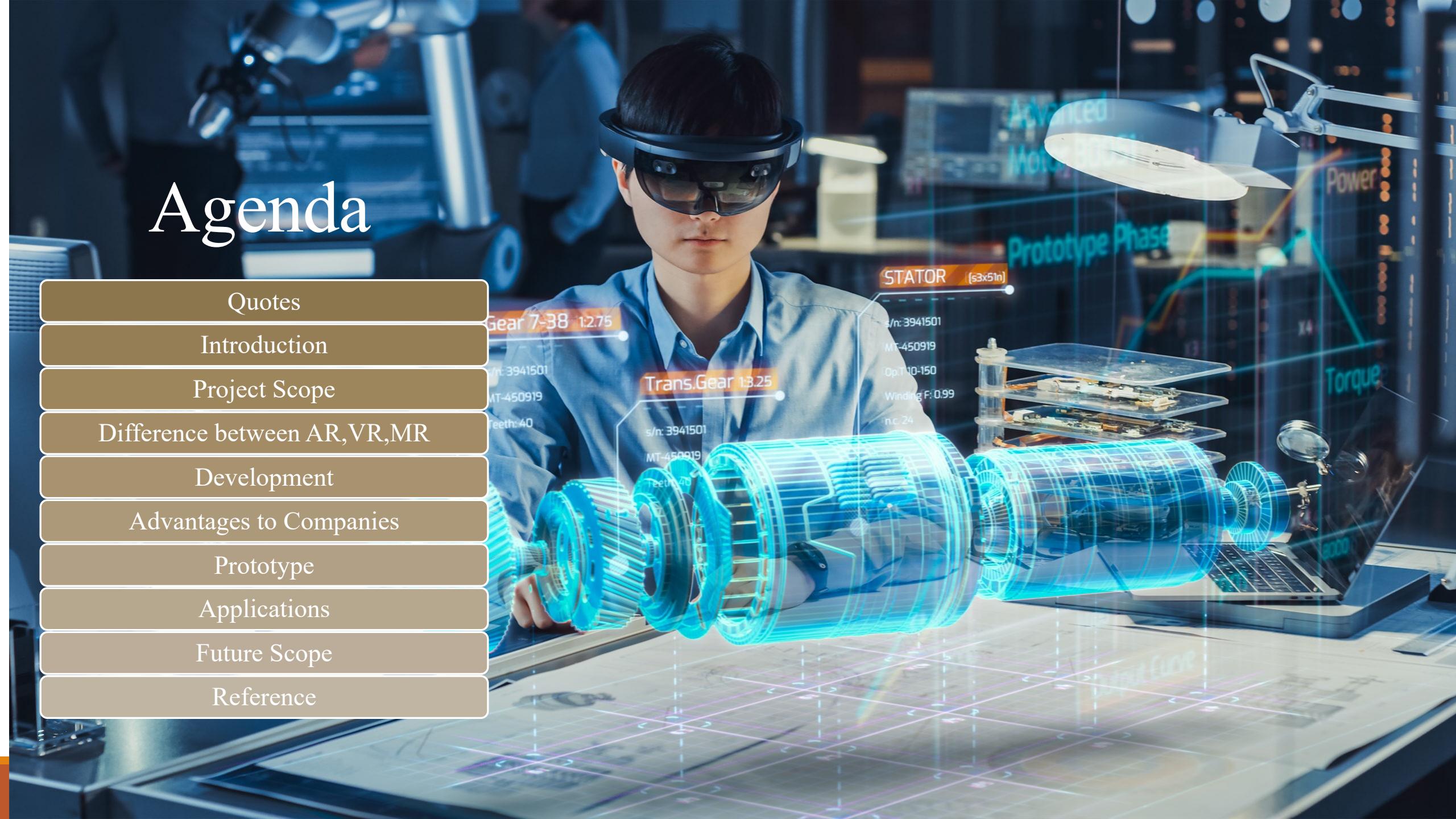
Advantages to Companies

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# Quotes

## Facebook



Think about how many of the things you use don't actually need to be physical. You want to play a board game? You snap your fingers, and here's the board game. You want to watch TV? You don't need a physical hardware TV, you buy a one-dollar app 'TV' and put it on the wall." "Mark Zuckerberg"

## Google



Looking to the future, the next big step will be for the very concept of the 'device' to fade away" "Sundar Pichai"



# Introduction

## What is Mixed Reality?

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**Mixed reality (MR)** is the merging of real and virtual worlds to produce new environments and visualizations, where physical and digital objects co-exist and interact in real time.

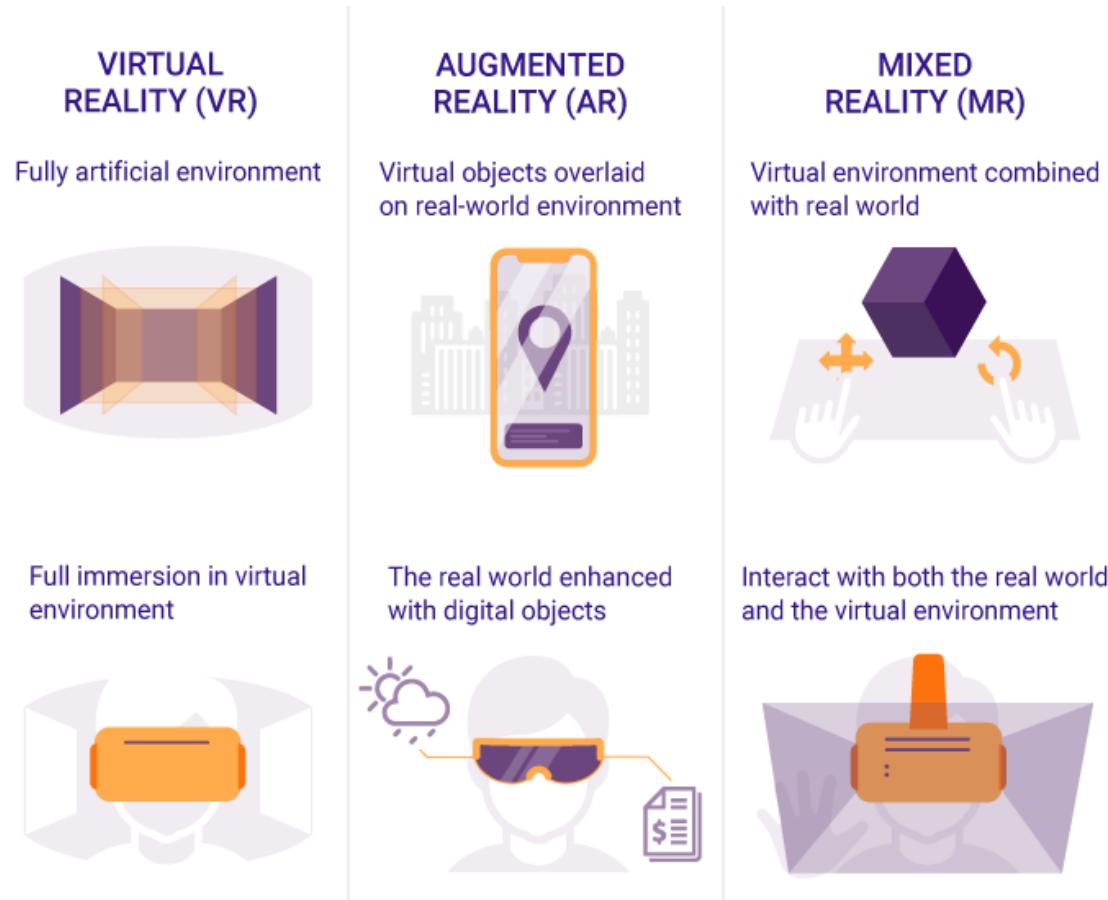
In other words; Mixed reality is a blend of physical and digital worlds, unlocking natural and intuitive 3D human, computer, and environmental interactions.

Mixed Reality occurs not only in the physical or virtual world but is a mixture of reality and virtual reality, including both augmented reality (AR) and virtual reality (VR).

# Project Scope

- Examined how to create an MR application and explore its various applications and advantages for businesses.
- MR uses products prepared in three dimensions and is displayed in multiple places.
- One of the advantages of this MR method is integrating real and virtual worlds to produce new environments and visualizations in which physical and digital objects coexist and interact in real-time and change consumer behavior.
- To harness this reality the team is creating more ways for consumers and vendors to engage in commerce to develop virtual objects and locations in the metaverse.
- To achieve this goal, vendors and consumers can meet virtually and share an easy-to-access user-friendly platform to sample products for sales and consumption.

# Difference between AR, VR, MR



## Virtual reality (VR) example:

A computer generated living room in which your simulated self can move around and interact with the virtual furniture and houseplants or the simulated selves of other like you.

## Augmented reality (AR) example:

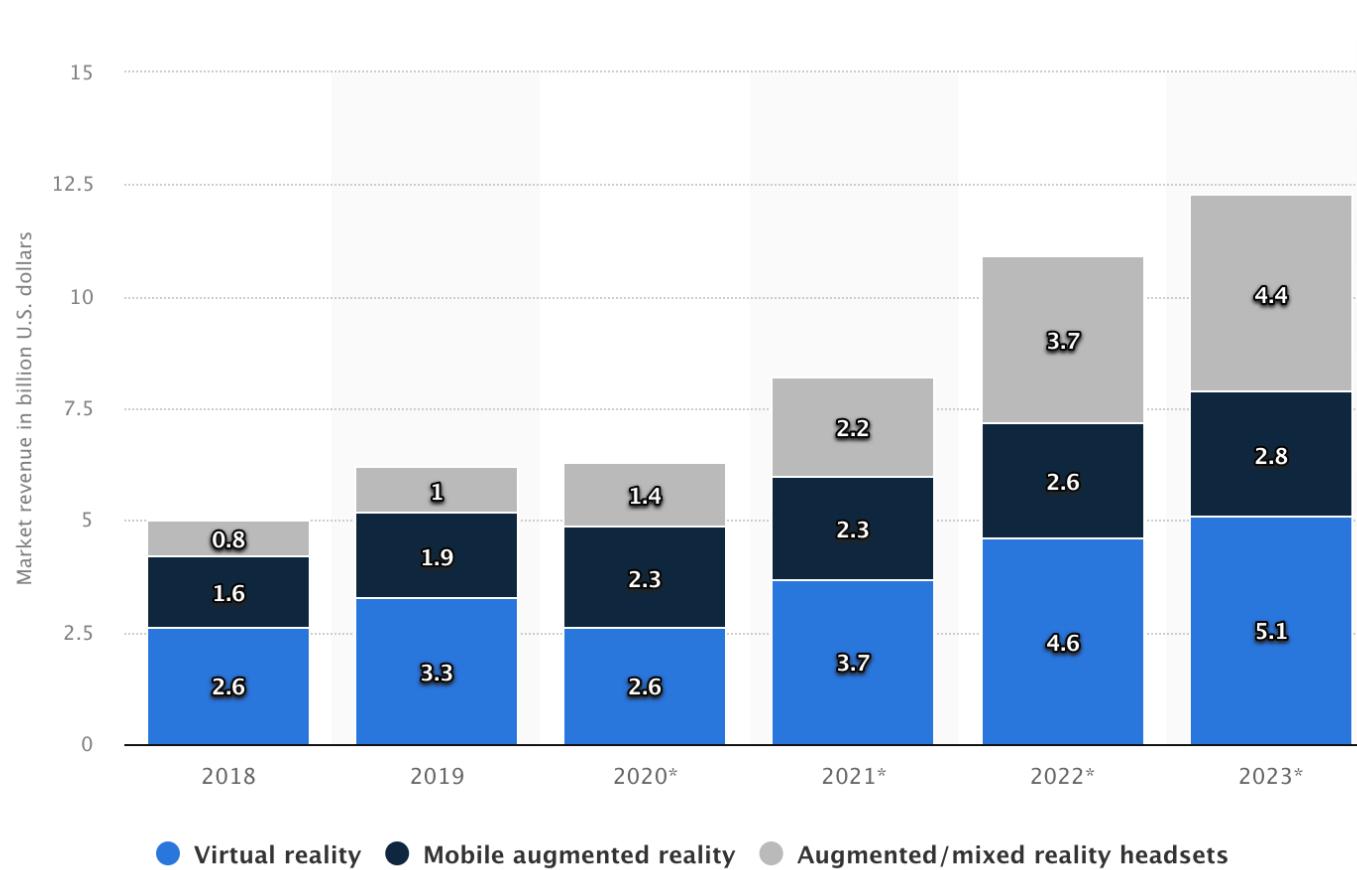
A real-time view of your own living room that you can virtually enhance with different paint or carpet colors or call up virtual "floating" screens to read email or watch a game.

## Mixed reality (MR) example:

Another real-time view in which virtual selves or objects are also displayed -- but where the real and artificial elements can interact (e.g., placing a virtual pencil on a real table).

# Development

Immersive technology consumer market revenue worldwide from 2018 to 2023, by segment:



- The term "mixed reality" was introduced in a **1994** paper by Paul Milgram and Fumio Kishino
- Mixed reality has been around for over 28 years.
- It is still not available to everyone. Only a few people are making full use of it today.

# Advantages to Companies



More and more businesses are incorporating virtual elements into their operations to create profits by incorporating a digital sense, thereby simplifying their complicated processes and activities and reducing procedures and costs.

- Reduced Maintenance Call-Out Times
- Optimized QA Process
- Industrial Design
- Immersive and interactive marketing strategies
- Incredible training programs
- Communicating and collaborating tool
- Help support staff connect to consumers in real-time and improved consumer analytics
- Agility and Flexibility

# Prototype

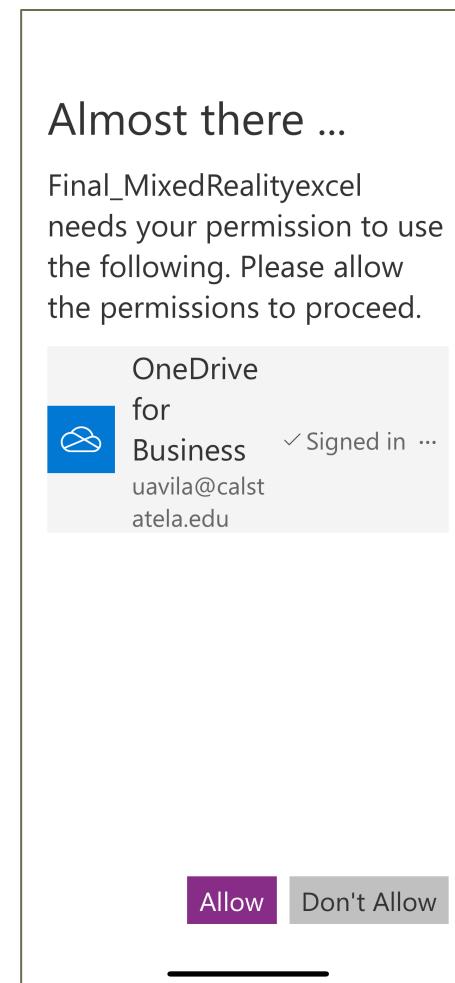
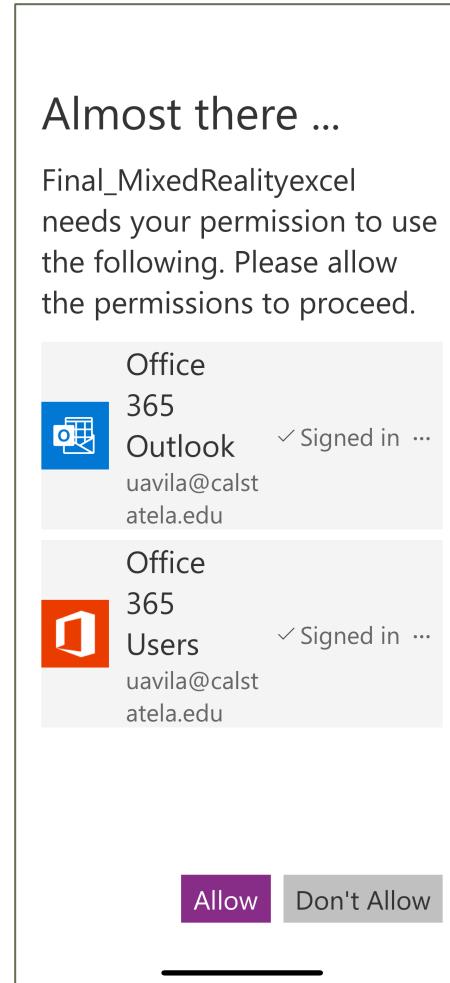
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- The MR app was developed with various features.
- The app can **view an object** in MR.
- The app can **measure** the area in MR. It gives us the **area, height, length and Unit of Measure**
- Take a **picture of the object** in MR.
- Measure a **3-dimentional area** including width, length, and height.
- [Link to Mixed Reality Prototype](#)

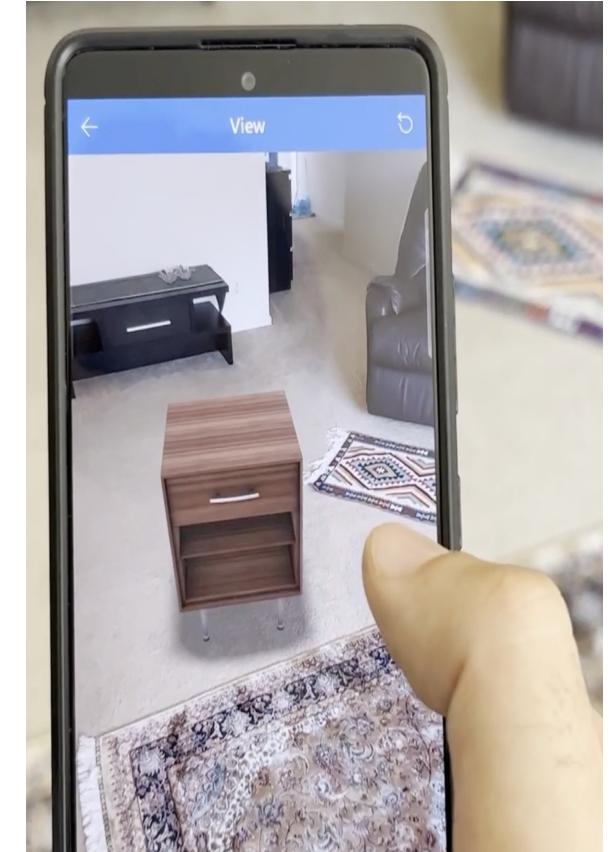
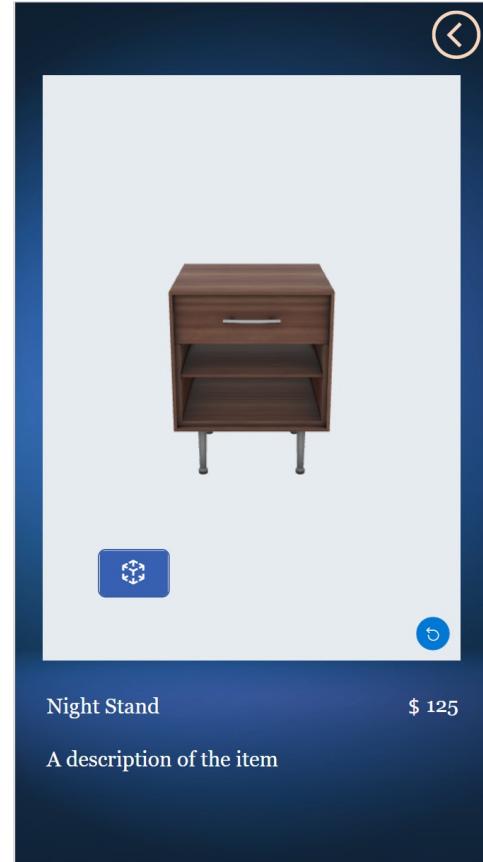
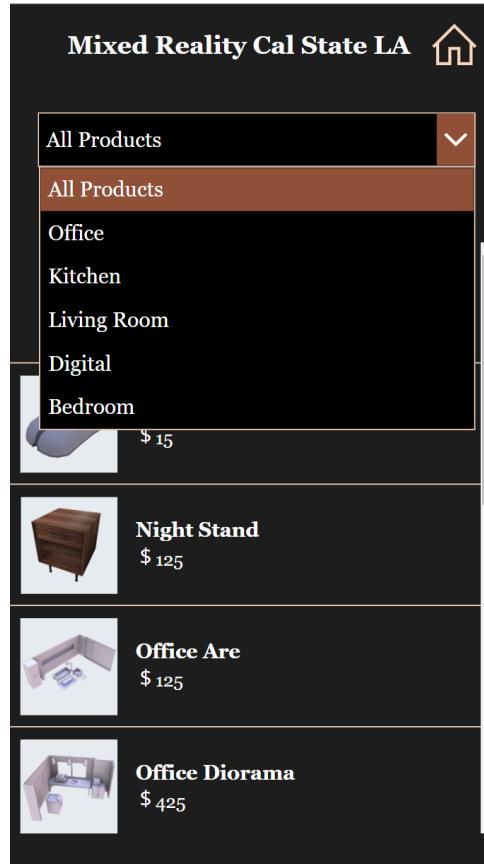
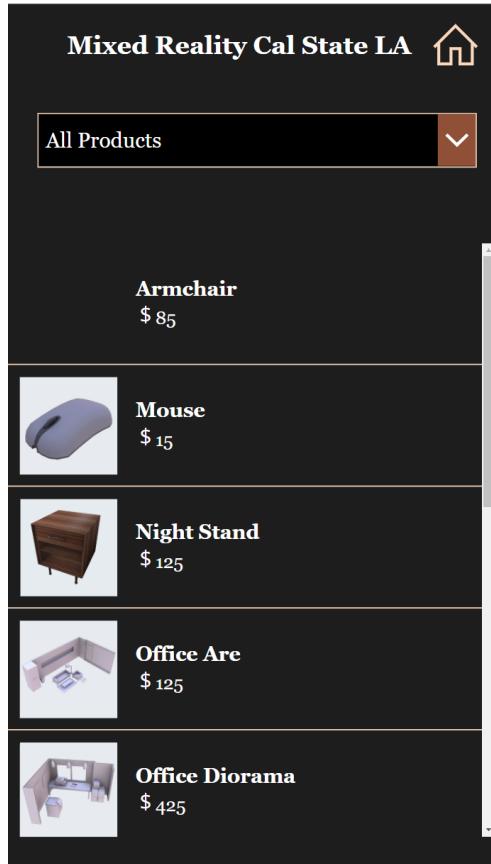
# Data Source- Excel Worksheet

A	B	C	D	E	F
Name	3DModel [image]	Price	Description	Category	Picture [image]
Armchari	.\3D_Model\modern_armchair.gbl	85	A description of the item	Living Room	.\ModelPhotos\armchair_wing.png
Sofa	.\3D_Model\modern_sofa.gbl	255	A description of the item	Living Room	.\ModelPhotos\modern_sofa.png
Night Stand	.\3D_Model\nightstand.gbl	125	A description of the item	Living Room	.\ModelPhotos\nightstand.png
Ofiice Bar	.\3D_Model\office_bar.gbl	68	A description of the item	Living Room	.\ModelPhotos\office_bar.png
Office Diorama	.\3D_Model\office_diorama.gbl	425	A description of the item	Living Room	.\ModelPhotos\office_diorama.png
Office Are	.\3D_Model\office_waiting_area.gbl	1250	A description of the item	Living Room	.\ModelPhotos\office_waiting_area.png
Mouse	.\3D_Model\optical_mouse.gbl	15	A description of the item	Living Room	.\ModelPhotos\optical_mouse.png
Pallet	.\3D_Model\pallet.gbl	33	A description of the item	Living Room	.\ModelPhotos\pallet.png
Palm Blue	.\3D_Model\palm_blue.gbl	125	A description of the item	Living Room	.\ModelPhotos\palm_blue.png
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Warehouse	.\3D_Model\warehouse.gbl	2500	A description of the item	Living Room	.\ModelPhotos\warehouse.png

# Homepage and Access Request



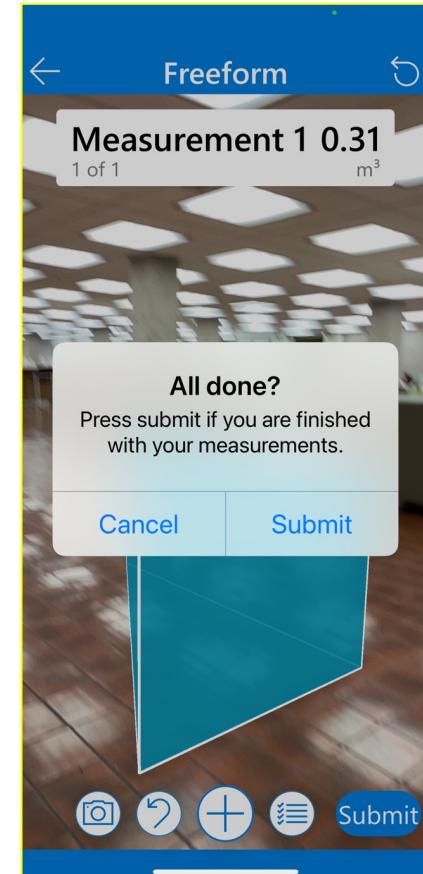
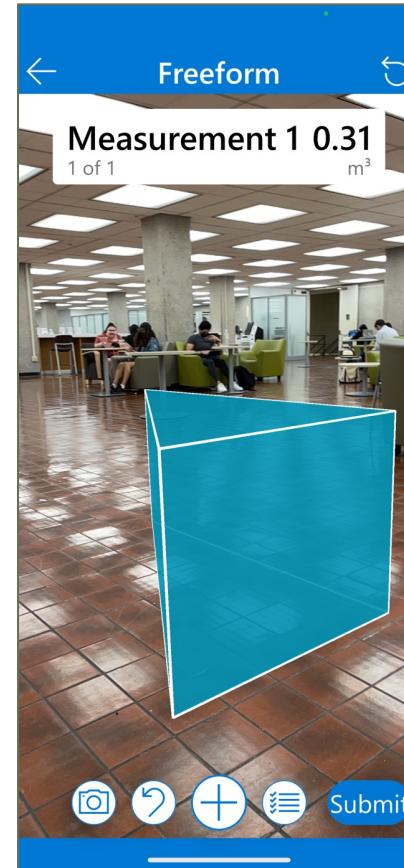
# Prototype 3D Images and Videos



[Link to App](#)

# Measuring Area in MR

We can Measure Length, Area and Volume



[Link to App](#)

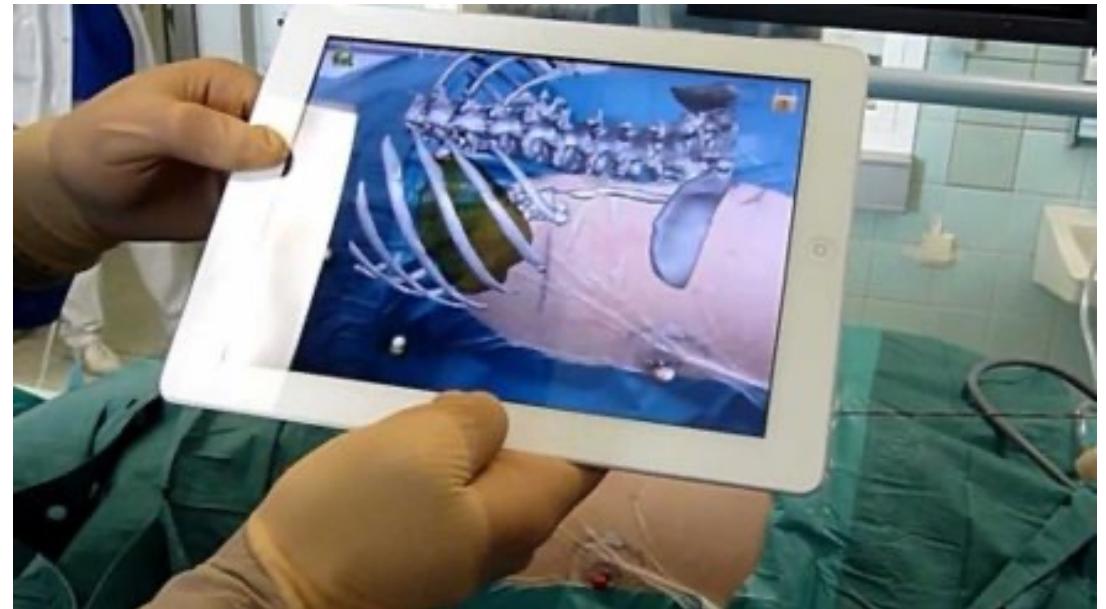
[Link to Measurements](#)

# Applications

## MR in Medicine

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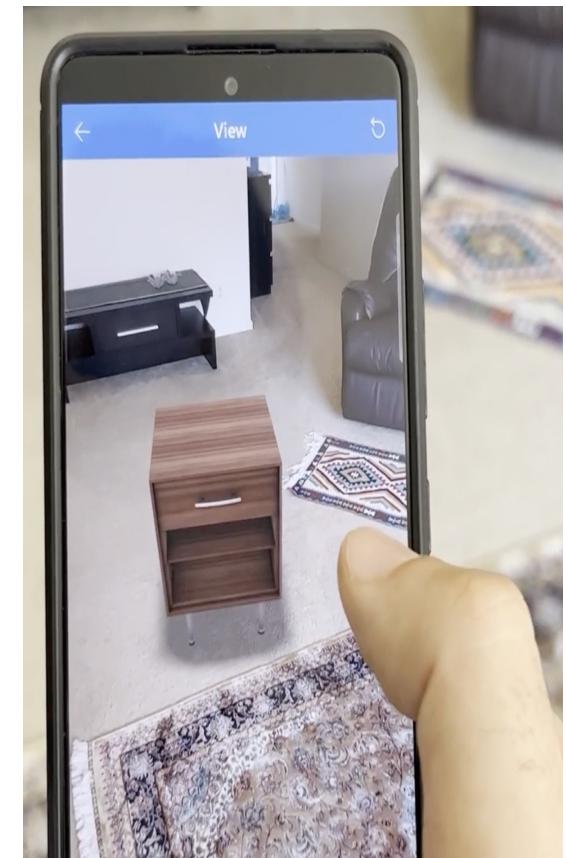
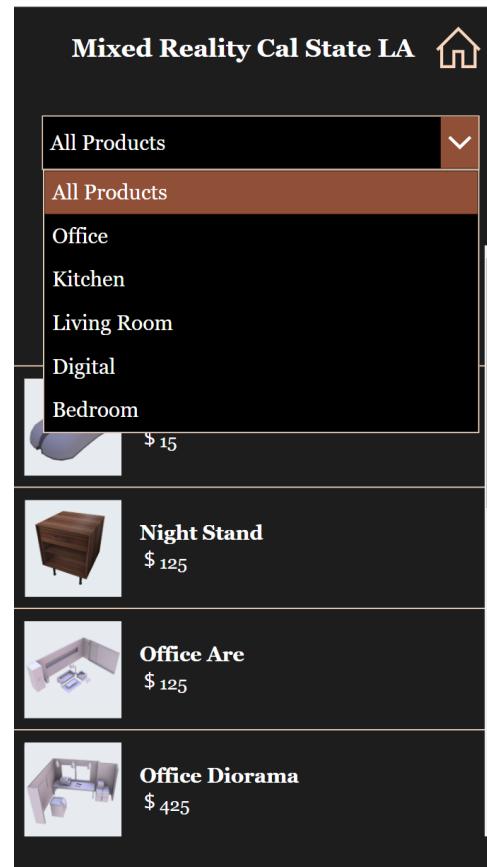
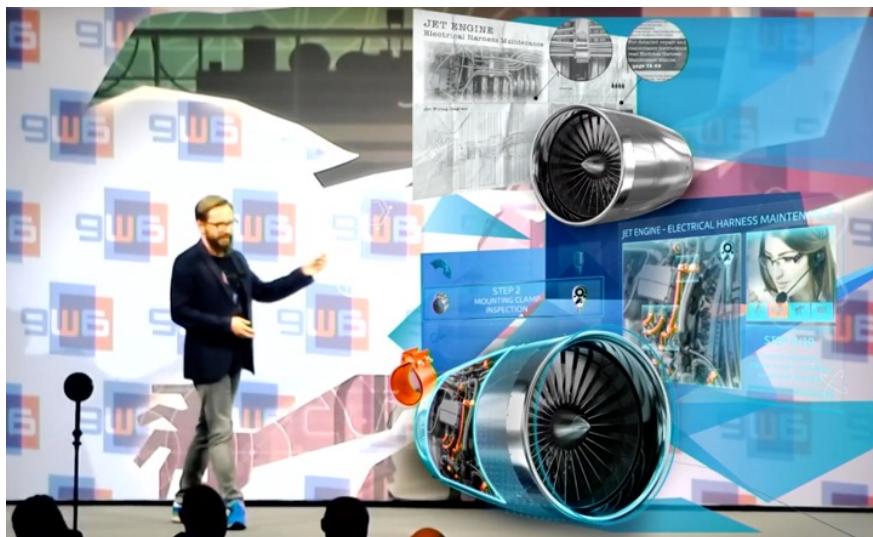
- Medicine has **impressive capabilities** with health care professionals.
- **Surgeries and Diagnosing** the disease, Mixed Reality can play a key role.
- During the outbreak of COVID-19, the HoloLens was used to **educate healthcare workers**
  - The HoloLens allowed healthcare workers to **visualize the disease** and its effects on the body in real-time.
  - **Treatment techniques can be tested**, or surgeries can be practiced amongst the profession

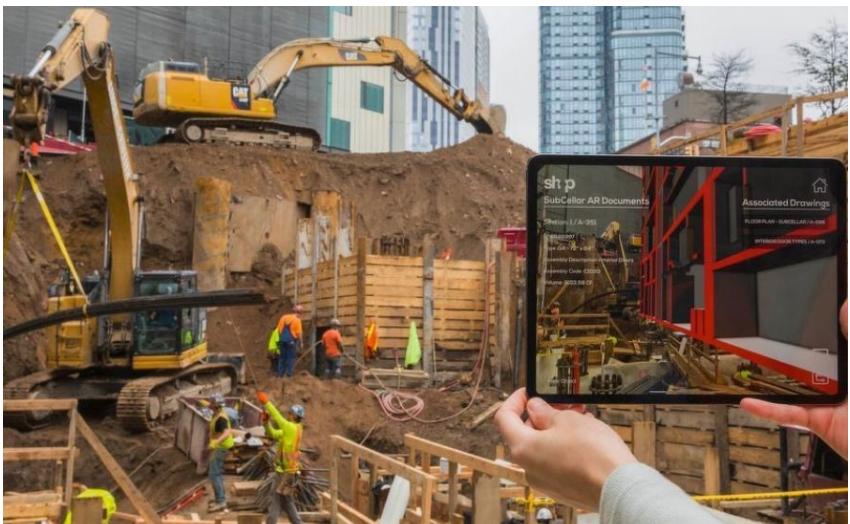


# MR in Marketing

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- You can inspect and evaluate products before purchasing them (for example, furniture, kitchens, etc.).
- Better Visualization to have better impact on customers and clients.





## MR in Architecture

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- An original renovation design can be used in a presentations, the 3D model and the entire structure can be evaluated.
- allowing the user to explore a given space in a way that accurately mimics reality.
- MR allows users to visualize architectural details on site without having to carry any cables or heavy equipment.

# MR in Education

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- Mixed reality provides educators with additional options to enhance their curriculum and the classroom experience by providing visual instruction and discussion aids.
- Enhance learning time in the classroom by enabling students to visualize trainings and concepts in 3D, while encouraging greater collaboration between educators and students



# MR in Military

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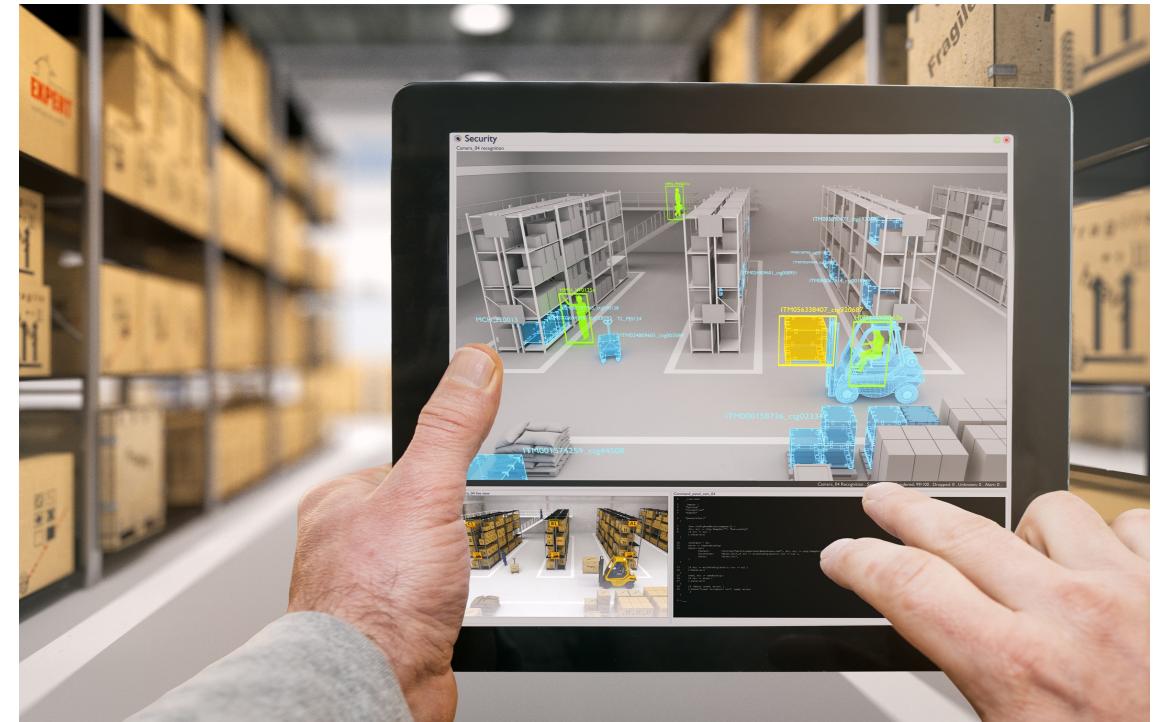
- Microsoft learned how to navigate on the ground, maneuver in the dark, and communicate in the field. The idea was to help engineers understand the challenging environments soldiers operate in, then use that knowledge to design a mixed-reality headset that will soon be rolled out to thousands of US troops.
- They'll be able to train and rehearse in more realistic scenarios using augmented reality, so they'll be better prepared to deal with whatever happens.



# MR in Retail

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- Many retail stores are now implementing MR and AR technologies within their operations. Zara, a major fashion retailer, has recently implemented the use of augmented reality for in-store customers.
- The AR experience allows customers to point their phones at mannequins to view how the outfit would appear on a real person. The customer can view a virtual model wearing the clothes they pointed their cameras at in the store.



## MR in Communication

- One of the wonders that await users in Mixed Reality is the conversation of holographic images with them.
- The distance limit in two-way telecommunications no longer makes sense.
- Users can meet their friends and acquaintances face-to-face virtually.

## MR in Telecommuting

- MR reality allows you to employ your workforce without time and space constraints.
- You can communicate with colleagues and different people anywhere in the world.



# Future Scope

**Technology** is evolving at a breakneck speed that we can't even imagine. Mixed reality, Apple refers to it as augmented reality, whereas Qualcomm refers to it as XR. Whatever word you use to describe this mixed reality technology, it will undoubtedly be massive.

We've been holding **video conferences** and calls with individuals all across the world. I agree that it is a fantastic experience, but you can make it much better with this immersive mixed reality technology. The technology will create the illusion that someone is present. This is an intriguing method of communication. Even when you are thousands of kilometers apart, modern technology allows you to communicate and manage conversations.

Another wonderful business where mixed reality will make an impact is retail. This shopping has already been made simple by the online shopping and E-commerce industries. However, the mixed reality future may alter this. With the help of reality technology, you may put on the outfit you saw online. When it comes to shopping, mixed reality will provide you with a completely new experience.

No more green screens. Anyone familiar with visual effects will recognize the significance of the green screen. Setting up the green screen and employing the motion camera is a difficult and expensive task. What if I told you that mixed reality entertainment technology has the potential to entirely replace green screen technology. We can use MixCast to erase everything in the background quickly and easily. MixCast helps you quickly create mixed reality video. Because of the MixCast, the green screen will no longer be required.



# References

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[https://www.lenovo.com/ae/en/faqs/pc-life-faqs/compare-vr-ar-mr/#:~:text=Virtual%20reality%20\(VR\)%20is%20an,additional%2C%20computer%2Dgenerated%20enhancements.](https://www.lenovo.com/ae/en/faqs/pc-life-faqs/compare-vr-ar-mr/#:~:text=Virtual%20reality%20(VR)%20is%20an,additional%2C%20computer%2Dgenerated%20enhancements.)

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[What is mixed reality? - Mixed Reality | Microsoft Docs](#)

# Thank you

