Morgan Lewis

# TECHNOLOGY MARATHON

## Protecting Computer Implemented Systems and User Interfaces Into The Metaverse and Beyond

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# Presenters

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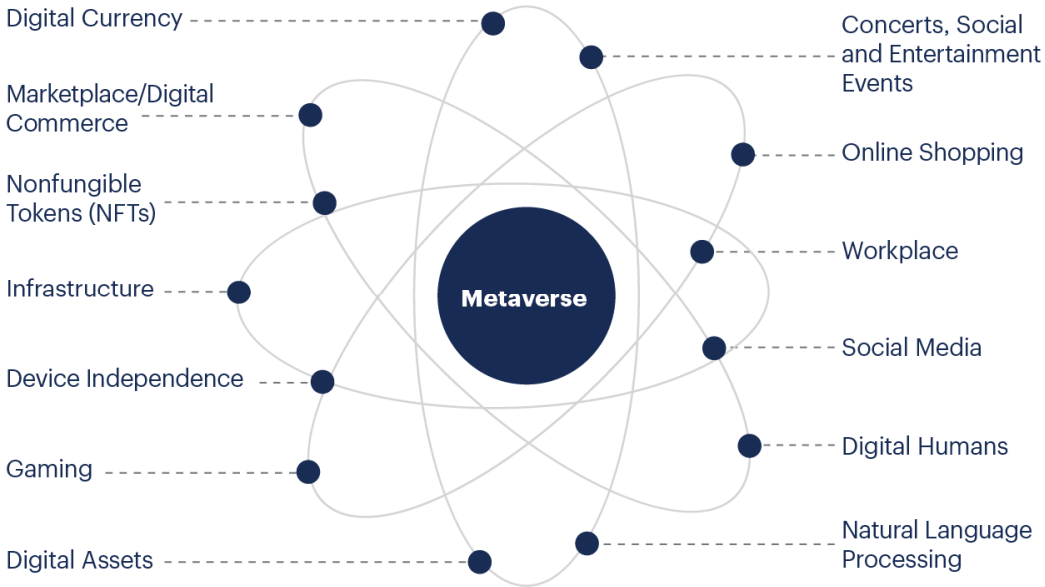
# Outline

- What is the metaverse?
- History of the web
- Intellectual property overview
- Key IP considerations
- Industrial design issues
- Content of IP filings
- Patent examples
- IP ownership
- Freedom to operate
- What's next?

# Meta what?

- Increasing permeability of the borders between digital environments and the physical world
- Often described as a hypothetical iteration of the Internet as a single, universal virtual world – a shared digital space
- May be facilitated by use of virtual and augmented reality devices
- Term was coined by Neal Stephenson in 1992 novel "Snow Crash"
- Popularized in Ready Player One (OASIS) and The Matrix

# Elements of a Metaverse




**gartner.com**

Source: Gartner



Gartner®



https://gartner.com/en/articles/what-is-a-metaverse

# The Evolution of the Web

**1990**

**Web 1.0**
Information economy
Read
Search
Desktop Infrastructure
E-commerce

**2005**

**Web 2.0**
Storage
Web as a Platform
Collaborative
Social Media
SmartPhones
Apps
Corporations monopolized internet
Platforms own and manuipulate data

**2020**

**Present**

**Web 3.0**
Token Economy
Interactive
Decentralized
Users monetize their own data
3D graphics

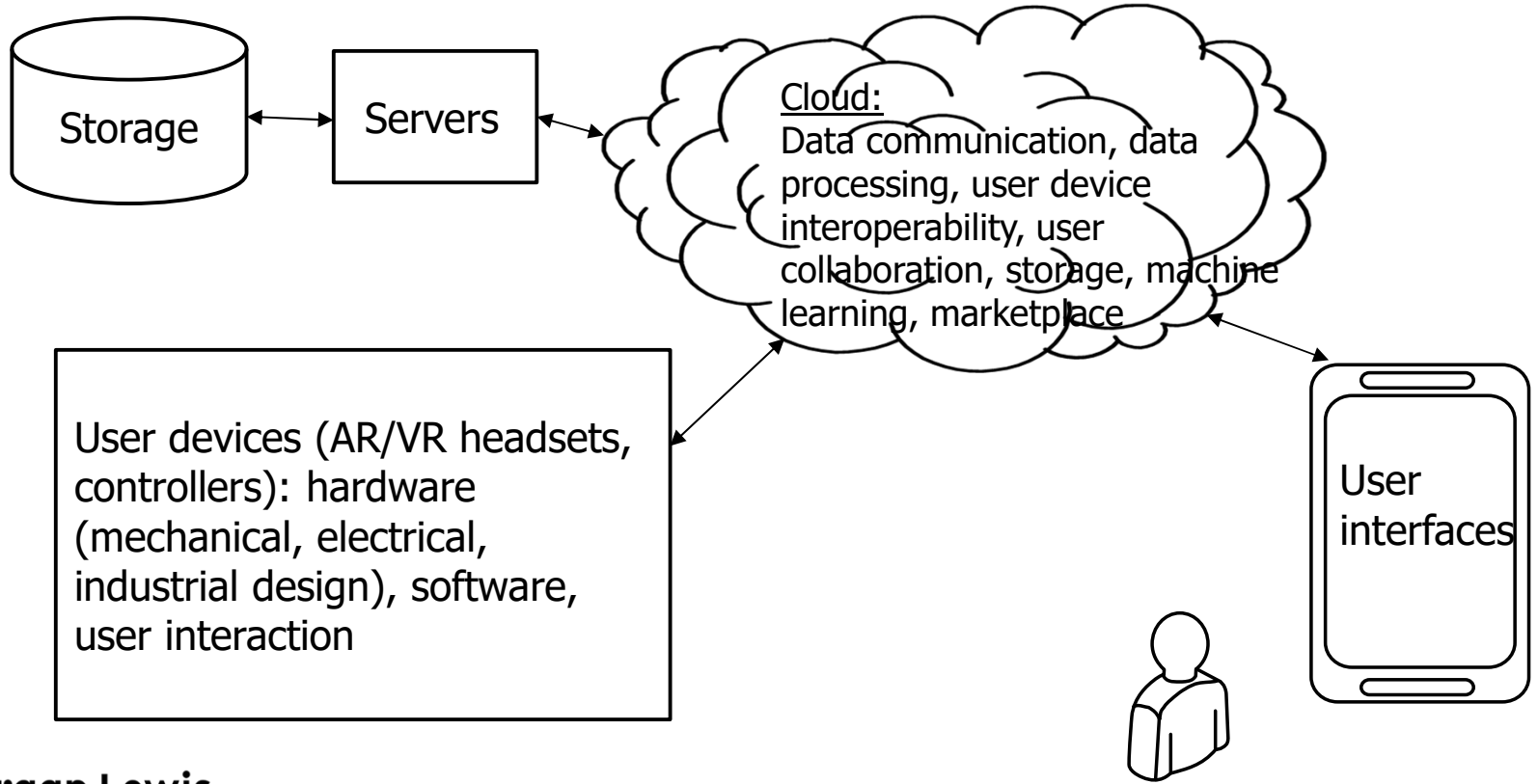
# Forerunners

- Metaverse forerunners have been around for a while, enabled by evolution of underlying technologies:
  - SGI Reality Centers (1994) – immersive visualization environment - used at R&D centers - runs on: graphics servers, high bandwidth storage, theater environment with large screen, control console – initially limited remote connectivity and collaboration - very expensive to buy and use.
  - Second Life (2003) – multiplayer virtual environment – players interact via avatars - not fully immersive – entertainment - runs on: PCs with networked servers – players interact via wired Internet - virtual goods - moderate upfront cost but many opportunities for in-world purchases – includes marketplace.
  - Pokémon Go (2016) – multiplayer augmented reality (AR) game – runs in app on mobile phones - players interact with monsters placed in game environments based on real-world location information; huge player base (1 billion downloads) – freemium model with in-app purchases

# Metaverse Technologies

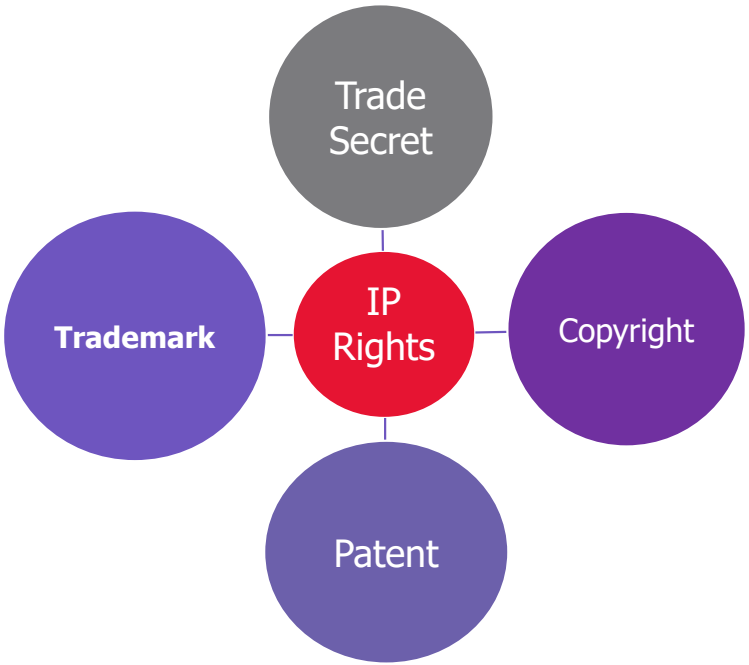
- Headsets, displays, cameras
- Software / algorithms
- Networked servers / storage
- Interoperability
- User interfaces
  - controllers
  - sensors
  - haptics
  - voice
  - audio / visual
- Power
- Processors
- Network bandwidth and latency
- Artificial intelligence / machine learning
- Blockchain transactions

# How Connected Technologies Interoperate



# Intellectual Property

- Creations of the mind that the law protects from unauthorized use.
- Categories:
  - Trademark
  - Copyright
  - Patent
  - Trade Secret

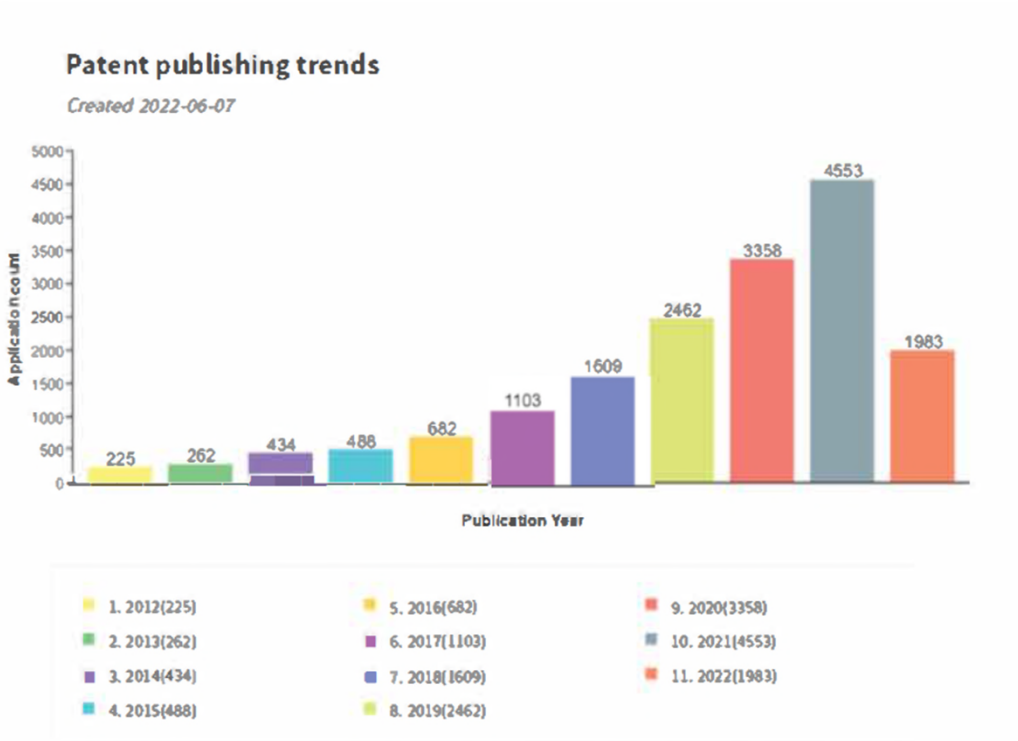


# Patent Issues in the Metaverse

- Utility Patents
  - 35 U.S.C. §101 (patentable subject matter in USPTO)
    - "Laws of nature, natural phenomena, and abstract ideas are not patentable." Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 134 S. Ct. 2347, 2354 (2014)
    - "[M]ere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention. *Alice Corp.*, 134 S. Ct. at 2355, 2358
  - Technical effect (EPO)
    - Technical effect evaluated in view of technical differences between closest prior art and claimed subject matter
    - Formulate objective technical problem solved on the basis of this effect
    - Was it obvious for a skilled person to use the differing features to solve the objective technical problem?
  - Prior art
    - Build application and claims to distinguish over forerunner technologies
- Design Patents
  - Article of manufacture
  - GUI
  - Physical items in virtual environments

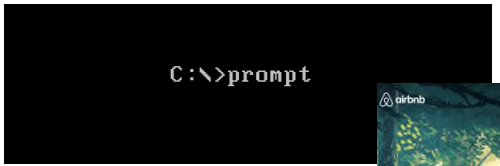
# Patent Filing Trends

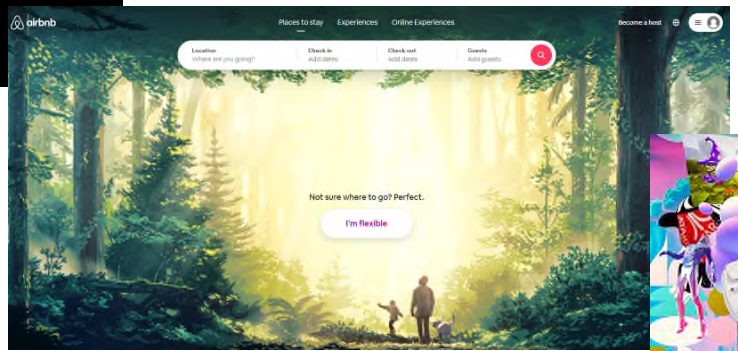
- Increase in patent publications since 2012 that recite VR, AR, MR or XR in the claims.
- Other metaverse-related terms used in claims show similar trend.



# Industrial Design

- Industrial design is the process of applying ornamental design to useful articles of manufacture




# Design Related GUI Trends

- Unwritten USPTO Rules and Examiner preferences
- More Immersive and Interactive Displays
- People Willing to Pay for More Services
- Tying of Brand to UI and Products
- Increase in Employee Mobility
- Uncertainty of Utility Protection
- View and Test in Virtual World Before Buying
- Digital Products

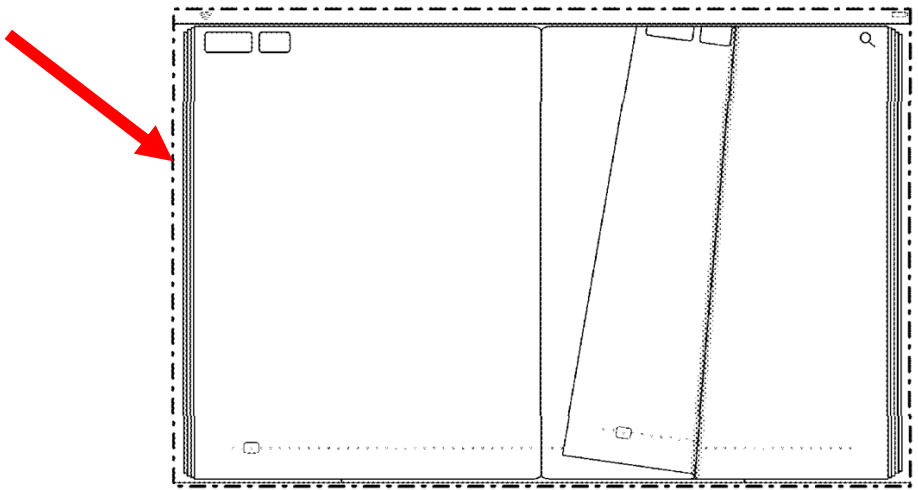

N
Samsung
837x
E
S
amsung 837x
Decentraland
837x
SAMSUNG
Welcome to realm athena!
Type /help for info about controls

# Design Patents

- Protect ornamental features of a useful article
- Referred to as industrial, community, or registered designs outside of the U.S.
- Protection rights are defined by the drawings
- Functional elements permitted, but can not claim a "primarily functional" design
- Foreign priority filing deadline is 6 months from first filing
- Domestic priority can be claimed in the U.S. to utility applications but not provisional application
- Average time to registration is 1-2 years but can be expedited (Rocket Docket)
- Term is 15 years from grant (14 yrs. for patents filed before 5/13/15)

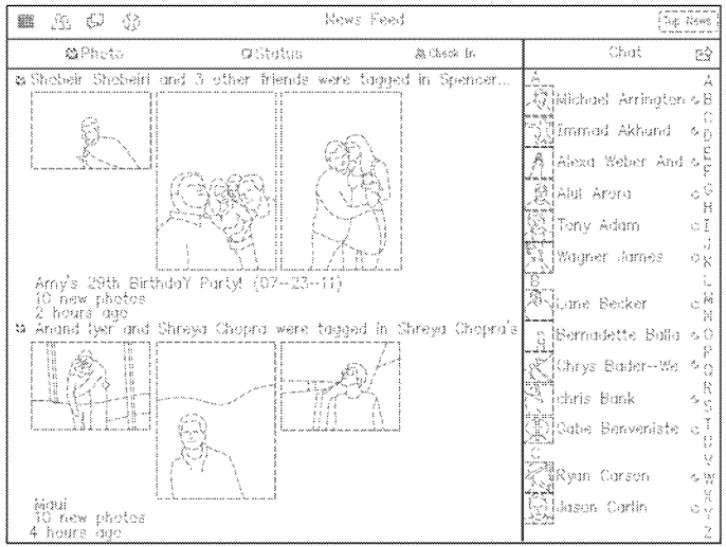
# Article of Manufacture (AoM)

- This may change, but for now, GUI must be tied to a display screen.
- Europe doesn't require display screen so be careful if filing in the US off of an EP priority doc



# GUI Rejections

- Recent increase in rejections for common geometric shapes
- Reluctant to allow collection of “Boxes and lines”
- Examiner prior art guide
- AI searching coming soon?
- Consider layers of novelty



# Notes from an Examiner Panel

- Only one examiner in 2007 for GUIs.  Now there are 17 or so focused on designs (out of 200 total for designs).
- Other than AoM border, examiners generally try to treat the same as "3-D" designs
- Overly vague title
  - Tends to be more common in UI space
  - Describe more detailed description in spec or appendix
- Color doesn't show up on search
- Speeding up prosecution
  - One drawing per page at set location
  - Use PTO IDS forms
  - Rocket Docket

# Protecting Computer Implemented Systems and GUIs

First and foremost, build up your IP portfolio!

*What to build?*

*How to build?*

*How to use?*

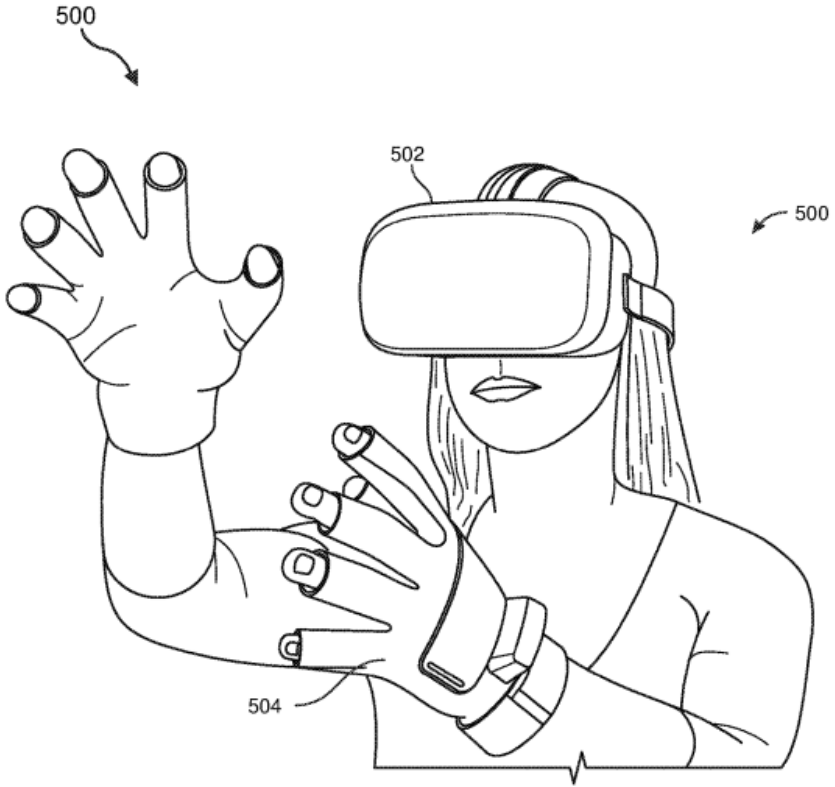
# Content of IP Filings

- Distinctions over prior generation products with similar functionality and resulting technical advantages
- Cloud infrastructure
- Apps (algorithms and UI/UX – show screens and progressions)
- On-Device UI/UX (algorithms and UI/UX)
- User interactions with product/environment
- Exploded mechanical views of product (boards, connectors, housing, electrical, optics, ICs, buttons, sealing)
- Product photos, screen captures, 3D renderings

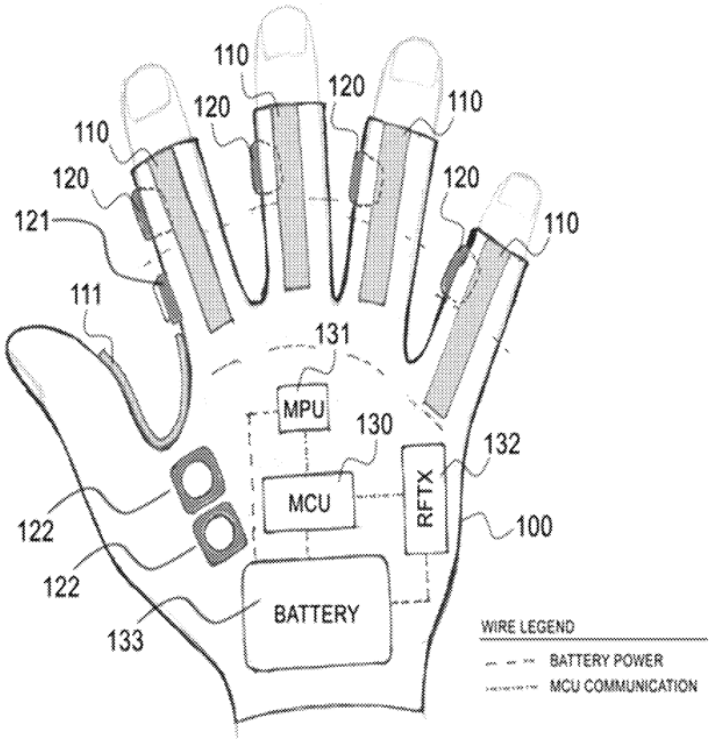
# Content of IP Filings

- Trade secret vs Patent
- Product Industrial Design
  - Alternate Designs and feature combinations
  - Partial designs
  - Physical and virtual displays
- Ring Fencing
  - Problem solution approach
  - Alternative arrangements of components, materials, allocation of processing (e.g., on device vs. cloud), uses
- Future
  - Changes in product due to foreseeable changes in technology
  - Prophetic examples

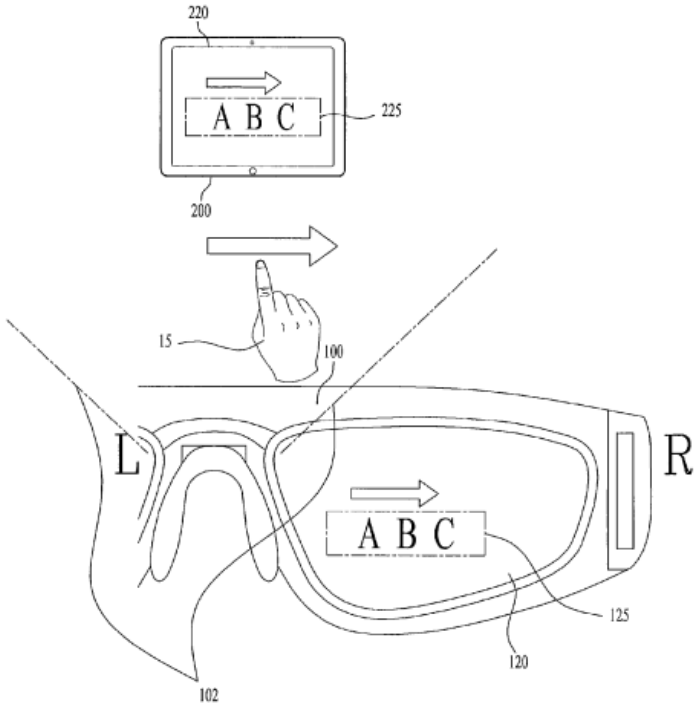
# 1. Utility/design – Headsets and controllers



# 2. Utility/design – Physical Input/feedback Devices



# 3. Utility – Electrical – Output/Display Device



# 4. Utility – Software

# 5. Utility – Cloud Processing

**METHOD AND SYSTEM FOR MOTION VECTOR-BASED VIDEO MONITORING AND EVENT CATEGORIZATION**

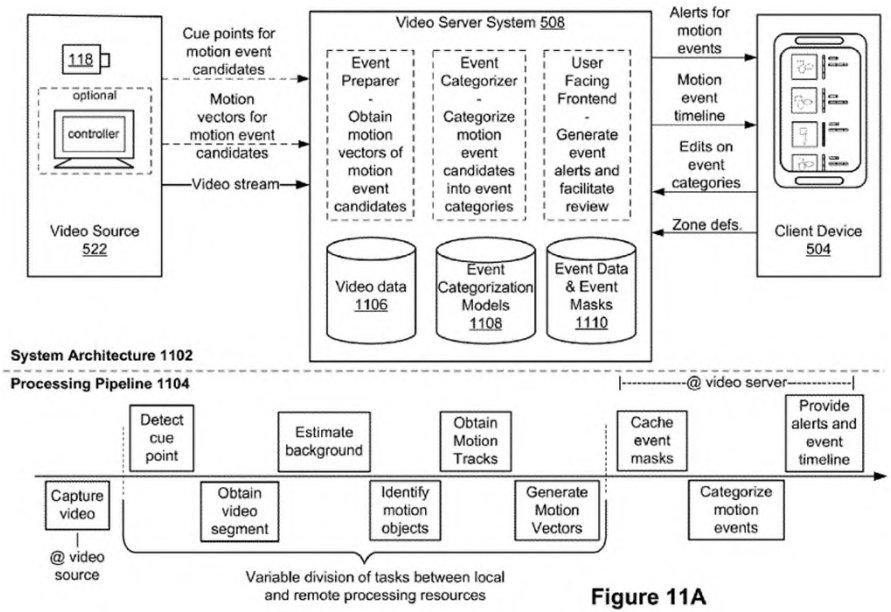


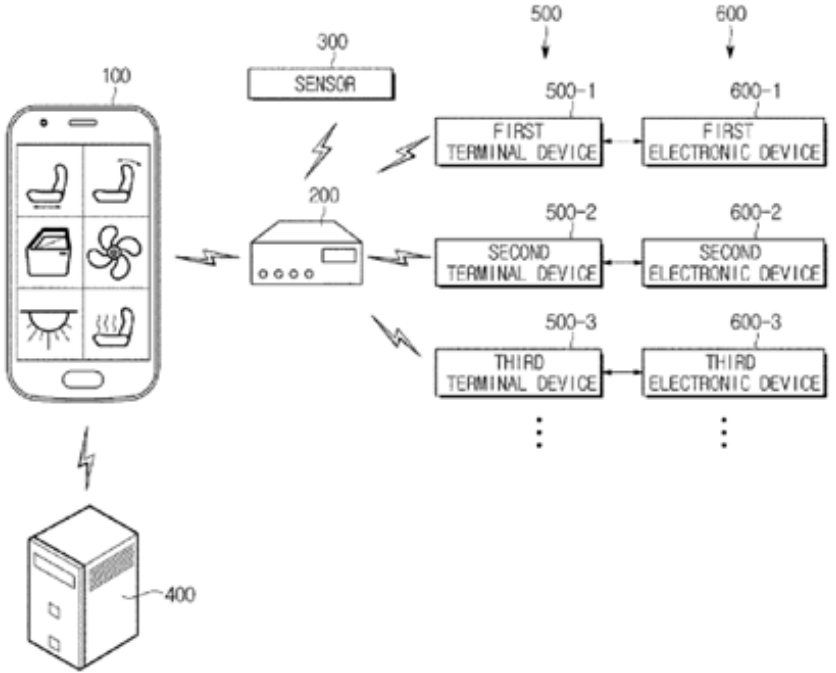

Figure 11A

# 6. Utility – Client Device Applications


Source: https://www.canr.msu.edu/news/msu-assistant-professor-hosts-class-inside-an-immersive-3d-vr-environment

# 7. Utility – Interoperability / Internet of Things (IoT)

FIG.4



# 8. Utility – Speech/Voice – Natural Language Processing

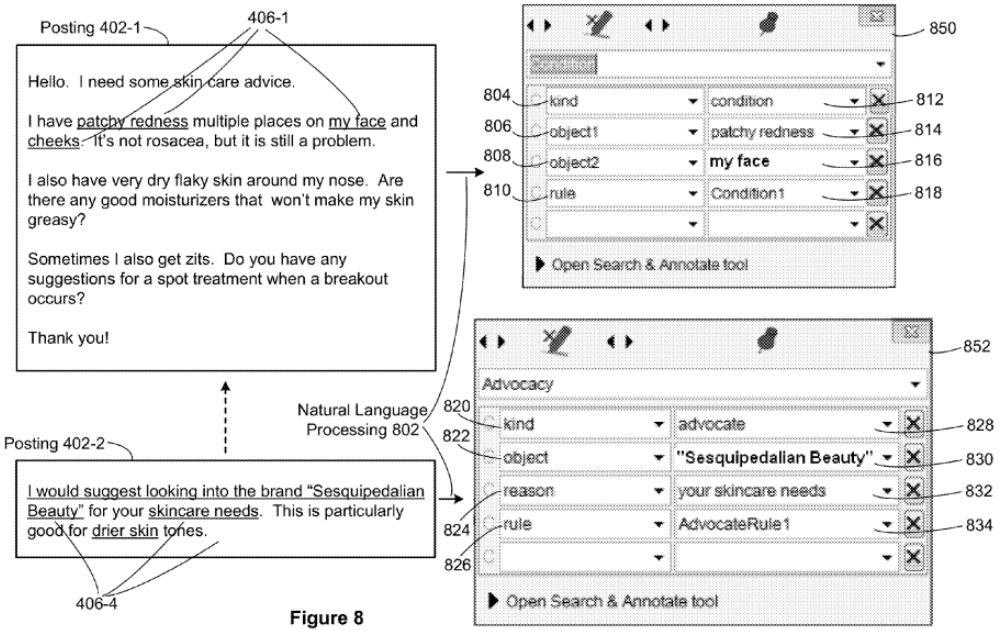



Figure 8

# 9. Utility - Blockchain

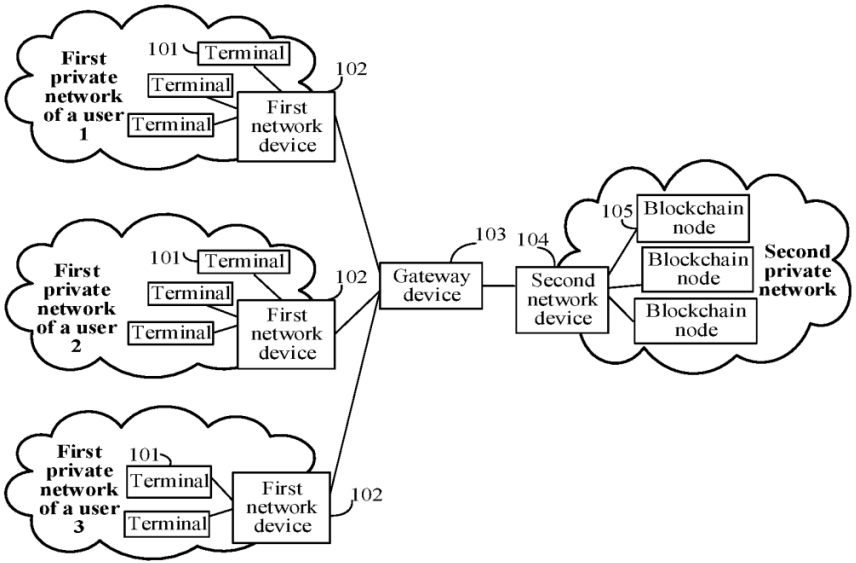
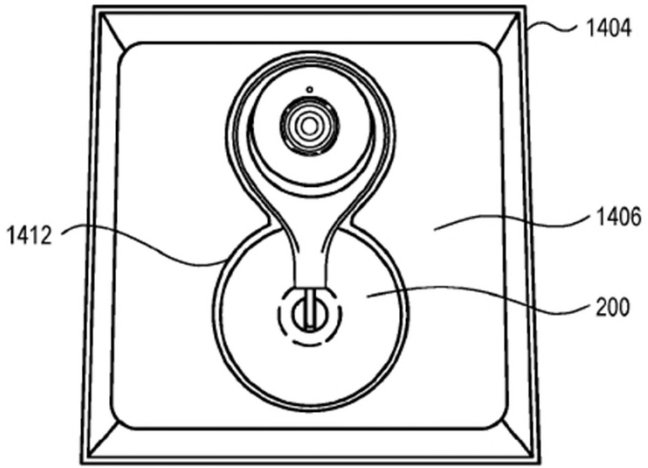



FIG. 1

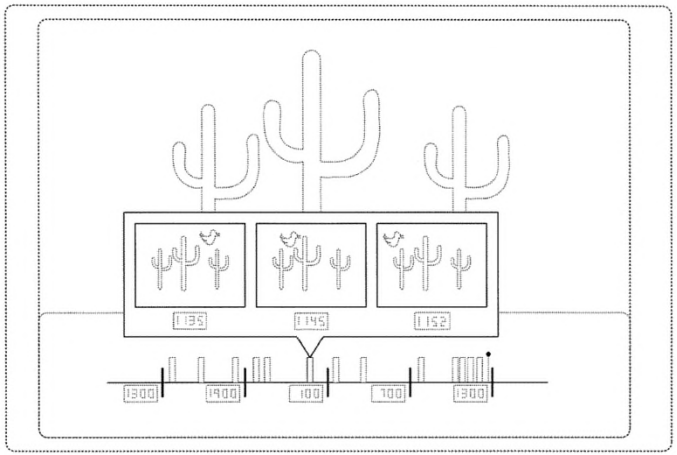
# 10. Utility/design – Packaging

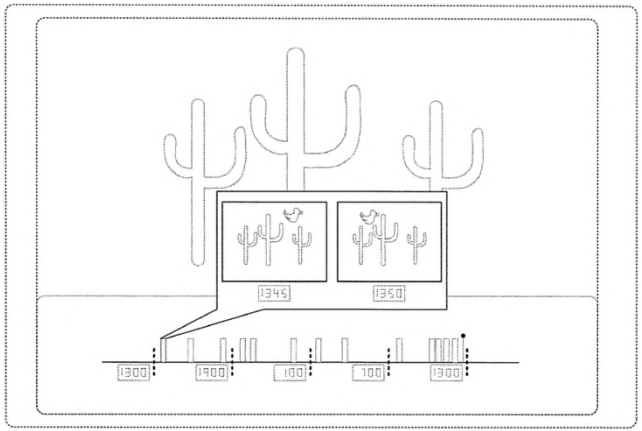
METHOD OF PACKAGING CAMERA
FACILITATING EASE OF INSTALLATION



# 11. Design – GUI

DISPLAY SCREEN OR PORTION THEREOF
WITH GRAPHICAL USER INTERFACE



# Key IP Considerations

- Protect your IP
  - Consider IP strategy upfront
  - Timely file for protection
  - Keep in mind what is considered a trade secret or confidential
  - Mark company IP (e.g., patented, patent pending, ®, TM, ©, confidential)
- Ensure that you or your company own all company IP
  - Read all contracts carefully
  - Consider existing obligations
  - Have employees and consultants execute the proper agreements
  - Have third parties that have access to company IP execute a confidentiality agreement before sharing confidential information
- Avoid infringing others IP
  - Be proactive.  Conduct trademark and patent searches upfront and periodically refresh
  - Can the 3rd party IP be licensed, purchased, or designed around?
  - Minimize written communication regarding potential problems with third party IP

# IP Ownership

- Chain of Title
  - Chain of title cannot be an open question:
    - should own or license all IP important to the business
    - Be aware of any agreement you sign relating to IP. Employment/consulting agreements often have very broad scope assigning all IP
  - **Assignments**
    - Procure Assignments from both Employees **and** Consultants
    - Check the Assignment Terms
      - Assignor "*hereby* assigns"
      - Assignment includes all rights without conflicting obligations
  - **Licenses**
    - Acquire licenses for key intermediates/processes
    - Secure rights for all "pieces" of the technology

# And Beyond…What's Next?

- IP laws within the metaverse
- Updates to AoM law for design patents
- Standard interfaces / interoperability
  - E.g., for smart homes, Connected Home over IP, or CHIP
  - Will potentially open field to new, smaller competitors
- New Applications that integrate physical and virtual worlds
  - Education
  - Laboratory
  - Medical
  - Arts
  - Performance

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# QUESTIONS?

# Biography

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Douglas J. Crisman brings the perspective of a software designer and intellectual property (IP) director for a leading computer hardware company to his patent law practice, which includes patent preparation, licensing, and prelitigation opinions, as well as IP transactions, due diligence, and counseling. He routinely works with standards-setting bodies and consortia on IP issues, and provides advice on strategic IP management and open source legal issues ranging from software development to code review and licensing.

# Biography

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John Hemmer focuses on patent counselling in the mechanical engineering, industrial design, and life science fields. He collaborates with clients – from startups to Fortune 100 companies – to help them identify patenting opportunities, protect and leverage competitive advantages, manage patent portfolios, and avoid patent infringement. John also prepares and negotiates technology agreements, counsels clients on matters relating to litigation and patent challenges, and works with clients on employment, licensing, investment, merger and acquisition agreements, initial public offerings, and IP due diligence.

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Drawing on a background in electrical and computer engineering, Michael S. Ryan works with clients to protect and maximize the value of their intellectual property, preparing and prosecuting US and foreign patents, performing patent due diligence, and providing noninfringement and invalidity opinions and freedom to operate reviews in the business method/software, computer, and mechanical arts.

## Our Global Reach

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Asia Pacific
Europe
Latin America
Middle East
North America

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New York
Nur-Sultan
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Philadelphia
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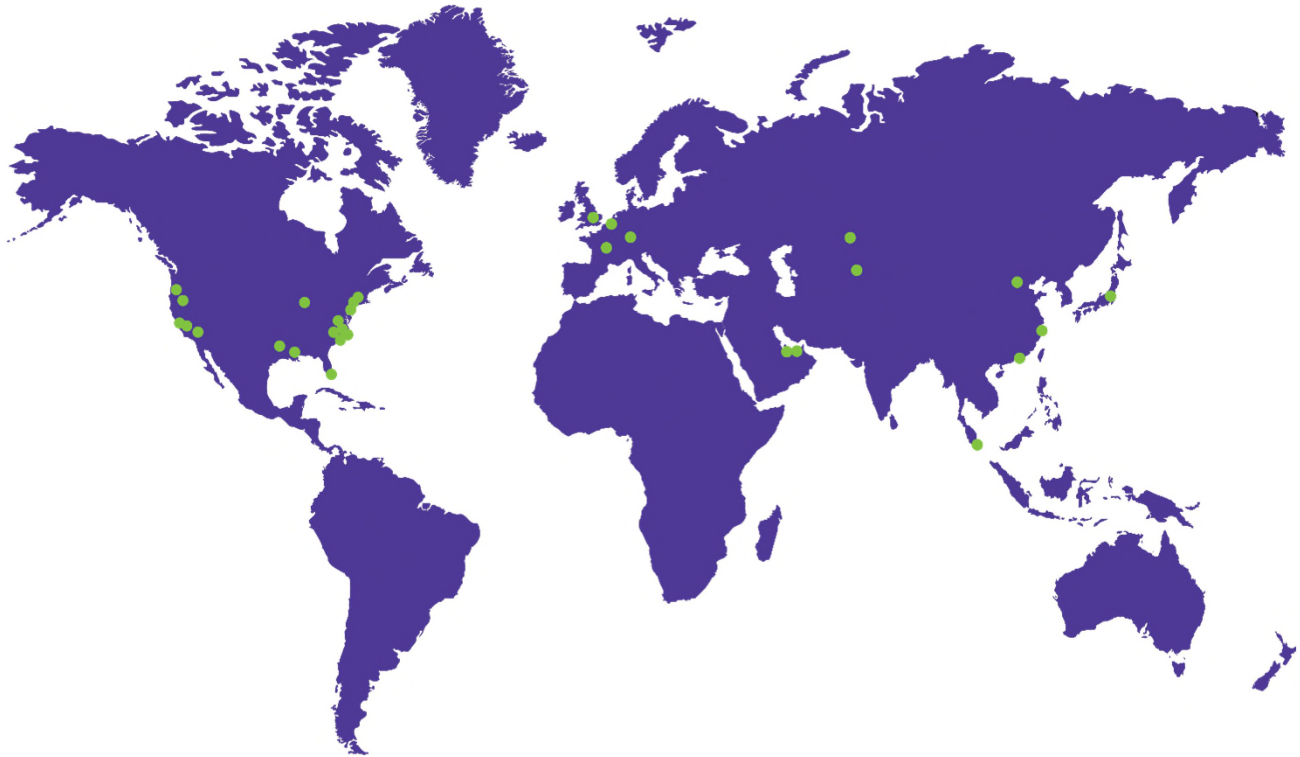
Wilmington



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