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## Augmenting your IP portfolio is virtually the only way to compete in AR/VR



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Finnegan, Henderson, Farabow, Garrett & Dunner, LLP experts Christopher Howes, Zachery Olah, Forrest Jones, and Karthik Kumar, discuss the developments in the augmented and virtual reality sphere with advice for protecting innovation.

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# Augmenting your IP portfolio is virtually the only way to compete in AR/VR

Finnegan, Henderson, Farabow, Garrett & Dunner, LLP attorneys Christopher Howes, Zachery Olah, Forrest Jones, and Karthik Kumar, discuss the developments in the augmented and virtual reality sphere with advice for protecting innovation.

After the COVID-19 pandemic struck last year, people across the globe were in need of an escape more than ever. While most people were stuck inside commiserating with family and friends about when they could leave, some were exploring a whole new world right in their homes. Through augmented and virtual reality (AR/VR), people could experience nature around the globe or be dropped into their favorite video game from

their couch, an idea that was science fiction not so long ago.

While many think of AR/VR as being tied to the gaming industry—we all remember the summer Pokémon Go spread like wildfire—recent developments in this technology are making it more possible for AR/VR to spread throughout various industries, and become a much more common part of our lives. Paired with the need for industries to adapt to modern





## Résumés

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Karthik Kumar



Christopher Howes



Forrest Jones



Zachery Olah

work-from-home business models, it is no surprise that AR/VR is making its way into every business from medicine to manufacturing. Because of this, it is more important than ever for companies innovating in this technology space to understand the need for intellectual property protection.

But how to prepare for this new world? The savvy should familiarize themselves with the current IP and technology development trends in the AR/VR world across companies large and small. Viewing these, it quickly becomes clear that thinking about IP now rather than later is vitally important for small or mid-sized companies that want to compete in the AR/VR market.

### Large companies: creating IP war chests & their overlapping technology

Perhaps it is not a surprise to learn that large, well-known technology companies have begun to develop and invest money in AR/VR technology. In addition to filing patents protecting home-grown research and development, companies are seeking to purchase patents as well. We have seen industry giants like Apple following this trend. In fact, since 2015 Apple has acquired nearly 400 United States patents related to AR/VR technology.<sup>1</sup>

Additionally, other big companies, including Microsoft, Alphabet, and Facebook, are also heavily involved in acquiring AR/VR patents. Since 2015, these four companies alone have acquired over 2,500 United States patents covering AR/VR technology.<sup>2</sup>

While each of the above-mentioned companies are not exclusively focused on the same AR/VR applications, they all are or have been rumored to be working on developing technology related to smart glasses.<sup>3</sup> Facebook showed its interest in AR/VR early on with its acquisition of the virtual reality company Oculus in 2014. Facebook is not stopping there, however, as it announced in September 2020 that it plans to partner with world famous Ray-Ban owner Luxottica in the design of smart glasses.<sup>4</sup> Google was one of the first companies involved in the smart glasses market with its release of Google Glass in 2013. Since then, the company has continued its development of technology in addition to expanding its market share by acquiring smaller companies working in this space. For example, last year Google acquired a company called North, a startup company focused on developing smart glasses as well.<sup>5</sup> Apple is rumored to be coming out with its first smart glasses-type product and appears to have invested in this realm through its acquisition of augmented reality software and hardware companies.<sup>6</sup> Finally, in November 2019 Microsoft released its



new mixed reality headset, Hololens 2, with a focus on implementing mixed reality technology in manufacturing, healthcare, and education.<sup>7</sup>

In arriving at the era of smart glasses, we have seen large companies drive the development of AR/VR technology through developments in other areas such as gaming. For example, Nintendo's AR/VR technology dates back to the first portable console that displayed 3-D graphics, Virtual Boy, in 1995.<sup>8</sup> More recently, it has acquired over 60 United States patents related to AR/VR since 2015.<sup>9</sup> Sony's PlayStation has also driven AR/VR development that could eventually have larger implications outside of gaming. Sony's interest in AR/VR technology is not only evidenced by their acquisition of over 380 United States patents related to AR/VR since 2015, but also their acquisition of one of the most experienced VR game studios, Insomniac Games, in 2019.<sup>10</sup>

The business models and approaches taken by the industry leaders mentioned above

“ They all are or have been rumored to be working on developing technology related to smart glasses. ”

highlight the importance for mid-sized and small companies of strategically growing their IP portfolios while developing and commercializing their technology in order to effectively compete in the AR/VR market.

### Smaller companies: their role in developing important improvements to AR/VR technology

While many large companies are consolidating their intellectual property in this space, a lot of the new development is happening with smaller companies. Acquiring IP protection appears to be one way to help your new company stand out.

While smart glass technology on its own appears nearly ready to shake up our everyday lives, AR/VR technology is expanding, quite literally, into every business sector imaginable. For instance, we have already seen augmented reality stretch into the medical sector. One example related to the medical industry is the

<sup>1</sup> All references to patent acquisition statistics come from reports provided by Innography (Innography is a trademark of Clarivate and its affiliated companies).

<sup>2</sup> Patent Acquisition Breakdown: Microsoft (1,777 U.S. Patents), Alphabet (612 U.S. Patents), and Facebook (384 U.S. Patents).

<sup>3</sup> <https://www.cnbc.com/2021/02/20/apple-facebook-microsoft-battle-to-replace-smartphone-with-ar.html>

<sup>4</sup> <https://www.cnbc.com/2021/02/20/apple-facebook-microsoft-battle-to-replace-smartphone-with-ar.html>; <https://www.cnbc.com/2021/03/08/mark-zuckerberg-how-smart-glasses-could-help-combat-climate-change.html>

<sup>5</sup> <https://www.cnbc.com/2021/02/20/apple-facebook-microsoft-battle-to-replace-smartphone-with-ar.html>; <https://www.bynorth.com>

<sup>6</sup> <https://www.cnbc.com/2021/02/20/apple-facebook-microsoft-battle-to-replace-smartphone-with-ar.html>; <https://www.businessinsider.com/apple-acquires-spaces-virtual-reality-buying-spree-2020-8> (stating that Apple acquired Spaces and NextVR, VR experience creators, in 2020; Akonia Holographic, AR glasses maker, in 2018; and Vrvana, AR and VR headset maker, in 2017).

<sup>7</sup> Id.; <https://www.microsoft.com/en-us/hololens/industry-education>

<sup>8</sup> <https://learn.g2.com/history-of-virtual-reality>

<sup>9</sup> Innography search (Innography is a trademark of Clarivate and its affiliated companies).

<sup>10</sup> Id.; <https://www.roadtovr.com/sony-acquires-insomniac-games-strategic-blow-oculus-studios/>



developments by a company named Taiwan Main Orthopaedic Biotechnology Co., Ltd. Taiwan Main created a line of surgical smart glasses, under the brand name Surglasses, supported by at least three granted and three pending U.S. patents.<sup>11</sup> The Surglasses product offers a surgical pair of glasses that use mixed reality technology to provide 3D models of the patient's anatomy while tracking relevant data like the trajectory of the surgeon's instruments.<sup>12</sup>

Another company pushing the envelope in the smart glasses space is Mojo Vision. Mojo Vision has been researching and developing a smart contact lens that implements AR/VR technology and is protected by over 100 patents dating back to 2008.<sup>13</sup> Specifically, Mojo Vision is using augmented reality, coupled with microdisplays and microelectronics, to display information onto the world in front of the user without requiring the user to change their outward facing appearance.<sup>14</sup> As you would imagine, this technology has not gone unnoticed as evidenced by Mojo Vision's series B round of funding. Mojo Vision recently secured investments from large companies like LG Electronics, HP Tech Ventures, and Google's Gradient Ventures.<sup>15</sup>

The automotive industry has also welcomed AR/VR technology into its ultra-competitive market. Envisics, for example, is utilizing augmented reality in developing heads-up display technology for the automotive sector. With this technology, and over 250 patents with more than 150 patents pending, Envisics has secured investments from companies like Hyundai Mobis and General Motors Ventures during their series B funding round.<sup>16</sup> The relevant technology created by Envisics overlays distraction free driving information onto the driver's real-world view within the field of view. Importantly, this eliminates the need for the driver to take his or her eyes off the road when driving, improving road safety and enhancing the ability to make more informed decisions.<sup>17</sup>

While these examples feature just a few smaller companies playing a vital role in

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The  
Surglasses  
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offers a  
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to provide  
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the patient's  
anatomy  
while  
tracking  
relevant  
data like the  
trajectory  
of the  
surgeon's  
instruments.”



expanding AR/VR technology, their stories are exemplary of how AR/VR development pushes forward. And the interest they receive from larger companies underlies the need for IP protection no matter the size of the company.

#### Conclusion: the only way to compete is with IP rights

In the examples outlined in this article, the end products among these companies are focused on distinct industries, but the technology underlying these AR/VR products is oftentimes not so different. It is apparent that all of these companies are focused on developing technology that either immerses the user into a digital environment – the case with virtual reality – or projecting digitally created elements onto the user's view of the outside world – the case with augmented reality. So, if all these companies are involved in different industries but create and develop possibly overlapping technology, the natural question is this: How does a company protect itself and its potentially global technological developments? The answer is pursuing IP protection.

One of the most relatable recent big technological shifts, that some say AR/VR technology has the potential to match,<sup>18</sup> was the development of the smartphone. Now that the smartphone has become an everyday accessory, so too have the hundreds of thousands of technological advancements present in each smartphone. Each of these developments is protected by specific individual patents.

As this technology became mainstream, we saw a technology development trajectory similar to the one discussed above where smaller companies focused on specific developments and large companies created IP war chests to cover their end user products. This led to massive patent litigation cases known collectively as the smartphone wars. And, as we saw with the smartphone wars, it is not always the end user product at issue but sometimes the underlying technology at the center of the

dispute. Additionally, many of the parties involved with the smartphone wars had existing relationships while also working to extend their IP portfolios. Google's acquisition of Motorola Mobility to add the hardware IP to Google's Android software is just one well known example of these types of relationships.<sup>19</sup>

Without IP portfolios, many mid- and small-sized companies would not have been able to compete. While their technology was groundbreaking, larger companies were most interested in the IP covering their technology. Their IP is what led to financial gain when smartphones boomed because they could license their IP or sell it outright to larger companies with the ability to use and produce end user products with that technology.

With such widespread development in the AR/VR technology space and the growing interest from larger technology companies as shown by their recent interest in AR/VR patent acquisitions and investments, it is easy to see why parallels are being drawn between the AR/VR industry and the smartphone industry. Time will tell whether the AR/VR software and hardware market will become the next big area for company partnerships and possible litigation, but one thing is for sure, intellectual

“  
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property protection will be a must for any company seeking to legitimately compete.

For more information on how AR/VR developers can protect their IP, please see our various Finnegan blogs and articles posted on our website.<sup>20</sup>

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<sup>11</sup> <https://www.surglasses.com/surglasses/index.html>; <http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=%2Fmeta.html%2F>

<https://www.surglasses.com/surglasses/index.html>; <http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=%2Fmeta.html%2F>

<sup>12</sup> Taiwan Main Features: <https://www.prnewswire.com/news-releases/breakthrough-in-medical-electronics--a-novel-mixed--augmented-reality-smart-glasses-surgical-navigation-solution-300972026.html>

<sup>13</sup> <https://spectrum.ieee.org/view-from-the-valley/consumer-electronics/portable-devices/ar-in-a-contact-lens-its-the-real-deal>; <https://www.fastcompany.com/90441928/the-making-of-mojo-ar-contact-lenses-that-give-your-eyes-superpowers>

<sup>14</sup> Mojo Lens: <https://www.mojo.vision/mojo-lens>

<sup>15</sup> <https://venturebeat.com/2019/03/19/googles-gradient-ventures-joins-58-million-investment-in-ar-startup-mojo-vision/>

<sup>16</sup> <https://envisics.com/news/automotive-leaders-invest-in-pioneering-holographic-technology-company-envisics/>; <https://techcrunch.com/2021/01/08/holographic-startup-envisics-partners-with-panasonic-to-fast-track-in-car-ar-tech/>

<sup>17</sup> Envisics website: <https://envisics.com/our-story/>

<sup>18</sup> <https://www.cnbc.com/2021/02/20/apple-facebook-microsoft-battle-to-replace-smartphone-with-ar.html>

<sup>19</sup> <https://www.google.com/press/motorola/>

<sup>20</sup> <https://www.finnegan.com/en/insights/articles/utility-patents-what-game-developers-should-know.html>; <https://www.finnegan.com/en/insights/articles/what-game-developers-should-know.html>



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