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## THE LEGAL ISSUES THAT STARE AT AUGMENTED/ VIRTUAL REALITY

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### ABSTRACT

There is no denying of the impact this revolutionary virtual reality (VR) and augmented reality (AR) technologies are bringing to this world. But with its quick blender in our societies, it gives rise to a multiple of legal issues especially in the area of Indian cyber law. This article discusses few legal issues connected to the Virtual Reality and Augmented Reality, such as intellectual property issues as well as the privacy issues, data security and emerging forms of cybercrime in VR and AR. It examines the interface of these technologies with the already there few legislations in India, such as Copyright Act, 1957 and Information and Technology Act, 2000 and tries to find where it lacks, which might not be appropriate to protect these particular complications of Virtual Reality and Augmented Reality space. The paper also notes for a strict debate on the need for proper regulations to mitigate risks and promote the responsible to the development and use of the Virtual Reality and Augmented Reality in India, ensuring a balance between innovation and the protection of individual rights.

**Keywords:** Virtual Reality, Augmented Reality, Cyber Law, India, Intellectual Property, Privacy, Cybercrime

### INTRODUCTION

Virtual Reality (VR) and Augmented Reality (AR) are rapidly changing the way we interact to the world. From AR and VR immersive gaming experiences to revolutionizing healthcare and education, these technologies will hold immense promise. The phrase 'Metaverse' has been undoubtedly heard by many person with an interest in the cutting-edge of this new technology. Technology companies throughout the worldwide have been investing heavily in the Metaverse, to the extent that even Facebook and Instagram as changed its name to 'Meta'. This AR and VR technology will be undoubtedly have a significant impact in our society. And, like any other innovation, Metaverse comes with many legal issues that has to be talked and find a way to resolve it. The article also discusses about the Metaverse and some of the areas of law that it would affect the society a larger. However, as VR and AR become increasingly

interact with our daily life, they will raise significant legal challenges, specifically within the area of Indian cyber law. This article also looks more deep into these challenges, examining the complexities and highlighting the need for strict legal frameworks to navigate this new evolving technological landscape.

### VIRTUAL REALITY

Virtual Reality (VR) is a virtual environment world which is mentally similar to the sensation of the normal scenes and objects that can look alike, enabling the user to feel in a Virtual world environment. The environment is experienced via a Virtual Reality headset or helmet which will be like as in the real life world. So, we can use VR to put ourselves inside a video game as one of the characters or learn how to perform a heart transplant or just optimise training for the sport so you can perform well at the race.

VR headsets completely take over our vision to give us the impression that we are somewhere else. The PlayStation VR 2 or the Meta Quest 2 or the Valve Index, and other headsets are opaque, cannot see the surroundings when you wear them. If you put them on when they're turned off, we might feel as if we are eye folded. When the headsets turn on, however, the LCD or OLED panels that are inside the headset are refracted by the lenses to fill the field of vision with whatever is being displayed in the headset. It can be a any game, a 360-degree video game, or just the virtual space of the platform's interfaces. Visually, we are taken to the place wherever the headset wants you to go the nature world is replaced with a virtual one<sup>116</sup>.

### AUGMENTED REALITY

Augmented reality (AR) is a technology inserting in computer-generated information on the user's view of the real world in Real Time. Unlike the Virtual Reality, which will create a totally fake artificial environment world, the Augmented Reality users will get to experience of a real-world environment, the one they are really in that is augmented by the virtual perceptual information imposed on the real world environment. It is based on augmented reality that it either visually alters or supplements the natural environment for some purpose. The augmented reality (AR) is in its ability to seamlessly integrate with digital and three-dimensional (3D) elements into a person's view of the world. There are many amount applications for the Augmented Reality, from assisting with the decision-making to the entertainment. Augmented Reality presents a visual cues, sound and some other sensory information to the user via a device such as a smartphone or glasses.

Improving and changing the real-world environment is the ultimate aim of augmented reality. This is to accomplish by augmented reality, which can often uses the camera on a

smart device to integrate with computer-generated components into a live view which looks natural. Through the overlaying of the animations, photos, or other information, an augmented reality gadget that can instantaneously make the digital information available without interfering with the user's real world surroundings. Augmented Reality technology is normally used in the mobile applications that combine real-time visuals with useful digital content. With the help of Augmented Reality devices, a user can understand their surroundings in a better way.<sup>117</sup>

### GLOBAL LEGAL SCENE OF AR/VR

Legal challenges for Augmented Reality (AR) and Virtual Reality (VR) are on the rise due to fast-paced development of these technologies in recent years, not only in Mexico, but across the world. As the boundaries between the physical and digital world becomes easier using this technology, they also have interesting legal implications in the area of privacy, IP, tort law and jurisdiction issues.

One of the most concerns is the privacy and in augmented and virtual reality devices tend to capture mass volumes of information including biometric data, location data, and the real images in the real world in real time. This raises in challenging GDPR compliance questions, given that under international privacy regimes such as the EU's GDPR, a data controller is subject to a significant requirements with respect to the consent and measures to safeguard all personal data<sup>118</sup>.

The relevant privacy laws are becoming increasingly relevant in the US, they are the California Consumer Privacy Act (CCPA), but there isn't one single federal law that governs any data collection in AR and VR<sup>119</sup>. Intellectual Property (IP) is another big area. Immersive content in AR and VR platforms AR and VR platforms generate and disseminate VR and AR

<sup>116</sup> Will Greenwald, Augmented Reality (AR) vs. Virtual Reality (VR): What's the Difference?, <https://www.pcmag.com/news/augmented-reality-ar-vs-virtual-reality-vr-whats-the-difference> (last visited on 5th May 2025)

<sup>117</sup> Stephen Watts, Augmented vs. Virtual Reality: Comparing AR/VR, [https://www.splunk.com/en\\_us/blog/learn/ar-vr.html](https://www.splunk.com/en_us/blog/learn/ar-vr.html) (last visited on 5th May 2025).

<sup>118</sup> Regulation (EU) 2016/679, General Data Protection Regulation (GDPR)

<sup>119</sup> California Consumer Privacy Act of 2018

content that could be infringe on copyrights, trademarks, or patents. Debates over the digital ownership and piracy have also been raised by virtual reality goods and worlds. The U.S. Supreme Court judgement in *Google LLC v. Oracle America, Inc.* has far reached implications on software related IP in AR and VR<sup>120</sup>. Additionally, the trademark disputes are surfacing as brands enter into the virtual spaces, leading to cases such as *Hermès v. Rothschild* over NFTs linked to real-world trademark products<sup>121</sup>.

Tort liability also arises in this situation around user safety and psychological impacts that damages resulting from VR immersion they are collisions or motion sickness have been a prompted manufacturers to include all extensive disclaimers. However, Judiciary is still navigating the liability principles when accidents stem from the virtual experiences. Countries like Japan, Germany and USA have begun to examine the liability in cases of AR and VR injury.

Jurisdiction issues and cross-border enforcement is particularly very problematic one. AR and VR experiences can occur only in virtual world transcending national borders, complexing the legal accountability and the question of which country's laws will apply especially in cases of virtual defamation, virtual harassment or virtual contractual disputes remains unresolved in many jurisdictions.

Regulatory bodies are attempting to respond in South Korea the government that have introduced guidelines for the metaverse, aiming to bring balance innovation with user protection. The EU's Digital Services Act (DSA) may indirectly influence the AR and VR platforms by imposing obligations on the digital service providers, particularly in concerning content moderation and user rights<sup>122</sup>. Meanwhile, China's Cyberspace Administration has begun to frame policies to govern and

expanding virtual reality market, with a special importance on censorship and data control.

### **SIGNIFICANCE OF IP, COPYRIGHT & PATENT LAWS IN AR/VR**

The use of intellectual property in the virtual world could be one of the major causes of concern for the owners of such Intellectual Property rights. For instance, in a famous VR game called 'Second Life', players can go and visit a multiple number of virtual public places and use merchandise which could violate some of the IP rights like trademarks and copyrights of various brands existing in the real life world. In fact, Virtual Reality world systems allow users to virtually import photographs, music, brand names and some IP protected material into their virtual experiences without obtaining any necessary permissions from the Intellectual Property owner. Furthermore, there are several jurisdictional issues while enforcing claims against such Virtual Reality users, since VR users log in from any part of the world whose IP laws may differ widely from one country to another. The extent of potential intellectual property infringement is very remarkable since VR creators can create a whole virtual world like a real world comprising of images, virtual property and other IP contents through the VR system.

Because of deeply personal nature of Virtual Reality experiences and the creation of identity in the real-life world, there will be a need in future for IP laws to rebalance the assignment of the separate Virtual Reality platforms or users' Intellectual Property rights.

For instance, while incorporating the photographs, music, names of the brand and their logos. Traditional IP laws specify obtaining the permission from the IP owner regarding applicable rights. However, in several jurisdictions across the country (such as US, India and other nations), use of trademarks 'in commerce' is a very essential ingredient to constitute trademark infringement. Thus, the user using the logo in Virtual Reality may escape liability by claiming 'no commerce'

<sup>120</sup> *Google LLC v. Oracle America, Inc.*, 593 U.S. (2021)

<sup>121</sup> *Hermès International v. Rothschild*, No. 22-cv-384 (S.D.N.Y. 2023)

<sup>122</sup> Regulation (EU) 2022/2065, Digital Services Act.

exception under trademark laws. Similar problems as arise with the 'fair use' exception under copyright laws of several jurisdictions area, wherein there should be an infringement of original works through derivative works on VR platforms<sup>123</sup>.

### VIRTUAL CRIMES

The psychological effects of immersion in virtual reality surroundings that can lead to ethical challenges and criminal problems in assessing virtual crimes. Research indicates that VR can lead to kinds of emotions and that result in sufferings since VR experiences may seem to be real to the users even though they are being done in the virtual world environment. These crimes include virtual groping, cyber harassment, stealing of virtual assets, illegal betting with crypto currency, identity theft and obscene material, indecent exposure such as nudity.

Though one need not necessarily worry about being murdered or raped in the virtual world, there is absence of actual consequences of engaging in such acts that could result in more people will be opting for it. Further, there are also associated mentally when individuals are continuously devoid of law and order and that could lead to the actual disorder in real world life. For instance, for a women playing Virtual Reality games to be groped virtually is the same as being groped in real life, due to severe mental trauma will be inflicted upon her. It will even get worse in future with body suit technology developing to a point where Virtual Reality users could actually feel kicks/punches or touch that they become subject to the virtual world that would affect the more than we think.

In 2022, researcher Nina Jane Patel revealed she was abused in the virtual world owned by Meta called Horizon Venues (now part of the Horizon Worlds), likening it to sexual assault. Recalling the experience, Ms Patel told the same

programme that she was "surrounded by three to four male avatars and she heard males voices from the avatars", who started sexually harassing me in a verbal sense and then sexually assaulting my avatar character". She said they had used misogynistic language and "continued to touch my avatar character in a way that can only be described as a sexual assault of my avatar"<sup>124</sup>.

### VIRTUAL PRIVACY

The development of the Augmented Reality (AR) and Virtual Reality (VR) technologies in India has introduced to new privacy concerns. As these immersive technologies collect a big amounts of personal data from biometric identifiers to spatial and other behavioural data they challenge the existing privacy frameworks and the need of stronger legal oversight.

One of the most cornerstone legal protections for privacy in India is the **right to privacy recognized as a fundamental right** under Article 21 of the Indian Constitution, as affirmed in the landmark judgement *Justice K.S. Puttaswamy v. Union of India* (2017)<sup>125</sup>. This judgment laid the groundwork for the data protection reforms and laws, underlining that informational privacy is very critical in the digital age.

In the context of AR/VR, privacy concerns are most particularly acute because of these technologies often collect all the sensitive personal data, including facial recognition data, voice patterns, eye tracking, and location data. For example, AR applications that put overlay digital information onto real world thing views may continuously record the surroundings, raising questions about third-party privacy not only of users but also of passer-by.

To address these challenges, India have enacted the **Digital Personal Data Protection (DPDP) Act, 2023**, which establishes a comprehensive data protection obligations. The

<sup>123</sup> Chirag Prajapati, what are the Legal Issues That Stare at Augmented/Virtual Reality? <https://www.entrepreneur.com/en-in/technology/what-are-the-legal-issues-that-often-come-in-the-way-of/310821> (Last Visited on 6th May 2025).

<sup>124</sup> Chris Vallance, Police investigate virtual sex assault on girl's avatar, <https://www.bbc.com/news/technology-67865327> (Last visited on 6th May 2025).

<sup>125</sup> *Justice K.S. Puttaswamy (Retd.) v. Union of India*, (2017) 10 SCC 1.

Act classifies data into personal and sensitive personal data, the latter of which includes biometric data commonly collected by AR/VR devices<sup>126</sup>. Under the DPDP Act, data fiduciaries (entities collecting and processing data) are required to:

- Obtain a **explicit consent** for data collection and processing.
- Limit the data processing to the purpose specified at the time of collection (purpose limitation).
- Implement the security safeguards to prevent data breaches.
- Provide data principals (users) with rights like data access, correction, and the right to withdraw consent.

For AR/VR companies that is operating in India, this means that they must design their systems to ensure **privacy by design** and provide **clear, informed consent mechanisms** before collecting their data. Additionally, if sensitive biometric data is involved, **more protection** are required under the DPDP Act.

Furthermore, the **Information Technology (Reasonable Security Practices and Procedures and Sensitive Personal Data or Information) Rules, 2011** under the IT Act, 2000, remain relevant. These rules mandate the reasonable security practices for entities handling all sensitive personal data, including biometric data collected via AR/VR platforms<sup>127</sup>.

However, enforcement challenges continue. The borderless nature of AR/VR experiences complicates jurisdiction issues and the accountability, particularly when global companies operate in Indian markets without local offices<sup>128</sup>. Moreover, regulatory clarity on how existing data protection laws apply to the AR and VR immersive technologies is still evolving, with limited case law addressing to AR/VR specific scenarios.

Recent discussions around privacy-enhancing technologies (PETs) and ethical frameworks for immersive media have also gained importance in India. Scholars argue that AR/VR specific guidelines like for anonymizing data streams and preventing involuntary data capture is needed to close their legal gaps.

### LEGAL IMPLICATIONS OF VIRTUAL AND AUGMENTED REALITY TECHNOLOGIES

The legal implications of the virtual reality and augmented reality technology are substantial in the areas such as privacy, intellectual property, consumer protection, and liability. Section 43 of the Information Technology Act, 2000 concerns illegal access to the computer and damages to the computer, which may apply when someone obtains the unauthorised access from the Virtual Reality or Augmented Reality surroundings, seeking to injure or disrupt their operation<sup>129</sup>. Similarly, Section 66 covers a wide range of computer related offences, they are hacking, identity theft, and the dissemination of malicious code, all of which can also be applied to Virtual Reality and Augmented Reality technologies that involved in cyber-attacks, unauthorised access, identity theft, or the distribution of harmful content within the virtual or augmented reality world environments<sup>130</sup>.

These technologies can acquire a personal data, and they present a privacy issues, mandating compliance with the data protection act and rules. When copyrighted material is included in the VR and AR entertainment, intellectual property difficulties may also occur, need of an explicit norms and licensing agreements. Consumer protection regulations are also critical in guaranteeing the safety and accuracy of the goods and services, and the responsibility that's gets complicated when accidents or injuries occur. Understanding and complying with the relevant laws that is critical for addressing these legal issues and protecting their rights and interests of virtual

<sup>126</sup> Digital Personal Data Protection Act, 2023, Sections 3 and 4.

<sup>127</sup> IT (Reasonable Security Practices and Procedures and Sensitive Personal Data or Information) Rules, 2011, Rule 8.

<sup>128</sup> NITI Aayog, "Emerging Technologies and Regulation," 2021.

<sup>129</sup> Information Technology Act, 2000, Sections 43.

<sup>130</sup> Information Technology Act, 2000, Sections 66.

reality and augmented reality consumers, content providers, and companies.

One of the most legal concerns is privacy and the data protection. VR and AR systems often collect and process more sensitive personal data that including biometric information, spatial data, and behavioural patterns. Under the **Digital Personal Data Protection (DPDP) Act, 2023**, AR and VR companies operating in India has to mandate secure all the explicit user consent, ensure the data minimization, and implement a strict security safeguards. The law also provides the data principals (users) with rights to access, correct, and erase their data with their consent. However, evolving Augmented Reality and Virtual Reality capabilities such as real-time environmental scanning and it raise concerns about the third-party data collection, where the passer by privacy may also be compromised without their knowledge or consent.

Intellectual property (IP) issues are another most significant area. Augmented Reality and Virtual Reality applications often integrate with creative works like 3D models and proprietary software. Indian IP law, under the Copyright Act, 1957, protects artistic works embedded in the Augmented Reality and Virtual Reality platforms, while the Patents Act, 1970 governs innovative technical components like Virtual Reality headsets and tracking systems<sup>131</sup>. Disputes may also arise regarding the unauthorized reproduction or adaptation of the copyrighted material in virtual world environments. Furthermore, Augmented Reality applications that put overlay digital content on real world area that can lead to infringement claims, particularly if they are underlying physical works are copyrighted.

Liability and tort law also a present challenge in the Virtual world environments can cause real-world harm it can be whether psychological (through harassment or assault in Virtual Reality world) or physical (if users are injured while interacting with the Virtual Reality

content). Indian law currently lacks explicit provisions for virtual crime that happen virtual reality world. However, victims may can seek remedies under tort principles like negligence or intentional infliction of emotional distress, although they are establishing causation and quantifying injury in virtual world settings will remain complex.

The issue of content regulation is governed by the **Information Technology (IT) Act, 2000** and associated rules. Under Section 67, obscene materials or offensive content in digital platforms was penalized<sup>132</sup>. For Augmented Reality and Virtual Reality, moderating the user-generated content poses distinctive difficulties, as AR and VR immersive media can amplify the harmful effects. The **Intermediary Guidelines and Digital Media Ethics Code (2021)** places obligations on platform the providers to remove all the illegal content upon receiving complaints, but how these rules apply to AR and VR platforms remains mystery<sup>133</sup>.

## CONCLUSION

The rapid advancement of the Augmented Reality (AR) and Virtual Reality (VR) technologies gives exciting opportunities across all sectors in India, but it also brings forth a range of pressing legal challenges. Central to all these are privacy concerns, as Augmented Reality and Virtual Reality systems collect great amounts of all sensitive data including biometric, location, and behavioural information that has raise a significant questions about the user consent, data protection and third-party privacy. While the **Digital Personal Data Protection (DPDP) Act, 2023** provides a foundational framework for safeguarding people digital personal data, the complexities of AR and VR immersive technologies such as real-time world environmental scanning demand more delicate in the nature legal interpretations and possibly a new regulations.

Liability, especially for mentally affected or physical injury resulting from Augmented

<sup>131</sup> Patents Act, 1970.

<sup>132</sup> Information Technology Act, 2000, Sections 67

<sup>133</sup> Intermediary Guidelines and Digital Media Ethics Code, 2021.

Reality and Virtual Reality use, is another unknown area. The current legal system lacks clear provisions addressing virtual crimes, making enforcement and compensation more difficult. Furthermore, regulating content within a dynamic, user-generated Augmented Reality and Virtual Reality world environments remains a significant challenge under the **Information Technology Act, 2000** and related rules.

In sum, while India has a legal foundation that somewhat partially addresses Augmented reality and Virtual Reality issues, evolving these frameworks is very crucial. Proactive policymaking, industry collaboration, and judicial clarity only can need to be essential to ensure that the transformative potential of AR and VR is control responsibly and safely.

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