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Beyond Physical Reality: Intellectual Property Concerns in Augmented and Virtual Reality

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ABSTRACT

In the past decade, innovation in digital technology has made it possible for humans to have interactions beyond the realm of physical reality and get immersed in 'virtual reality' or even experience a state called 'mixed reality'. Augmented Reality (AR) and Virtual Reality (VR) technologies hold the key to transform the way we see the world and communicate, but it also would open the door to a myriad of legal questions and concerns. The inability of the law to keep up with technology will deter it from maximising utility and profitability. An example that is often cited in this discussion is that of AR-powered Google Glass, which was welcomed with much enthusiasm in 2013, however it failed to meet the expectations of its developers due to its unappealing design and the range of privacy and piracy concerns that eventually outweighed the benefits of such technology.

This article briefly examines the law on Intellectual Property (IP) to address two primary questions. Firstly, whether the protection under the current regime can accommodate IP created in the virtual world and secondly, whether real-world IP proprietors have any legal recourse for infringement of their IP in the virtual world. While VR creates a reality differentiable from the physical world, AR merely augments the physical reality permitting the user to interact with both virtual and real-world objects. Thus, due to their varying interactions with the real-world entities, the two technologies raise varying IP concerns.

I. PROTECTION OF VIRTUAL IP UNDER COPYRIGHT LAW

An AR/VR program code can be protected under the Indian Copyright Act, 1957 (Copyright Act) as a literary work,² however the scope of protection would be limited to the code of the program, excluding the non-literal parts consisting of its look and feel. Certain non-literal parts which are consistent and repetitive can be protected as cinematograph works under the Copyright Act.³

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² Section 2(o)& Section 13(1)(a) Indian Copyright Act, 1957.

³ Section 2(f) Indian Copyright Act, 1957.

To be eligible for copyright protection, any work created using the AR/VR technology must meet the standard of originality as laid down by the Supreme Court in *Eastern Book Co. (EBC) v. D.B. Modak & Another.*, wherein the Court deviated from the English ‘Sweat of brow’ doctrine and adopted the doctrine of ‘skill and judgement’, consistent with the American ‘Modicum of Creativity’.⁴ Therefore, a mere reproduction of copyrighted work in another medium would not warrant protection under the Copyright Act, regardless of the effort and capital invested in its replication.⁵ Further, copyright protection would not accommodate any work that consists of mainstream graphics, forming a crucial component of its functionality such that it is incorporated in many computer programmes, as it would fall within the ambit of the doctrine of merger or *scène à faire*.⁶

(A) Derivative works

Any copyrighted content when uploaded on the virtual platform will be given the same protection it enjoyed in the real world.⁷ To seek copyright protection for any derivative work that is created using the AR/VR Technology, it must be an end product of substantial skill, labour and capital and not a just mere copy, as laid down in *EBC v. DB Modak*.⁸

However, the application of this standard to works created using AR technology could discourage its use and affect its profitability. Unlike VR wherein the user is immersed in an alternative reality, separated from the real world, AR creates an environment which permits the user to add a layer of virtual elements to the already existing world.⁹ Thus creating an obvious potential for reproducing copyrighted work to create derivative works by adding digital content to them.¹⁰ It can be argued here that the digital layer is merely an illusion existing independent of the copyrighted work, however this argument would stand weak in an event that the addition to the copyrighted work is fixed in a tangible form and distributed.¹¹

⁴ Eastern Book Company and Ors. v. D.B. Modak and Anr., (2008) 1 SCC; ‘Originality’ Concept Under India’s Copyright Regime, India Business Law Journal (July 20 2015), available at <https://www.vantageasia.com/originality-concept-under-indias-copyright-regime/>.

⁵ Mma Afoaku, The Reality of Augmented Reality and Copyright Law, 15 NW. J. TECH. & INTELL. PROP. 111 (2017) available at <https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1280&context=njtip>.

⁶ Julie E. Cohen et al., COPYRIGHT IN A GLOBAL INFORMATION ECONOMY, 47 (4th ed, 2018); Mma Afoaku, The Reality of Augmented Reality and Copyright Law, 15 NW. J. TECH. & INTELL. PROP. 111 (2017) available at <https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1280&context=njtip>.

⁷ Jonathan M. Purow, Virtual Reality May Create Novel IP Issues In The Real World, LAW 360

(Mar. 28, 2016) available at <https://grr.com/publications/virtual-reality-may-create-novel-ip-issues-real-world/>

⁸ Eastern Book Company and Ors. v. D.B. Modak and Anr., (2008) 1 SCC.

⁹ Brian D. Wassom, IP in An Augmented Reality, 6 Landslide 8 (2014) available at <https://heinonline.org/HOL/LandingPage?handle=hein.journals/lnslid6&div=38&id=&page=>.

¹⁰ Brian D. Wassom, IP in An Augmented Reality, 6 Landslide 8 (2014) available at <https://heinonline.org/HOL/LandingPage?handle=hein.journals/lnslid6&div=38&id=&page=>.

¹¹ Brian D. Wassom, IP in An Augmented Reality, 6 Landslide 8 (2014) available at <https://heinonline.org/HOL/>

An example of possible copyright infringement is the usage of the very popular facial recognition technology and AR-enabled Snapchat filters on copyrighted works provided that it is captured and distributed in a tangible form.

(B) Ownership of Virtual IP

For works that are a combination of user and computer-generated outputs, the determination of the rightful owner is done on a case-by-case basis. As provided under the Copyright Act, for any computer-generated work, the person who causes the work to be created is the author¹² and also the first owner of such work.¹³ Therefore, ownership of the work would depend on the contribution of both parties or any agreement between them.¹⁴

For any work generated through AR technology which is an augmentation of real-life entities using a definite set of digital overlays, it can be contended that the ownership resides with the programmer as the creativity of the user is limited by the code.¹⁵ A similar argument can be put forth for VR as well, provided that user experience is restricted to the array of data created by the programmer.¹⁶ Further, the developers of the software can retain the ownership rights to the works created by the users by way of a “Terms of Service or End User License Agreement”.¹⁷ However, the denial of authorship to users for their copyrightable and exclusive creations would disincentivise the creation of original works using computer platforms.¹⁸ A creative solution to foster creativity and retain rights over the creations was adopted by Linden Labs, the creator of a VR game- “Second Life” that permitted users to retain all rights to their unique creations provided they agreed to license the creations to Linden Labs.¹⁹

LandingPage?handle=hein.journals/Indslid6&div=38&id=&page=.

¹² Section 2(vi) Indian Copyright Act, 1957.

¹³ Section 17 Indian Copyright Act, 1957.

¹⁴ Mma Afoaku, *The Reality of Augmented Reality and Copyright Law*, 15 NW. J. TECH. & INTELL. PROP. 111 (2017) available at <https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1280&context=njtip>.

¹⁵ Rachel Wenzel, *Ownership in Technology-Facilitated Works: Exploring the Relationship Between Programmers and Users Through Virtual Worlds*, 17 *Intell. Prop. L. Bull.* 183 (2013).

¹⁶ Mma Afoaku, *The Reality of Augmented Reality and Copyright Law*, 15 NW. J. TECH. & INTELL. PROP. 111 (2017) available at <https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1280&context=njtip>.

¹⁷ Todd David Marcus, *Fostering Creativity in Virtual Worlds: Easing the Restrictiveness of Copyright for User-Created Content*, 52 N.Y.L. Sch. L. Rev. 67, 79 (2008) available at <https://core.ac.uk/download/pdf/288252345.pdf>.

¹⁸ Mma Afoaku, *The Reality of Augmented Reality and Copyright Law*, 15 NW. J. TECH. & INTELL. PROP. 111 (2017) available at <https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1280&context=njtip>.

¹⁹ Todd David Marcus, *Fostering Creativity in Virtual Worlds: Easing the Restrictiveness of Copyright for User-Created Content*, 52 N.Y.L. Sch. L. Rev. 67, 79 (2008) available at <https://core.ac.uk/download/pdf/288252345.pdf>; Mma Afoaku, *The Reality of Augmented Reality and Copyright Law*, 15 NW. J. TECH. & INTELL. PROP. 111 (2017) available at

(C) Copyright infringement

In instances where the AR/VR platforms are directly infringing copyright by exercising any of the copyright holder's exclusive rights without the requisite authorisation,²⁰ the proprietors can resort to statutory remedies.²¹ In addition to direct liability, in instances of indirect infringement caused by the users, these platforms can be sued independently²² under the tort law principle of 'secondary' or 'contributory' liability, recognized by various jurisdictions including the US, Canada, UK, Netherlands and Australia.²³ Even though the Indian Copyright Act does not explicitly use these terms, secondary liability of AR/VR platforms that permit users to create infringing copies of copyrighted work can be found under Section 51(a)(i) and Section 51(b) of the Copyright Act.²⁴

To hold AR/VR platforms liable for contributing to an infringement carried out by a user, it must be established that the platform provided the infringer with a service that aided in the act of infringement and that it had specific knowledge of such an infringement.²⁵ In *Marvel v. NCSoft Coprn.*, Marvel had sought an injunction on the contention that the defendant via its role-playing game- 'City of Heroes' had contributed to infringement as users were permitted to design their avatars similar to Marvel's copyrighted superheroes, however, the parties settled the dispute out of court.²⁶ AR platforms being more susceptible to such litigation will be forced to adopt self-regulating measures, the enforcement of which will be heavily burdensome due to the high likelihood of the creation of such infringing content.²⁷

(D) Freedom of panorama

Freedom of Panorama allows individuals to publish pictures of artworks, monuments,

<https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1280&context=njtip>.

²⁰ Section 51 Indian Copyright Act, 1957.

²¹ Sections 55, 63 Indian Copyright Act, 1957.

²² Crystal Nwaneri, Ready Lawyer One: Legal Issues in the Innovation of Virtual Reality, 30 HARV. J. L. & TECH. 601 (2017) available at <https://poseidon01.ssrn.com/delivery.php?ID=123003017068028112071002099014084002035005000074066087090121006004123091030024019119100028043014103061021010004026068000071080000053057080086031028071097102075005091063028037025090087094125070074108112121072085000119099064096077096121097111002003101124&EXT=pdf>.

²³ Sneha Jha & Samar Jha, An Analysis of the Theory of Contributory Infringement, NALSAR University of Law, 3-4-761 (2006) available at <http://docs.manupatra.in/newslines/articles/Upload/2BBFFD4F-2FF4-4524-8913-BAA85CCCD989.pdf>.

²⁴ Section 51(a)(i), (b) Indian Copyright Act, 1957.

²⁵ *A&M Records, Inc v Napster Inc*, 239 F 3d 1004 at 1020; Sneha Jha & Samar Jha, An Analysis of the Theory of Contributory Infringement, NALSAR University of Law, 3-4-761 (2006) available at <http://docs.manupatra.in/newslines/articles/Upload/2BBFFD4F-2FF4-4524-8913-BAA85CCCD989.pdf>.

²⁶ Carl Michael Szabo, Thwack!! T Thwack!! Take That, User-Generated Content!: Marvel Enterprises el Enterprises v. NCSoft, Federal Communications Law Journal: Vol. 62 : Iss. 3, Article 2 (2010), available at <https://www.repository.law.indiana.edu/cgi/viewcontent.cgi?article=1564&context=fclj>.

²⁷ Mma Afoaku, The Reality of Augmented Reality and Copyright Law, 15 NW. J. TECH. & INTELL. PROP. 111 (2017) available at <https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1280&context=njtip>.

sculptures and buildings in the public domain, if they are protected under copyright law.²⁸ Nintendo's Pokemon Go is an example of how geographical locations can trigger digital overlays, and a requirement to omit certain copyrighted works situated in public premises, would reduce its appeal and constitute an onerous obligation on the platforms.²⁹ In Argentina, Belgium, France, Greece and Italy, where this liberty is not recognised as an exception to copyright,³⁰ AR/VR platforms will be restricted from replicating copyrighted public structures to add digital overlays on or give a virtual tour.³¹ The Copyright Act under clause (t) and (u) of Section 52 provides that publication of any artistic work permanently situated in a public place or any premises to which public has access would not constitute infringement.³²

II. PROTECTION OF VIRTUAL MARKS AS TRADEMARKS

The commercial advertising industry is expected to be a significant market for AR/VR technologies and to regulate the digital intervention in the industry, extension of trademark protection to virtual marks would become necessary.³³ To get an understanding of how the commercial advertisement industry can be revolutionised with the exploitation of AR/VR technology, one can look at Keiichi Matsuda's representation of "a proactive and kaleidoscopic new vision of the future" or what he calls "Augmented Hyper-Reality".³⁴ One of the first uses of virtual marks was the app "The Leak in Your Home Town", that could add a superimposed image of a broken pipe spewing oil pipe on any British Petroleum sign, as a reminder of its responsibility in the Deepwater Horizon Oil Spill of 2010.³⁵

(A) Trademark infringement in the virtual world

The Indian Trademarks Act, 1999 (Trademarks Act) provides for the statutory remedy for infringement in addition to the common law remedy of passing off.³⁶ However, it is possible that certain virtual marks which bear similarity to registered trademarks or marks that have

²⁸ Alek Tarkowski, Freedom of Augmented Panorama, Medium (September 14, 2017) available at <https://medium.com/@atarkowski/freedom-of-augmented-panorama-b1809135bcd6>.

²⁹ Nguyen Quynh Trang, The Copyright Issues of the Augmented Reality: Freedom of Panorama (2017) available at <https://members.aixr.org/storage/file142754.T..pdf>.

³⁰ Alek Tarkowski, Freedom of Augmented Panorama, Medium (September 14, 2017) available at <https://medium.com/@atarkowski/freedom-of-augmented-panorama-b1809135bcd6>.

³¹ Nguyen Quynh Trang, The Copyright Issues of the Augmented Reality: Freedom of Panorama (2017) available at <https://members.aixr.org/storage/file142754.T..pdf>.

³² Section 52(t),(u) The Copyright Act, 1957.

³³ Brian D. Wassom, IP in An Augmented Reality, 6 *Landslide* 8 (2014) available at <https://heinonline.org/HOL/LandingPage?handle=hein.journals/Indslid6&div=38&id=&page=>.

³⁴ Available at <https://www.youtube.com/watch?v=YJg02ivYzSs>, <https://www.youtube.com/watch?v=fSfKlCmYcLc>.

³⁵ Available at <https://theleakinyourhometown.wordpress.com/>.

³⁶ Sections 29, 27 Trademarks Act, 1999.

acquired goodwill through use, would neither have any adverse effect on the sale of the goods or service nor cause any harm to its reputation in the market. In such cases, the exceptions under Section 30 of the Trademarks Act, in particular nominative and descriptive fair use³⁷ can be invoked by the respondents. Therefore, if the platforms can establish that a mark similar to the registered trademark was used either as a descriptor of its own good's features or was mentioned to refer to proprietor's product, it can escape liability for unauthorised use.³⁸

Further, AR/VR platforms that permit users to generate their own outputs can also be held indirectly liable for contributing to any such infringement caused by users.³⁹ Even though there is no precedent clarifying the position of trademark infringement within AR/VR in India, one can place reliance on the US case of *E.S.S. Entertainment 2000, Inc. v. Rock Star Videos, Inc.*⁴⁰ to anticipate the position of the judiciary. In this case, the claim of trademark infringement in the video game was held to be not actionable as it was found to be "artistic" and not misleading.⁴¹ Similar reasoning can be applied to VR video games that involve action figures and superheroes.

III. PATENTING AR/VR SOFTWARE

To secure a patent for AR/VR technologies, the requirements of patentability, novelty, non-obviousness and utility must be satisfied.⁴² An application for a patent can be made by the first and true inventor or persons as assigned by him,⁴³ provided that the invention is a "new product or process involving an inventive step" and is capable of industrial application.⁴⁴ The Patents (Amendment) Act, 2002 amended the Patents Law to include "computer programs per se" to be non-patentable.⁴⁵ Therefore, AR/VR software including the systems, maps, features, business methods/services, data and other miscellaneous objects⁴⁶ along with the

³⁷ Sec 30(2)(a), (d) Trademarks Act, 1999.

³⁸ Bhavya Solanki & Medha Bhatt, Virtual Reality, Augmented Reality and Trademark Law: How Freely Can Imagination Run?, Spicy IP (July 22, 2020) available at <https://spicyip.com/2020/07/virtual-reality-augmented-reality-and-trademark-law-how-freely-can-imagination-run.html>.

³⁹ Mark A. Lemley & Eugene Volokh, Law, Virtual Reality, and Augmented Reality, 166 U. PA. L. REV. 1051 (2018) available at https://scholarship.law.upenn.edu/cgi/viewcontent.cgi?article=9622&context=penn_law_review

⁴⁰ *E.S.S. Entm't 2000, Inc. v. Rock Star Videos, Inc.*, 444 F. Supp. 2d 1012, 1014 (C.D. Cal. 2006), aff'd 547 F.3d 1095 (9th Cir. 2008).

⁴¹ *E.S.S. Entm't 2000, Inc. v. Rock Star Videos, Inc.*, 444 F. Supp. 2d 1012, 1014 (C.D. Cal. 2006), aff'd 547 F.3d 1095 (9th Cir. 2008).

⁴² Senthil Kumar, What Can be Patented in India? (September 13, 2016) available at <https://www.mondaq.com/india/patent/526406/what-can-be-patented-in-india>.

⁴³ Section 6, Patents Act, 1970.

⁴⁴ Section 2(I)(j), Patents Act, 1970.

⁴⁵ Section 3(k), Patents (Amendment Act), 2002.

⁴⁶ Legal Issues with Augmented Reality, Pillsbury, available at <https://www.internetandtechnologylaw.com/file>

hardware features should be eligible to file for a patent. Recently, Google secured a patent in India for its technology that can be used for leaving messages at a location by way of virtual graffiti in a mobile VR and AR system.⁴⁷

(A) Patent infringement in the virtual world

Unauthorised replication of a patented product or process in a virtual environment can be a cause of action for the patentee to exercise his right to exclude third parties,⁴⁸ if the replicated product or process performs a “substantially similar function in a substantially similar way”.⁴⁹ Lennon Image Technologies LLC, that had secured a patent for “Customer Image Capture and Use Thereof in a Retailing System” which allowed customers to assess selected merchandise, had filed a series of infringement proceedings between 2012 and 2013 against retailers who used similar virtual try-on technology on their websites, that was subsequently taken down.⁵⁰ To protect the patented product or process, patent attorneys have resorted to mentioning that the patent holder would hold the preclusive right to embodiments of their work in a virtual environment in the patent application.⁵¹ Further, if AR/VR platforms permit the users to create their goods and services, they can be held liable for contributing to the infringement under tort law.⁵²

IV. CONCLUSION

AR and VR technologies have the potential to push the boundaries of physical reality beyond anticipation which would necessitate the adaption of the current IP regime to cater to the new

es/2014/11/Legal-Issues-with-Augmented-Reality.pdf.

⁴⁷ Google Gets Patent for Tech on Augmented Reality-based Virtual Graffiti, *Business Standard* (January 14, 2020) available at https://www.business-standard.com/article/technology/google-gets-patent-for-tech-on-augmented-reality-based-virtual-graffiti-120011400928_1.html.

⁴⁸ Section 48 Patents Act, 1970.

⁴⁹ Thai Phi Le, *More Than Just a Game*, DC BAR: WASH. LAW. (May 2013); Crystal Nwaneri, *Ready Lawyer One: Legal Issues in the Innovation of Virtual Reality*, 30 HARV. J. L. & TECH. 601, available at <https://poseidon01.ssrn.com/delivery.php?ID=123003017068028112071002099014084002035005000074066087090121006004123091030024019119100028043014103061021010004026068000071080000053057080086031028071097102075005091063028037025090087094125070074108112121072085000119099064096077096121097111002003101124&EXT=pdf>.

⁵⁰ Brian D. Wassom, *IP in An Augmented Reality*, 6 *Landslide* 8 (2014) available at <https://heinonline.org/HOL/LandingPage?handle=hein.journals/lndslid6&div=38&id=&page=>.

⁵¹ Thai Phi Le, *More Than Just a Game*, DC BAR: WASH. LAW. (May 2013); Crystal Nwaneri, *Ready Lawyer One: Legal Issues in the Innovation of Virtual Reality*, 30 HARV. J. L. & TECH. 601, available at <https://poseidon01.ssrn.com/delivery.php?ID=123003017068028112071002099014084002035005000074066087090121006004123091030024019119100028043014103061021010004026068000071080000053057080086031028071097102075005091063028037025090087094125070074108112121072085000119099064096077096121097111002003101124&EXT=pdf>.

⁵² Crystal Nwaneri, *Ready Lawyer One: Legal Issues in the Innovation of Virtual Reality*, 30 HARV. J. L. & TECH. 601 <https://poseidon01.ssrn.com/delivery.php?ID=123003017068028112071002099014084002035005000074066087090121006004123091030024019119100028043014103061021010004026068000071080000053057080086031028071097102075005091063028037025090087094125070074108112121072085000119099064096077096121097111002003101124&EXT=pdf>.

concerns that will materialise in future. The existing doctrines and legal rules will have to be modified to find a new balance between the interests of IP authors vis-à-vis the progress and development of technology, in the varying realms of reality.
