

**IP Article:**  
**SEE IT IN 3D; Intellectual Property  
in Virtual Reality & its possibilities  
for health care in Uganda**

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By Judith Kagere



The power of technology has made grand strides in changing the way we live, feel and work. Virtual reality is the use of computer modeling and simulation that enables a person to interact with an artificial three-dimensional (3D) visual or other sensory environment in a typical VR format, a user wearing a helmet with a stereoscopic screen views animated images of a simulated environment. It is a three-dimensional computer-generated environment that is sensual and immersive causing interaction between one person and this artificial environment.

VR is mostly known for its use in the gaming world and entertainment. VR is employed in numerous video games that have made tremendous strides in creating new games that are now known to be worth more than the music and movie industry combined. VR for health care is one of the most tremendous steps that have been made to strive towards better life care and advancements in life sciences.

There are endless possibilities that lie with virtual reality and allowing medics to be able to blend innovative technology through VR, will permit us to make vital strides in medical research & teaching in teaching hospitals in Uganda. This type of cutting-edge technology is being used in medical tech and training to create an interactive environment where medical professionals are able to interact & manipulate the artificial setting for an immersive experience. VR allows them to be able to test out and train for life saving surgical procedures, improve their hand skills and have different learning experiences. When it comes to diagnosis, VR has proved a helpful tool for physicians and allows them to move away from invasive techniques with non-invasive imagining. VR has also been known to assist mental health patients to remain calm through a less challenging method where patients are allowed to interact with how they feel, see and react in situations that they would otherwise feel challenged. It has also been used in pain management alongside therapy for the treatment of chronic pains. With virtual reality, it has opened up a new era to advance the work in this promising new area of digital health pain interventions. In addition, in the acute pain context VR's immersive capabilities allow to distract from the discomfort of the pain experience .

VR has also been employed in the fitness world, to study the human body and look for even more countless ways in which exercise and physical fitness may produce positive results and the numeric effects it has on body organs. Many may view it as an exciting escape and should be considered by fitness clubs that are looking to concrete investment in the future of fitness. For surgeries, VR has provided a real opportunity for

## Background



patients to be walked through the procedures such as MRIs, CT scans and angiograms to create a three-dimensional model that physicians and patients can see and manipulate — just like a virtual reality game.



The head mounted display and VR systems with traditional user interfaces allows for stimulation of the artificial objects in the real environment while determining camera positions and orientations. VR technology has been used for preventing or responding to infections by simulating human behaviors, infection transmission, and pathogen structure as a means for improving skills management and safety protection. Telehealth, telecommunication, and drug discovery have been among the other applications of VR during the COVID-19 pandemic.

There are so many inroads that VR is making in health care such as in dentistry, nursing, physical therapy, neuroscience, psychology, PTSP therapy, phobia treatments among others.

Virtual reality in sum creates an environment that is realistic enough to control the facilities of the mind and produce research and therapeutic approaches & experiences. The intellectual property implications of virtual reality mean all the ways that intellectual property interfaces with virtual reality. There are a number of intellectual property regimes subsisting in VR.

Firstly, trademarks may not present a real interaction with the subject matter in virtual reality, however, a sign or mark may have both copyright and a trademark hence warranting protection in both regimes. For a virtual reality developer or purchaser who has created the product in life sciences and is firstly, able to explain the hardware that led to its existence and that it was an original work, secondly is able to show that the subsequent developer copied the mechanics, even if they haven't copied the code, and thirdly it has caused or is likely to cause a loss then they are able to sustain a legal action. On that account, trademarks is an IP regime concerning itself with the branding and marketing aspects of a product to avoid confusion and protect the source of a product and for that reason VR developers or subsequent owners should be careful not to pick a title or name that is confusingly similar.

For issues of copyright, although the copyright exists in different works, if parts or components are substantially copied from the underlying work, then it is copyright infringement. The concept and feel approach is one of the tests that has been applied in case law to elaborate on the substantiality of a work, and to explain whether the author of the subsequent work has exercised sufficient labor, skill or judgment to warrant copyright protection. Simply put, substantial taking in this approach is copying that is selective,



selective, calculating or altered and is sufficient enough to infringe copyright. In software development, derivation may be occurring while evolving new programmes and so the substantiality principle is important to aid in determining what is excusable for reasons of competition and what is simply leeching.

On that account, the software in VR may not obtain one wholesome copyright but rather a combination of copyright in all its works. Each part of the product is copy-rightable and the underlying work for the computer programme is protected as a literary work while there may be some matter that may subsist in audio-visual work. Although copyright is inherent and one does not need to have the work registered to be covered by copyright, there are advantages that accrue to registering one's copyright such as enabling the rights holder to sustain an action for infringement, and enabling the copyright holder to establish a public record of ownership. The copyright in virtual reality will operate similarly to any other conventional copyrightable subject matter. Because VR aims to immerse users in a lifelike experience, developers might choose to include copyright-protected content in virtual worlds to make them more realistic. Generally, copyrighted content is protectable in virtual worlds under the same standards that apply in the real world.

As a VR developer, one may keep in mind the other options that may be made available to acquire copyright. The law provides for licensing where a copyright owner may licence the use, which is giving permission to an assignee to use the copyright according to what is agreed between them contractually. This will allow them to develop without having to begin again and re- negotiate for each substance in the product. The licenses also allow a developer to take advantage of already existing products hence creating much more advanced experiences. Assignments may also offer the same protection and use, so an assignment agreement will need to be entered with the IP owner.

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<sup>1</sup> Lowood, Virtual Reality: Computer Science,  
[https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKewio88HGju\\_wAhUJyoUKHZvAUUQFIACegQIAhAD&url=https%3A%2F%2Fwww.britannica.com%2Ftechnology%2Fvirtual-reality&usq=AOvVaw0rOHg2zTrDu3FvMWKCituE](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKewio88HGju_wAhUJyoUKHZvAUUQFIACegQIAhAD&url=https%3A%2F%2Fwww.britannica.com%2Ftechnology%2Fvirtual-reality&usq=AOvVaw0rOHg2zTrDu3FvMWKCituE), accessed 25<sup>th</sup> May, 2021.

<sup>2</sup> Leveraging Virtual Reality and Augmented Reality to Combat Chronic Pain in Youth: Position Paper From the Interdisciplinary Network on Virtual and Augmented Technologies for Pain Management, Published online 2021 Apr 26, accessed on 26<sup>th</sup> May, 2021, Journal of Medical Internet Research at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8111507/>



When it comes to patents, there has been a lot of patenting activity in areas such as data processing, 3D modelling and data processing. Patent holding patterns, coupled with high patent filing activity, shows a significant patent licensing potential in the technology domain.

Patents seek to protect the technical function of innovations. They are granted under statute for inventions, products and processes. This regime allows an inventor maintain monopoly for the use of an invention for a certain time and the patent owner obtains the right to protect the invention. They are granted for methods, uses, systems and processes. They are new, not obvious and solve a technical problem. Innovators are able to exclude others from making, using or selling their inventions without permission for the granted period. The criterion for registering a patent is that it has to be novel, have an inventive step meaning it is not obvious to those in that skill of art and industrial application meaning it can be applied to a particular industry. The patent rights in any discoveries, inventions, improvements, apparatus and machines effected by persons engaged by an innovator in the discharge of their functions vests in that innovator.

In 2019, Uganda enacted the National IP Policy that was aimed at creating a legal framework and guidance for collaborating together towards the realisation of the value in IP. The participants in Uganda's IP eco system, that brings them together to collaborate and foster generation of revenue from intellectual property.

Patents subsist in VR products, and virtual reality has had a long history with patents , with them almost twinning. The patent landscape presents a number of inventions that need to seek protection through registration in the respective countries the product will be availed. The material which is seeking protection is majorly the hardware, the display screens, helmets, head-mounted devices, and the software such as the system that stimulates the artificial environment. The interface arrangements, 3D modelling and data processing are also vital issues to keep in mind especially when it comes to patent infringement.

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<sup>3</sup> Virtual reality system helps surgeons, reassures patients, Stanford Medicine Metical Centre Development, <https://medicalgiving.stanford.edu/news/virtual-reality-system-helps-surgeons-reassures-patients.html>, accessed on 27<sup>th</sup> May, 2021.

<sup>4</sup>Applications of virtual and augmented reality in infectious disease epidemics with a focus on the COVID-19 outbreak by Asadzadeha, Samad-Soltanib, Peyman Rezaei- Informatics in Medicine Unlocked 24 (2021) 100579 made available online 27 April 2021, published by Elsevier Ltd, available at <https://doi.org/10.1016/j.imu.2021.100579> .



Patents may be registered through our local IP registry and patents are filed with the requisites as explained above and although this may take longer, than the easier option of a utility model, it may be important for developers who are intending to employ the devices here to prevent infringement. The ARIPO Regional IP Office is also a valid option as it allows for an application to be made in any of the designated countries subject to the national laws and time frames given priority date.

An interesting case where virtual reality has made its way to the court room is that of the Oculus Rift. In this one, the renown headset was created by Palmer Luckey and then acquired by Facebook in 2014. In brief, Oculus was based on a device employed by another company. Total Recall Technologies claimed that Palmer Luckey was hired to design a headset that Luckey then stole when he left the company and formed his own company. Oculus was built and sold to Facebook based on the former company's product and design, which therefore did not belong to Luckey. Zenimax, which is a famous American video game company claimed that Luckey and the id software founder John Carmack were hired to develop VR for it as well. The claims were for breach of an NDA agreement, copyright infringement, false designation of origin charges and unlawful misappropriation of technology and trade secrets in the development of the Oculus headsets. The Texas jury awarded half a billion after finding that Zenimax failed to comply with the NDA.

The case was interesting as it featured 3rd party infringement issues on the headsets. To avoid this, it is important to always remember in your VR development and deployment that reproduction without the proper authorization will constitute infringement issues. Jurisprudence evolves with the times, and although the Oculus case concerned a head

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<sup>5</sup>Nwaneri, Ready Lawyer One: Legal Issues in the Innovation of Virtual Reality, 30 Harvard J. L. & Tech. 601, 618 (2017), as cited in Intellectual Property Implications in Virtual Reality: How Copyright, Trademark and Right of Publicity Laws Apply to Virtual Worlds by Bohm, available at [https://law.ku.edu/sites/law.ku.edu/files/docs/media\\_law/Panel-3-IP-Laws-Virtual-Reality-and-Video-Games-042419\\_UPDATE.pdf](https://law.ku.edu/sites/law.ku.edu/files/docs/media_law/Panel-3-IP-Laws-Virtual-Reality-and-Video-Games-042419_UPDATE.pdf)

<sup>6</sup>Virtual Reality, [https://www.wipo.int/edocs/plrdocs/en/lexinnova\\_plr\\_virtual\\_reality.pdf](https://www.wipo.int/edocs/plrdocs/en/lexinnova_plr_virtual_reality.pdf), accessed 28<sup>th</sup> May, 2021.



set used in the video game world, the facts may not play out so differently for VR that is used in health sciences.

It is vital to always identify your IP from the onset and know what it is you are seeking to protect early enough so as to commence the necessary registrations or contractual negotiations. Patents, copyrights and trade secrets underlying, as shown from the Oculus case are real assets for these companies as it is the product that they essentially create and have value in. As a VR developer, identification and documentation is important. For transnational companies, it may be possible to keep an audit system of your IP in order to keep account of each product and how it is being used. As a developer, you need to be keen to whom you provide access to your system and screen out your partnerships so as to avoid any disputes as to infringement.

It is no secret that the biggest challenge for Uganda's health system is inadequate resources. VR offers us one of the most innovative ways in which to train health care workers in a way that provides a richer and more fulfilling service through the artificial environment in virtual reality. There are a number of teaching hospitals in Uganda and Health Sciences colleges that can employ VR to their teaching technics and many have already started doing it. For health sciences, it is truly one of the most satisfying forms of teaching and innovating in health service delivery. For Uganda, it allows us to benefit from world class health care and re think how patients can interact with health workers. Taking into account different health experiences, bringing VR into the health care education system can assist to make tremendous strides in health service delivery.

In the deployment of VR, it is important to keep in mind the legal implications of intellectual property issues that exist with the advantage of virtual reality. Nonetheless, the advantages of virtual reality such as increased accessibility in health teaching to practice skills with a head set and controller greatly helps advance medical treatment for many diseases.

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<sup>7</sup> A brief history of patents by Rajeev, Kumar, Soniya Shah <https://www.finnegan.com/en/insights/articles/a-brief-history-of-virtual-reality-in-patents.html>, accessed 28<sup>th</sup> May, 2021.

<sup>8</sup>The state of health care in Uganda, <https://bulamuhealthcare.org/healthcare-in-uganda/>, accessed 28<sup>th</sup> May, 2021.



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