iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 9 **Issue:** V **Month of publication:** May 2021

DOI: https://doi.org/10.22214/ijraset.2021.33626

www.ijraset.com

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 9 Issue V May 2021- Available at www.ijraset.com

Cyborg

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Abstract: Study on cyborgs and their later development in humanoids. Cyborgs is a being with both organic and biometric body parts. In science fiction cyborg is a human being with visibly mechanical parts. Scientific change in the field has proved to be beneficial for humans. Cyborgs in the sense are an additional organ or program that works to help people. People with disabilities and internal or external injuries can use any robotic aid to stay healthy.

I. INTRODUCTION

The word cyborg is a dictionary of the word 'cybernetic body'. Cyborgs are people who incorporate technology to increase their physical or sensory capacity. Some experts even consider cyborgs who use cochlear implants, pacemakers, or contact lenses.[1]

One of the best-known cyborgs is Neil Harbisson, born with achromatopsia, a color-vision defect that can be seen only in black and white. Harbisson has an antenna-shaped cranial implant that combines colors and sounds, so that it can see - or hear - colors as a musical scale. In addition, thanks to his antenna he can detect colors beyond the range of the human eye. Harbisson's is a good example of how technology can contribute in some way to nerve loss and how it can enhance human capacity. Such increased energy could lead to more adaptation to humans and the planet, rather than adapting to the earth according to the needs of our species. In 1960, Manfred Clynes coined the term "cyborg" in a paper he collaborated with Nathan Kline at the NASA space program. Pregnant by Clynes and Kline, the cyborg - the main source of "cybernetics" and "body" — was much more than a combination of artificial and natural components. It should, however, be a way of tackling the technological challenges of space travel - transforming the human body into a violent environment, rather than just changing the environment.

The proposal will have a significant impact. Shortly after the publication of Clynes and Kline's paper, NASA sent a "Cyborg Study." Released in 1963, this study was designed to examine "the opportunity to consider the inclusion of prosthetics, drugs, and / or hypothermia as an integral part of health support programs in future art design, as well as to reduce physical and guard health needs and support needs. "This type of cyborg can be understood as a commitment to a major project. Like a self-propelled machine, the cyborg was designed "to provide an organizational system in which. . . Problems such as robots are taken care of automatically and unknowingly, leaving a person free to explore, create, think and feel. Separating human activities "like a robot" from the advanced processes that made him a different person, Clynes and Kline introduced the cyborg as a fulfillment of the transhumanist's stated goal: man was freed from the strict limits ("robot-like") his body and his natural state through mechanization.[1]

Outside of space exploration, the use of the term "cyborg" has evolved into a growing line of myths, metaphors and technologies. According to Chris Hables Gray, who has written extensively on cyborgs and cyborgization politics, "cyborg" has become "as clear, as normal, as powerful, and as nothing in name as a tool or machine."[2] Perhaps because of its plasticity, the term has become more popular among science fiction writers and political scientists than among scientists, who prefer more complex terms - using terms such as biotelemetry, teleoperators, bionics and so on. The idea that we were already cyborgs - indeed, that we had always been cyborgs - had been there for some time. For example, in her 1991 fight for women's rights, Donna Haraway used the term to create "a strange political myth," rejecting the bold lines that meant separating man from animal, animal, and machine. He also declared, "We are all chimera, we are the intellectual offspring of machinery and nature; in short, we are cyborgs. "

II. CYBORG OVERVIEW

CYBORG, a compound name derived from Cybernetics and Organism, coined by Manfred Clynes in 1960. According to some definitions, the physical attachment that humans possess and even the most basic technology has already made them cyborgs.[2] In a typical example, a person carrying an implanted cardiac pacemaker or implanted cardioverter-defibrillator could be considered a cyborg, because these devices measure voltage in the body, perform signal processing, and can generate electrical energy, using this end-response method. that person is alive.[3] Plants, especially cochlears, that include mechanical modification for any type of feedback loop are also cyborg enhancers. Other theorists [who?] Cite modifications such as contact lenses, hearing aids, smart phones or intraocular lenses as examples of people who are technologically advanced to improve their natural abilities. As cyborgs are currently emerging with some opposition theorists there is a need to create new definitions of aging and for example a bio-techno-social definition of aging has been proposed.[4]

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III. ACTUAL CYBORGIZATION ATTEMPT

In the current use of implants, the C-Leg system developed by Otto Bock HealthCare is used to insert a person's leg amputated due to injury or illness. The use of sensors in C-Leg input tools on the go is very tempting in trying to replicate the user's natural balance, as can be determined in advance. Print-like C-Leg and high-quality iLimb are considered by some to be the first real steps in the next generation of cyborg apps. [5]

In 1997, Philip Kennedy, a scientist, created the world's first human cyborg from Johnny Ray, a Vietnamese veteran who suffered from a stroke. Ray's body, as doctors called it, was "locked". Ray wanted his old life back so he agreed to Kennedy's test. Kennedy inserted his implant into Ray's brain so that Ray could return to his body. The surgery was successful, but in 2002, Johnny Ray died. [6]

In 2002, Canadian Jens Naumann, also blinded for years, became the first in a series of 16 patients who paid to receive Dobelle's second-generation supplies, indicating that this was the first commercial use of BCIs. The second generation device has used sophisticated implants that enable better design of phosphenes with a consistent view. Phosphenes spread throughout the visible field in what researchers call the night star's effect. Shortly after his arrest, Naumann was able to use his unpopular idea to slow down driving around the parking lot of the research center.

Contrary to changing technology, in 2002, under the title Project Cyborg, British scientist Kevin Warwick weighed 100 electrodes extracted from his sensory system to connect his sensory system to the Internet to investigate potential improvements. With this in mind, Warwick successfully implemented a series of tests that included expanding its online sensor system to control hand-held robots, and getting a hand-held response control. This was an extension of the extended sensor. After that, scan the ultrasonic input to see distant objects. Finally, with electrodes included in his wife's sensory system, they performed the first direct study of electrical connections between two people's sensory systems.

Since 2004, British singer Neil Harbisson has been wearing a cyborg turban on his head that allows him to expand his vision with more color than a man's show by nodding his head. His antenna was mounted on his 2004 passport photo confirmed to confirm his cyborg status. Neil Harbisson is the founder of the Cyborg Foundation (2004) and founded the Transpecies Society in 2017, an organization that empowers people with non-human symptoms and supports them in their decisions to develop new nerves and organs. Rob Spence, a Toronto-based filmmaker who calls himself the real "Eyeborg", has badly injured his right eye at the risk of being shot at his grandfather's farm at a young age. Many years later, in 2005, he decided to remove his damaged and now paralyzed eye, after which he inserted his eyebrow a little earlier, after playing for a while with the idea of installing a camera, consulted Steve Mann at the Massachusetts Institute of Technology, wearable computer technology and cyborg technology.

Initially, CYBORG refers to a Person who has physical activity assisted or controlled by technological devices, such as an oxygen tank, an artificial heart valve or an insulin pump. Over the years, the term has acquired a common meaning, one that describes people's dependence on technology. In this sense, CYBORG can be used to distinguish anyone who relies on one computer to complete his or her daily work.

Take the example of Neil Harbisson, an artist who was born with achromatopsia or extreme colorblindness which meant he could only see black and white. Initially, he found his electric eye, his "handle" so that he could make the colors he saw as sounds on the music scale. You can meet the colors beyond the normal human visual range: Amy Winehouse is red and pink, and the ringtones are green. Harbisson is considered to be a cyborg, which by definition, combines organic and mechanical body parts to improve physical function or improve skills. Although, somehow, almost everyone is enlarging their body, with the inclusion of cochlears, cardiac pacemakers or even contact lenses.

However, as medical technology in the field of medicine increases day by day, it will be more and more common to grow our bodies with the help of machines in a way that is changing more than ever before. Even if a person is completely healthy, it can make everyone faster, stronger or more sensitive to the environment. This means that the boundaries of the "human-ness" will be extended to raise important ethical questions and a philosophy of what makes us human or where the limits of cyborgization are. [7]

Let's take a look at the possible phases of body augmentation to better see the extent of the possible interaction of a human machine.

A. Cyborg Extension Removal

Without human perception, robotic structures called exoskeletons would give humans a sense of invincibility by helping humans to move with heavy weights — or even with themselves. [7] For example, a gait-training exoskeleton suit helped Matt Ficarra, paralyzed from the chest down, down the road on his wedding day. In the future, it is easy to imagine that soldiers, surgeons, and even paramedics and nurses who travel with patients would use exoskeletons on a daily basis to increase their muscle strength, stamina, and weight-lifting abilities. They are already helping medical professionals get through the long hours of surgery.[8]

B. *Cyborg Humans*

It is entirely thought that in the not too distant future, permanent, fully integrated and bionic implants will be widespread. Even today we not only have artificial limbs that are controlled by the brain but also with small electrodes inserted that can restore the sense of touch captured by the organ. Scientists are experimenting with various brain implants that can help restore hearing and restore sight to some blind people.[9] Rarer, but is also used, is a brain-based treatment for people with disabilities of spinal cord injury or other neurological damage. A chip embedded in the brain reads electrical signals translated by a computer to restore certain movements and communications.

C. *Digital Tattoos*

In the development of medical devices, a common trend has emerged: tools that are miniaturized, computer-generated and connected than ever before. In the past, the main purpose of medical tools has been to somehow measure health limits or to somehow record measurements, now, the question is how to measure more accurately, easily and simply using well-designed methods. However, the triumphant march of health and wear sensations is not limited to the creation of smaller, more flexible smartwatchs or pieces of clothing - such as Lumo Run -,the next frontier of technological advances brings us closer to the human body than ever before.[8] Seamless, thin, and invisible nerves made of flexible material first appear to be attached to our clothing, then to our skin as digital bones, to our stomachs as digestive substances or to our blood vessels as nanobots.

With the advancement of 3D printing and regional printing technology, flexible electronics and building materials, the use of so-called digital tattoos or electric tattoos on the skin for days or even weeks became possible. Some researchers use gold nanograms, others graphine or various polymers with rubber support to apply a tattoo on the skin without causing irritation. Some experts believe that these skin tissues or tattoos are just the beginning, and in the future, other skin types such as henna, tanning, and makeup will also be examined. These flexible, waterproof, non-abrasive materials with small electrodes are able to record and transmit information about the wearer to Smartphones or other connected devices.

IV. CYBORG IMPLANTATION

Modern medicine offers a wide range of bionic modes: Modern implanted electrical implants can stimulate the nervous system, restore nerves, deliver drugs, and can quickly replace all organs. Here is a sample of cyborg technology that benefits from advances in power processing, batteries, and sensors, allowing these devices to adapt to medical procedures in flight.[9]

A. *Brain*

Doctors are already using deep psychological stimulants to calm Parkinson's tremors and are investigating their application for depression and other disorders. A new installation from Medtronic, the Activa PC + S, could reveal new details. When not in use, these implants record brain signals, providing information that can help doctors understand the origin of neurological disorders.

B. *Eyes*

To restore blindness, the Argus II from second Sightcaptures images with a video camera and stimulates the retina with 60 small electrodes, allowing patients to see position and movement. It is designed for people with diseases that cause photoreceptor cells to shrink.

C. *Ears*

Next-generation cochlear implants could be a completely implanted tool from MIT’s Microsystems Technology Laboratory, which eliminates external microphones and energy sources. It picks up sound with a pie sensor that receives natural vibrations in the middle ear, and awakens sensory sensations.

D. *Heart*

To date, almost all heart transplants have only been used to pump blood while patients with heart disease are waiting to be hospitalized. But soon, patients can go home with a new heart from Carmat, intended to last for years and using a microprocessor and nerves.

E. *Limbs*

With the cuff electrodes around the nerve bundles on their arms, amputees feel the sensors in their artificial arms. Researchers at Case Western Reserve University and Louis Stokes Cleveland Veterans Affairs Medical Center are developing a system that converts sensory information into regenerative patterns, which move nerves to the brain.

F. Spine

The latest neurostimulator of St. It is the first such device to be built for development, so new software could be added as researchers develop new therapies.

V. ARGUS-II INVENTION

Argus II is the world's first FDA-approved artificial retina system that offers an unprecedented degree of sight to those with complete retinal blindness.[10] Patients suffering from RP are unable to receive light due to the lack of photoreceptors. Argus II restores visual acuity with advanced bioelectronic technology. Commonly referred to as the "bionic eye," an ophthalmic tool is a retinal implant system (Images A & C) consisting of a glass-mounted camera and 60 electrode retinal stimulator. Incentive, included the eye then connects directly to the retina, transmitting signals from the external camera to the retina with tiny electrical impulses, creating signals in the retina that are transmitted to the brain via the optic nerve.[11] The brain is able to process signals into visual images (Image F).

Argus II is only designed for patients who are blind or almost blind due to advanced retinitis pigmentosa. Patients should undergo a thorough medical examination to ensure that no other physical reasons should be given for implants. And patients should be aware that Argus II does not restore a complete, natural view. The restored view is only black-and-white, and does not include fine details.

A. Implantation

Installation of Argus II is a well-established surgery, which takes only a few hours. The procedure is performed by an experienced surgeon, and Second Sight specialists are available to support you. Once installed, the installation of the Argus II stays inside and behind the eye and is not visible to others. [12] It comes with external accessories that include glasses with a built-in camera and a small portable repair unit that holds together and processed video signals to be sent to the installation. Once Argus II is installed, you will return to the clinic after about 4 weeks of treatment so that your Argus II can be operated on and tailored to your specific needs.

Argus II was developed indoors by more than a decade of highly focused R&D efforts. As technology improves, so does your Argus II installation - without the need for further surgery. Enjoy the flexibility of programming, and the potential for future development of hardware and software.

B. Real Life Impact

Lisa Kulik, became the first person to be filed with FDA approved, Argus II at the USC Keck School of Medicine by Drs. Humayun and his team in June 2014. Lisa was blinded by the RP gene inherited and is now able to see 30 Years of total darkness (Image D) following the inclusion. Examinations by Mark Humayun, PhD, MD, reported that Kulik was earlier than expected as he was able to see light spots on the first day of operation. Lisa Kulik celebrated this truly amazing engineering by watching the four July explosives (Image E).[10] The photo shown in (F) is what Argus II was able to photograph Lisa that day! During the months of follow-up tests, Kulik will train his brain to see in a new way, translating signals sent by Argus II. Recently, a USC Roski Eye Institute patient, Terry Byland, became the first person in the world to have two back transplants; one in each eye.

C. The Next Generation: The Bionic Eye

Although Argus II has achieved significant success, the number of views restored is limited. Better technology is needed to provide a richer sense of vision. To date, research has been conducted on more complex connections that can directly identify individual retinal cells. New materials and combinations are under research to enable these devices.[11] The external camera system, which currently only performs limited video data processing, is transformed into a "smart camera" that can detect important and relevant parts of the scene and alert the patient about this, while filtering out unimportant details. Using the development of Argus II as an example, the current team of ophthalmologists, scientists and engineers are collaborating on this next-generation product.

VI. TECHNOLOGY IS CHANGING HUMANS

Technology that disrupts the health system, the genetic code, can change you permanently not only you but also the next generation. Gene genetic technology, such as CRISPR, gives scientists the ability to add, modify, or remove parts of any creature's DNA.Its many potential uses include correcting genetic defects, treating and preventing the spread of disease and improving plant. Research efforts are ongoing on the genetic treatment of patients with genetic disorders. For example, researchers at Oxford's Nuffield Laboratory of Ophthalmology are helping to restore the vision of patients with genetic defects.[12] One way is to inject genes that work behind the scenes. On the other hand, there is the promise of treatment and prevention of complex diseases, such as cancer, heart disease, mental illness, and HIV.

However, genetic engineering may go a long way in treating disease. Parents can design perfect children according to their best qualities. Who doesn't want a tall, strong, beautiful child with a high IQ and empathy? Biologist Ronald Green of Dartmouth College in New Hampshire believes that "we will begin to see the use of genetic engineering and reproductive technology for improvement: white hair and blue eyes, improved sports skills, improved reading or counting skills, and so on.

VII. CONCLUSION

People have limited abilities. Humans understand the world in a restricted way, the vision is far ahead of the senses. Humans can understand the world in only three dimensions and communicate in a slow way, with a term called serial. But it needs to be improved so that people can be present in this competitive world. Only technology can make it happen. And Cyborgology is the technology of the future with the goal of making it a reality. Or it has as many flaws and flaws as any technology from now on. Finally I would like to say that if the future of intelligent robots, then to protect humanity, we will need some TERMINATORS. They are all CYBORG. Because by making human CYBORGs, we can have the following additional strengths: We will be able to communicate with each other through individual thinking signals, so there is no need for cell phones, old signals, we can all think about each other's implants. Instead of communicating verbally as we do now, we will be able to think of each other, simply by inserting a link into our sensory system that connects our brain electronically with a connection, which may be beyond the internet. We will not need the languages we are currently doing, we will need a new language of ideas and concepts to transfer thoughts from the brain to the brain. One confusing feature is that Cyborg can have a brain, which is not only independent, but in part, connected directly to a network. A really leading question is welcome in the behavior of cyborgs to donate their personality and just be spaces in a smart machine network. This is actually a question for cyborgs as humans.

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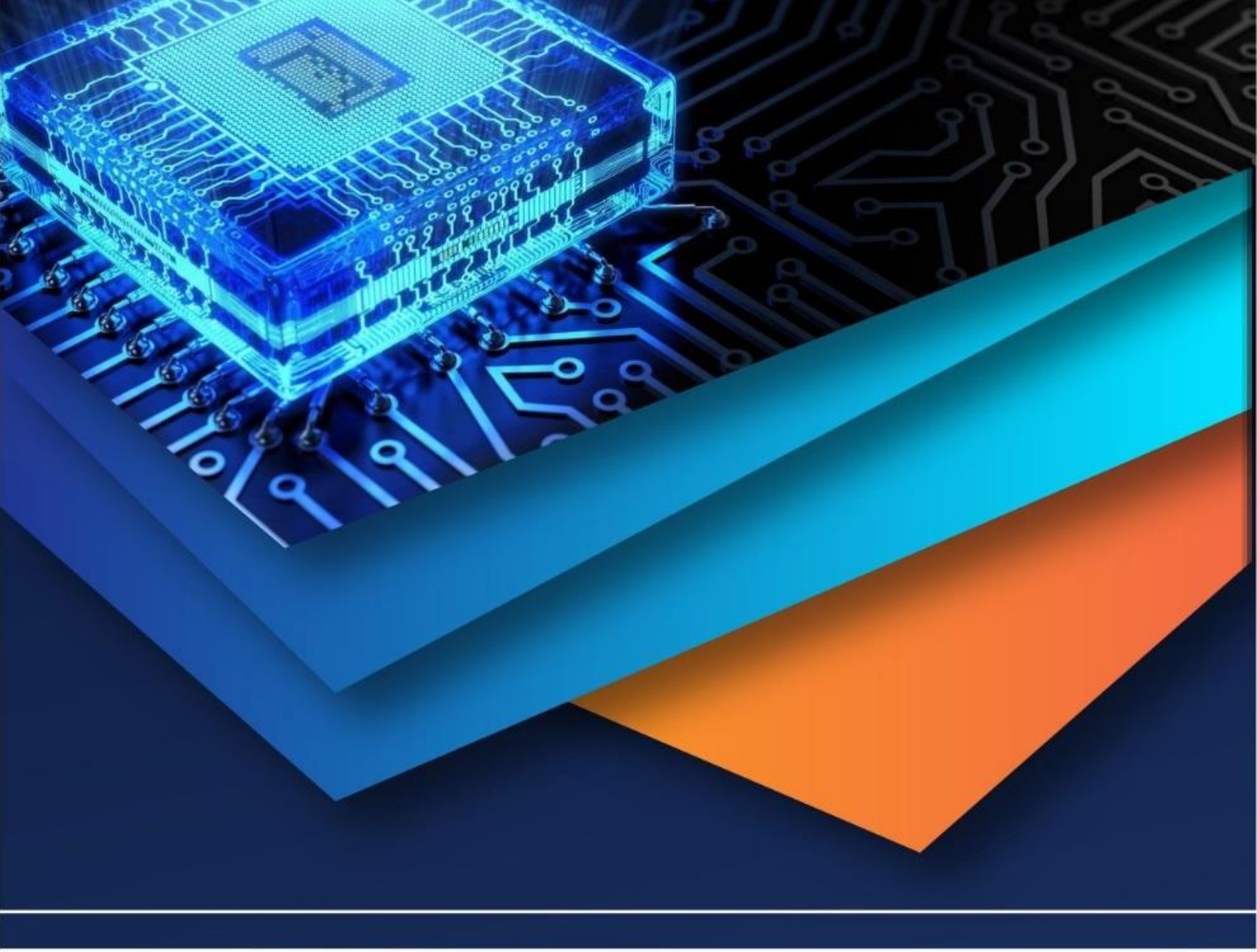

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