A STUDY ON VIRTUAL INTELLIGENCE

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Abstract. Virtual Intelligence can be otherwise known as digital intellect. VI is one of the developing technologies of this decade. It is the result of union of two technologies that are swiftly shooting up. They are Virtual Reality and Artificial Intelligence. While Artificial Intelligence will make machines react like an individual, VR will create an imaginary computer universe. This tech intends in transforming machines more like people. Using this VI technology, one can feel virtual world of their desire. This technology is utilized in many fields. Virtual Intelligence will integrate the mode of teaching. This will boost the gaming sector and will play a role in automation.

1. Introduction
The Big revolution occurred in the gaming sector after the dawn of Virtual Reality technology. As it gave a more sense that was pragmatic, people enjoyed this technology. This technology took us to a different environment. AI technology aimed at providing intelligence to machines. Both the technologies flourished in different way. An integration in these two fields lead to their intersection. It generated an innovative technology known as Virtual Intelligence. It is also called as Digital Intelligence.

1.1. Virtual Intelligence
This technology is the formed by merging two technologies that are advanced namely artificial intelligence and virtual reality. In VI tech, an imaginary world is made and artificial intelligence exists in such a way, that it might generate response to the users within this virtual world. Sonia Clayton (Sonia Clayton) discovered this VI technology on September 30, 2001. The headquarters is located in Houston, Texas, USA. This technology simulates decision-making within a virtual world. Alan Turing (Turing) discriminated human and computerized intelligence with no virtual impact. With today’s VI bot’s virtual intelligence has overcome the limitations of prior testing. Development in this field has changed the machine’s ability to imitate human brain.

2. Literature Review
2.1 Prediction of lost circulation in Iranian oilfields using virtual intelligence-Ref: Conference paper published by society of Petroleum Engineers
This paper was published by A.R. Moazzeni, M. Nabaei and S. Ghadami Jegarluei (A.R. Moazzeni, 2010) in the year 2010. Huge energy, time and manpower are required in drilling oil through many layers. Hence, to overcome this problem, programmed machines were attempted. One of the common
problems faced in oil drilling is lost circulation which imposes heavy expenses to the oil companies. This problem prevails throughout the drilling process. Intelligence is used to simulate a scenario that is more complicated. It takes record of everyday drilling results. It will predict lost circulation areas by referring the daily records and will direct accordingly.

2.2 Virtual Intelligent wheel chair for differently abled-Ref: Conference paper published by Brigida Mónica Faria, Luís Paulo Reis, Nuno Lau, António Paulo Moreira, Marcelo Petry, Luís Miguel Ferreira

This paper was published in the Portuguese Conference of Artificial Intelligence held on 25th august, 2005. This is known as a progress in the field of AI. This paper came up with an idea of virtual intelligent wheel chair capable of self-thinking. Many people who can't move normally require a safer wheel chair. An advancement of this wheel chair is autonomous VI-wheel chair. This wheel chair was developed for providing safety movement of the aged and differently abled people. This wheel is automatic and it resembles the features of robot. Testing was conducted between electric wheel chair users and VI automatic wheel chair users. The results were favourable and it is stated that VI-wheel chairs are safer to use.

3. Technologies used in Virtual Intelligence

These three technologies serve as roots of VI technology. They are,

- Virtual Reality
- Artificial Intelligence
- Machine Learning
- Artificial Neural Network

3.1 Virtual Reality

The term virtual means something fanciful or something that does not physically exist but can be simulated by software. Ivan Sutherland and his student Bob Sproull (Ivan Sutherland, 2019) invented this technology in 1968. They invented the VR handset. This VR handset was huge and heavy. The term ‘Virtual Reality’ was coined by Jaron Lanier (Lanier) in the mid-1980s. He had been considered as the ‘Father of Virtual Reality’. He developed gear, goggles and gloves which gives a realistic feeling in the digital universe.

![Fig.3.1. Ivan Sutherland and Bob Sproull's VR set](image)

Virtual reality is one among the decade’s technologies. This technology has brought a revolution in the gaming market. It’s playing a very important role in several fields such as gaming, medicine, education, etc. Virtual universe creates any imaginary environment so people enjoy it without really being there. It creates an imaginary world and the users can interact with others by taking the form of avatars. The users love and adore this different imaginary world which gives a pragmatic feeling. Virtual world is only an imaginary world created by computer or software. The game Blue mars is
really a significant example. It is said that healthcare and education will surely see a highly advanced and innovative boons apart from gaming industry using this technology in the upcoming years.

3.2 Artificial Intelligence

Artificial Intelligence is on the cutting edge (google). Artificial Intelligence is one of the best technologies. This technology has been launched in 1955. This term was coined by John McCarthy (artificial solutions), Stanford researcher in 1956. He explained artificial intelligence as “the science and engineering of creating intelligent machines”. Prior to the advent of this technology, machines were capable of doing many jobs but, they were unable to think or decide by themselves. Machines imitated people in many aspects but, they had been lacking intelligence.

With this technology machines are given the capacity to think and respond. This brings machines closer to humans. AI has paved the way for automation. It is anticipated that the automated world would turn within a few years. Artificial intelligence developed producing robots, Google’s AI powered forecasts, smart assistants, disease mapping devices, virtual travel booking agent, inter team chat tool, etc. Ride sharing apps like uber, etc. utilize this technology. Plagiarism checkers are produced from this technology. AI Autopilot is used nowadays by commercial flights. Applications of artificial intelligence are tremendous.

Artificial intelligence helps mankind in many ways. It reduces errors made by humans. The machines will be more précised in their work compared to humans. They can take risk instead of humans. They make our work easy.

Besides many advantages and uses, there are some disadvantages. Primary disadvantage is its high cost which stops the technology from reaching everyone. Maintaining and repairing AI based machines include high cost. No matter how much efficient the machine is but it could never replace mankind. If this technology comes into use the world will endure with unemployment.

3.3 Machine Learning

Machine learning is also a salient technology in Digital Intelligence. With Machine learning technology, the computer learns from experiences automatically. Machine Learning is a branch of artificial intelligence. This technology comes into use when the user wishes to alter the digital world. This technology is used to satisfy the customized needs of the consumers. This technology makes the machine to adjust itself to the user’s wish. It avoids rewriting the codes every time.

3.4 Artificial Neural Network

This technology is a replica of human nervous system. In humans, the nervous system has a coordination by neurons, and they work together. Similarly, in this technology, many circuits are coordinated so that the information is transferred, and many processes happen within the transfer. This tech is used to achieve the environment that the user wishes to experience. This network will establish a connection. Programming codes are necessary to connect the circuits to form a neural network. This network is a collection of algorithms that helps in knowing the process that are happening between many sets of data.

3.5 Need for Virtual Intelligence

It is impossible for everyone to visit each area of Earth. This can be made possible with Virtual Intelligence. People will have actual experience in this virtual world. If Virtual Intelligence flourishes in the medicine field, it would become easy for the students to understand how to operate without taking any risk. Digital intelligence ought to be put into the field of education so that students will
experience a digital learning rather than learning from text publications. It is expected that the entire world will have automation in the future. It is stated that VI will play a part in automation.

3.6 Future of Virtual Intelligence
It is thought that VI tech will alter the trend of the future. It is expected that virtual intelligence will become more realistic and individuals will delight spending more time in virtual spaces. Virtual Intelligence will bring a shift that is favorable. Students experience and learn different surroundings. Researchers are currently running many researches in this area to deliver VI tech to our life. Utilizing artificial intelligence and virtual intelligence, autonomous aircrafts and automatic vehicles are expected in the future.

4. Virtual Intelligence in Cyber Security
As the technology develops, the frauds and the threats associated with them also increases. With the growth of technology, hacking also increases. This doesn’t mean that it is unsafe to use technology. With the growing of hackings, security is also developing. This introduced cyber security to fight against virtual threats. Virtual Intelligence will integrate the security. For instance, if a company is hacked then VI technology will automatically reveal the information to the government and many other users. It will warn them from using the company’s site until the problem is fixed.

4.1 Products of Virtual Intelligence
Some products of virtual intelligence are listed below. They are:
- Cutlass bomb disposal robot
- MyCyber twin
- Second China
- Duke school of Nursing Training Simulation
- Virtually Intelligent vehicles

4.1.1. Cutlass Bomb Disposal Robot. This endeavor was discovered by Northdrop and Grumman. Virtual intelligence was implemented by producing a training method. This has been completed to interdict the hazards and risks that the world has to suffer due to the disposal of bombs. Replicating this kind of environment that is dangerous and intricate will eliminate the dangers and damage to this world. This kind of robots have no probability of damage and contemplating the safety, this technology is useful.

![Fig. 4.1.1. Cutlass bomb disposal robot](image)

4.1.2. MyCyber Twin. MyCyber twin is nothing but cloning something or somebody. NASA utilized this technology to clone Phoenix Rover, a spacecraft that landed in Mars. They cloned the spacecraft
almost, so the people could be aware of what the spacecraft does and also created a replicating world of Mars. They utilized VI technologies to relay information about the working of Phoenix Rover.

![Phoenix Rover](image)

**Fig.4.1.2. MyCyber twin of Phoenix Rover**

4.1.3. *The Second China.* ‘The University of Florida’ created the idea of the Second China. This project focused in creating a digital environment that replicated China. The students can learn to socialize with tradition and foreign culture without really being there. They can collect information. This technology can be utilized to make surroundings of a number of countries that would help other and students to research this new immersive universe.

4.1.4 *Duke School of Nursing.* This nursing college executes this VI technology. It is evident that training doctors and nurses is among those perilous and tedious jobs in the world. This endeavor is risky since they're meant to take care of individual lives. Any small mistake may set them in danger. Virtual Intelligence comes into play in this scenario. Employing this technology nurses and doctors can train themselves in a way that is much better without taking any risk. The VI bots were developed to respond as patients to the nurse acts. This VI tech will provide a realistic feeling and the VI bots will respond them according to their actions. In the event of the nurse performing the right actions, it would respond as the patient’s condition is improving and vice versa.

4.1.5. *Virtual Intelligent vehicles.* He Han-wu, Lu Yong-Ming and Lou Yan (He Han-wu) published a project named virtual intelligent vehicles in 2006, 7th International Conference on Computer-Aided Industrial Design and Conceptual Design. They aimed in inventing virtually intelligent vehicle that obeys traffic rules and drives correctly along a certain path. Their experiment illustrates that these vehicles could exhibit human like driving behavior. It is said that these machines still keep up their correctness and accuracy. Hence, it is believed that these vehicles might be safer to use.

5. **Conclusion**

One of the biggest threats is that machines might overpower mankind. Cost is also a driving factor. Any machine involving AI is expensive. It might cost an arm and a leg. Hence, it would become very hard for many in this world to experience it. Other disadvantage is that people will enjoy virtual world, and they might find hard in accepting reality. If machines start imitating humans then people will start trusting machines instead of humans.

VI is expected to increase the quality of life. Many researches are conducted to prosper this technology in every area. If it is applied within the field of education, virtual Intelligence will improve the manner of teaching. Any technology when used for human welfare will uplift people’s lives.
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