

7D Holographic Technology

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Abstract: The significant development of 7D Holographic technology, its potential to revolutionize aspect of teaching a learning, Entertainment and challenge of implanting the technology in education setting. Holography is the science of making holograms which are usually intended for displaying seven dimensional images. It is a physical structure that diffracts light into an image. A holographic image can be seen looking into an illuminated holographic print by shining a laser through a hologram and projecting a image on the screen. 7D Holographic technology overcome the barrier of entertainment word. Based concept of 7D technology little but same but some more scope. The paper reviews the basic concepts of holography, discussing in depth of the principle of interference on which it is based, and outlines the broad applications of holography. We finally present a short conclusion in the end after analyzing the various aspects of holography. Interactive display

- ▶ A high resolution three dimensional recording of an object
- ▶ Glasses free 7D display
- ▶ No need for projection screen
- ▶ Life like images

Keywords-holography;hologram;projection;interferometry

I. INTRODUCTION

Gabor, who imagined holography in 1947, presented the term utilizing two Greek words: "Holos" - entire and "Graphe" - composing. It basically implies that the recorded holographic picture of the item contains entire optical data about the object – Amplitude and Phase data of the light scattered from the item. Preferably, the visualization is a three-dimensional picture replicated from impedance design recorded by intelligible light beams and holography is a procedure of remaking and composing a multi dimensional image. White light from the sun or a light is a blend of each shade of light in the range, which is not valuable for a multi dimensional image. In any case, a laser sparkles light in a dainty, exceptional shaft which is of one shading which suggests that they are uniform and in-stage. At the point when two laser shafts cooperate, a solitary new wave example is delivered: the multi dimensional image. Customarily, holography was typically static and the application constrained to shows, yet with improvement in this science, it is utilized as a part of different field of applications, including workmanship, security, information stockpiling et

II. BASIC PRINCIPLES OF HOLOGRAM AND IMAGE RECONSTRUCTION.

A. Basics of Holography

A 3D image is a recording in an a few dimensional medium of the obstruction design shaped when a point wellspring of light (the reference pillar) of altered wavelength experiences light of the same settled wavelength touching base from an article (the item beam). Ordinary light is comprised of a wide range of wavelengths, none of which keeps up an altered stage association with one another or with themselves over a timeframe. It has poor worldly soundness. Such incomprehensible light is not equipped for meddling with itself, which is the most essential for the use of holography. So lasers are utilized to deliver light pillars which are reasonable more than 10^{10} wavelengths and that's only the tip of the iceberg.

• **Interference:** It is a marvel in which two waves superpose to frame a resultant flood of more noteworthy or lower plentifulness. Obstruction as a rule alludes to the waves that are lucid with one another.

• **Diffraction grinding:** The recorded light example Is diffraction grinding. When it is lit up by one and only of the waves used to make it, it can be demonstrated that one of the diffracted waves develops at the same edge

at which the second wave was initially episode so that the second wave has been reproduced. Along these lines the recorded light example is a holographic recording.

• **Photographic plate:** Only records the intensities.

• **Interference Pattern:** Contains the sta

B. Experimental Setup

For creating holograms we need,

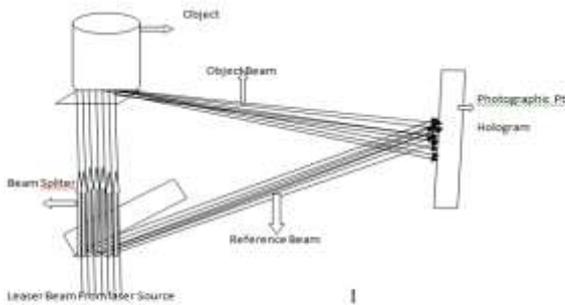
- 1) Laser
- 2) Beam splitter
- 3) Photographic plate or Hologram plate
- 4) Mirror

It involves two processes:

- a) Recording a Hologram
- b) Reconstructing a Hologram

III. RECORDING A HOLOGRAM

A coherent light from a Laser is directed on a Beam- Splitter. A Beam-Splitter divides the laser beam into two identical beams, which are aimed in two different directions. The two beams are Object beam and Reference beam. The object beam is reflected by the surface of the object onto the plate. The reference beam directly falls onto the plate. So the laser beams interfere with each other. A laser light hologram is recorded.

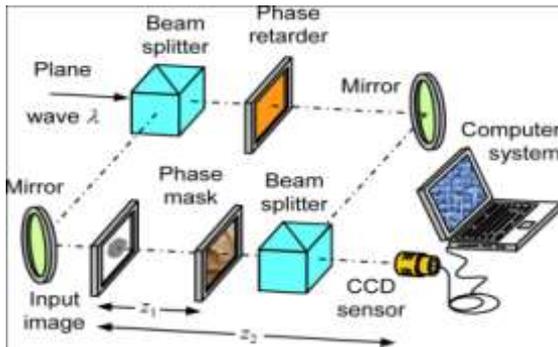


A. Holographic Interferometry

As the holographic recording procedure is subject to the obstruction design created because of the two coherent, monochrome optical waves, the holographic picture is the comparative shape between these two waves. The holographic interferometry uses this property to empower static and element dislodging of articles with optically harsh surfaces to be measured to optical interferometric precision, with applications in modern non-damaging testing and push, strain and vibration investigation.

B. Data Storage

One of the utilization of holography is data stockpiling. A solitary picture can contain enormous data which can be gotten to by reflecting light from various points not at all like conventional optical stockpiling strategies like CD-ROM. Visualizations are as a rule widely looked into for high limit information stockpiling gadgets for stimulation and processing purposes. Despite the fact that there are specialized and material difficulties to holographic information stockpiling, they could yield limits of a trillion bits for every square centimeter. Quick advance in different recurrence holography offers atleast the theoretical potential for overseeing high information densities and readout speeds. In holographic information stockpiling, information is initially transformed into a two dimensional example of light by a spatial light modulator which is a variety of light switches that can store upwards of one million bits or pixels. Laser light is channeled through the SLM to the recording medium, for example, a photopolymer, while a reference pillar additionally enlightens the medium with the goal that impedance examples are made. These uncover the medium by creating comparing contrasts in optical properties, for example, refractive list or assimilation. Numerous pages of 3D images can be multiplexed onto the same medium, either by changing the point or period of the reference pillar, or by utilizing diverse frequencies, among different methods.



To catch the seven-dimensionality of an item, the film stores the sufficiency as well as the period of the light beams. This recorded obstruction design really contains a great deal more data than an engaged picture, and empowers the viewer to see a genuine seven-dimensional picture which shows parallax.remote.

Difference In characteristic of Dimension Technology

Functionality	Video	audio	*2..P project or "3D Glass "	*2+m otion "Aro mas"	Real Experi ence "Simu lation "	Added Effect "Smok e"	Too many DS "Virtu al real"
1D	Yes						
2D	Yes	Yes					
3D	Yes	Yes	Yes				
4D	Yes	Yes	Yes	Yes			
5D	Yes	Yes	Yes	Yes	Yes		
6D	Yes	Yes	Yes	Yes	Yes	Yes	
7D	Yes	Yes	Yes	Yes	Yes	Yes	Yes

APPLICATION OF HOLOGRAPHY

Holography is widely used in various fields of application, including art, data storage, security and so on. This section introduces some common applications of the holographic technique.

C. Security

Holography can likewise be utilized as a part of security applications. Complex multi dimensional images are a great deal more hard to imitate contrasted with static pictures. Thus, multi dimensional images are regularly set on significant things to decrease the odds of fabrication. Normal security uses of holograph incorporate marks on charge cards and pictures inserted in government money. Critical records, for example, travel permits and recognizable proof cards likewise frequently utilize them to dishearten illicit generation.

D. Holographic Sensors

A holographic sensor is a gadget that involves a 3D image installed in a brilliant material that recognizes certain particles or metabolites. This discovery is typically a synthetic collaboration that is transduced as an adjustment in one of the properties of the holographic reflection (as in the Bragg reflector), either refractive file or dividing between the holographic edges. The specificity of the sensor can be controlled by including atoms in the polymer film that specifically collaborates with the particles of interest. D. Visualization Making Recent News Recently Holographic 7D projection magnificent show led in Dubai .It truly picture impact without glasses. The join as

<https://www.youtube.com/watch?v=A1G3EG9SgIg>.
Entertainment like how to train dragon link
<https://www.youtube.com/watch?v=GEXmJOR7e8U>



In this Medical Science most research and operation done Are finished with the assistance of 7D technology.Surgery like Heart,kidney and so on More and more simulator done . 3D Medical Animation Studio - 3d therapeutic outlines, has the capacity of showing 3d restorative movements through holographic presentations including the alternative of interactivity.Medical reproductions organization Tres 3d is pushing the limits of customary MOA's (technique for activity) by making holographic/3d liveliness to be seen on holographic film without the need of unique glasses.

Advanced cell and Cameras.

Today more advanced cell dispatch with 7D teprojection innovation ,cameras with well design that venture technology.Company likes Sony,Motorola the application like Vyomy 3D projector and Hologram test system.

Cell phones might have as of now achieved the top for their screen determination with Apple's 'Retina Display', which really gives a determination that is more keen than what the human eye can see. Yet, that being said, regardless we need more. Versatile organizations are presently moving from 3D future-highlights advanced mobile phones/to 7D future-highlights PDAs/for the cell phone screen. At present, we have a few 7D cell phones in the business sector, for example, the LG Optimus 7D, the Motorola and in addition the main Samsung AMOLED.

Key Features Of Smart telephone

1. Expanded Reality (AR)
2. Adaptable Screens
3. In-Built Projector
4. Consistent Voice Control
5. 3D images

IV. HOLOGRAPHIC PROJECTION

With the utilization of the most recent HD projectors, CGI movement, pro HD film methods and enhancements made in after generation, Pepper's Ghost innovation has been moved up to the 21st century.Instead of a genuine article or individual's appearance showing up on a plate of glass, top notch video and CGI activity is shot specifically onto an extraordinarily outlined, synthetically treated straightforward film by means of a high power HD projector. Albeit significantly more costly, this present day approach results in a much clearer, authentic 3D image projection. In August 2009, Endemol, the makers of the renowned unscripted television indicate Big Brother, cooperating with activ8-holographic projections, radiated housemates' loved ones into the house to convey messages of backing and consolation. The messages were pre-recorded utilizing HD cameras and particularly calculated lighting. A stage was fixed inside the Big Brother house undertaking room, incorporating of a HD projector, media player, lighting, and

sound gear. Every housemate went into the room thus and sat down before the stage. On prompt, the housemate's relative or companion was radiated into the stage before digging their message. In spite of the fact that the visualization presentations were hard to judge on 2D TV screens, the occasion was hailed as an awesome achievement, bringing out splendid responses from the housemates which made for extraordinary TV.

In January 2009 Coco-Cola gave a holographic deals gathering presentation in Prague for more than 800 people. Senior executives of the organization were radiated into the stage as 3D multi dimensional images before giving a presentation about how the Coco-Cola brand has developed throughout the years. The substance of the presentation was likewise as 3D holographic projections. The middle piece was a mammoth 3D multi dimensional image Coco-Cola marked turning clock, speaking to the movement of time. A showcase of past Coco-Cola containers, logos, and names amongst different articles were likewise anticipated as 3D visualizations to make Prague's initial 3D holographic projection display. Bill Gates, Chairman of Microsoft Corp, showed up at the "World Congress on Information Technology 2008", where he was duplicated in front of an audience as a holographic recreation. The measure of the projection was 4.6m and showed up before the gathering of people of around 400 at the Kuala Lumpur Convention Center. Obviously, the holographic picture was exceptionally practical and the group was inspired with the outcomes. Doors expressed amid his discourse that, "There are one billion individuals (on the planet) who have a PC each however there are five billion other people who don't. Microsoft additionally needs to contact these individuals."

V. CONCLUSION

Holography has ended up being a genuine seven-dimensional photographic procedure, which implies that it's mindful of the profundity of the space. Capacity to record the stage data of the light is the principle contrast recognizing it from customary photography. The best way to store the period of light is by using the impedance wonder. A cognizant light source is fundamental to light obstruction, subsequently the leap forward on laser innovation lead to the fast improvement of holography. At last we saw the different utilizations of holography and saw that there is an incredible potential which lies in it. Particularly in the field of information stockpiling, when the present innovation achieves its utmost, the holographic strategy may be the cutting edge solution. Technology hop toward 8D,9d,10D,11D.. ongoing.7D Projection showing on Mobile Apps Further, the growing 7D excitement interest is likewise an open door for holography.

VI. ACKNOWLEDGEMENTS

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REFERENCES

- [1] Mindaugas, Methods and Applications of Optical Holography.
- [2] Saxby, Graham, Practical Holography, 3rd edition.
- [3] Apple Progressing with 3D Holographic Projection Technology (The Macintosh News Network]
- [4] Cisco Telepresence 'On-Stage' Holographic Video Conferencing.
http://www.eyeliner3d.com/cisco_telepresence_holographic_video_conferencing.html