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Virtual Reality Based Food Supply System Management

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VIRTUAL REALITY BASED FOOD SUPPLY SYSTEM MANAGEMENT

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***Abstract*— Virtual reality is thought of as the pinnacle of human-computer interactions and has the potential to be used in a variety of contexts. A novel approach to emergency management based on activity network technology is given in order to enhance the standardisation and automation of disaster operation management. First, the emergency plan is constructed utilising technology called an activity network and emergency response activities. Straight lines linking waypoints of interest can be used to depict a virtual journey, although this basic model does not adequately capture ordinary user activity. We put the concept into a framework that can be used to redistribute food in various real-world and virtual settings. It is helpful for assessing redirected parameters in various circumstances.**

INTRODUCTION

A hologram is the interference pattern between a wavefield dispersed from the item and a point source of light with a fixed wavelength (reference beam) (object beam). A hologram comprises data on the whole three-dimensional wavefield of the recorded item and is encoded in a two- or three-dimensional media. The diffraction pattern mimics the light field of the actual item when the hologram is irradiated by the reference beam. The picture that the viewer sees after that is identical to the recorded object. The 3D virtual picture of an item is preserved on a recording media called a holographic plate. A holographic plate holds information about light that is used to rebuild an object, whereas the grooves in a recording medium (such as a CD) carry information about sound that may be used to reconstruct a song. Microinterferences of light and dark are used to encode information about light. Since they have high spatial frequencies, they often are not visible to the human eye. By lighting the hologram with the reference wave and reconstructing the object wave, a 3D picture showcasing the effects of perspective and depth of focus is produced. Holography is the name of the photography process that records light dispersed from an object and displays it as a 3D picture. Because it records information in a manner more similar to what our eyes use to see the world around us, the representations of the item created by this technology are the most lifelike 3D reconstructions. Since the observer may examine the whole three-dimensional volume of one image, it is an appealing imaging approach. Numerous varieties of holograms have been developed over time. These include rainbow holograms and transmission holograms, which enable light to pass through them and allow the picture to be seen from the side. These are typical in driver's licences and credit cards (used for security reasons). While holograms have appeared in films like Star Wars and Iron Man, the actual state of the technology is not as advanced as it is in those fictional accounts #! Although holograms are now static, they may nevertheless look amazing when shown in a gloomy space with correctly placed lighting or on a big scale and lighted by lasers. Some holograms may even seem to move as the spectator passes by and observes them from various perspectives. Depending on how the viewer looks at them, certain others can alter their colours or incorporate images of other objects. Cutting a hologram in half reveals that each half has the pattern needed to rebuild the original item, which is one of its intriguing characteristics. The complete holographic picture will still be present even if only a tiny portion is removed. A magnifying glass may be made into a hologram, and this will produce a hologram that will enlarge all of the other things in the hologram. Holography makes use of the fact that light is a wave to produce holograms. Lenses are employed in a typical photograph to focus an image on film or an electronic chip, capturing where light is present or not. The holographic method records the form a light wave assumes after reflecting off an item. It can capture 3D pictures by using light waves that interfere with one another. Similar to how water waves interact when they cross paths, light waves can cause interference. The information needed to construct the holograms is included in the pattern that is produced by the interference of waves. Without the development of the laser, realistic 3D holograms could not exist. Coherent light waves are produced by lasers. The ability to capture the holographic light wave interference patterns is made feasible by this coherent light. While laser light generates light with a single wavelength and a single colour, white light creates all the distinct frequencies of light flowing in all directions. A hologram may be made using three components in its simplest form: an item or person, a laser beam, and a recording media. Additionally, a clean atmosphere is advised so that the light beams can cross. Mirrors are used to divide the laser beam into two beams and refocus them (Figure2). The reference beam is pointed at the recording medium, while the other beam is focused on the item. The item's surface reflects some of the object beam's light onto the recording medium. The interference pattern produced by the beams' intersection and interference with one another is recorded on the recording media. Various materials can be used to create this media. Photographic film is a typical recording medium that has been enhanced with light-reactive grains. This enhances the resolution of the two beams and produces a more realistic image than silver halide material. A typical camera's produced film

displays the original scene's negative aspect, with bright and dark portions. Looking at it, one can still somewhat comprehend how the original scenario seemed. However, nothing from the original scenario can be seen while viewing a disclosed holographic tape. Only with the correct illumination can the filmed item be clearly seen, even in dark film frames or a chaotic pattern of lines and swirls. To replicate the original object beam in a transmission hologram created using silver halide emulsion, for instance, the proper light source is required. The diffraction grating and reflecting surfaces inside the hologram, which were brought about by the interference of the two light sources, are employed to replicate this beam. The reconstructed beam matches the original beam of the item exactly as it was before it was mixed with the reference wave. Additionally, it moves in the same plane as the initial beam. This indicates that the beam is directed toward the observer since the item was on the other side of the holographic plate. The light is focused by the eyes, and the brain perceives it as a three-dimensional image behind the recording medium.

LITRERATURE SURVEY

[1] Frode Eika Sandnes"' DRAWING ABRASIVE HOLOGRAM ANIMATIONS WITH AUTO GENERATED SCRATCH PATTERNS" In this paper, the Abrasive holograms allow people to experiment with impressive quasi-holography and create hologram artwork through simple means of creating reflective scratches on sheets of plastic. Most of the reported accounts of abrasive holography address the creation of three- dimensional illustrations

[2] Mohammed T. Alresheedi and Jaafar M.H. Elmirghan" HOLOGRAM SECTION IN REALISTIC INDOOR OPTICAL WIRELESS SYSTEM WITH ANGLE DIVERSITY RECEIVERS" In This paper, , we introduce a new adaptive optical wireless system that employs a finite vocabulary of stored holograms. We propose a fast delay, angle, and power adaptive holograms (FDAPA-Holograms) approach based on a divide and conquer (D&C) methodology and evaluate it with angle diversity receivers in a mobile optical wireless system.

[3] Jiao Shumming, P.W.M. Tsang" COMPARISION HOLOGRAM GENERATION METHODS:SAMPLING ON THE OBJECT IMAGE SCENE
AND ERROR DIFFUSION METHOD ON THE HOLOGRAM PLANE" In this paper Holography is a technique to record 1 scene on a 2D plane, which is called a hologram. As a special kind of 2D a image, the digital image processing of holograms such as gray level image binarization can be quite different from conventional images. The generation binary holograms from gray level holograms can be implemented not only conventional dithering or error diffusion methods but also sampling methods the object image proposed recently.

[4JLi De" A FORENSIC MARKING ALGORITHM BASED ON DWTSVD USING HOLOGRAM" In this paper, a new forensic watermarking algorithm which generates digital hologram from forensic mark and embeds it into DWT-SVD domain was suggested. Forensic watermarking is used to trace the illegal distribution. For the purpose of the high capacity , off the hologram is generated from forensic m and the hologram is embedded into subband of the DWT domain, so that we could reduce the signal interference.
Also, we improved the algorithm safety and detection performance by using SVD for the signal embedded hologram.
[5]Hyuk-Joong Kwon and Tae-Hyoung Park" AN AUTOMATIC INSPECTION SYSTEM FOR HOLOGRAM WITH MULTIPLE PATTERNS" We propose an automatic inspection system for hologram with multiple patterns. The system hardware consists illuminations, camera, vision processor. Multiple illuminations using LED are arranged in different directions to acquire each image of patterns. The system software consists of pre- processing, pattern generation, and pattern matching. The acquired image of input hologram are compared with their reference patterns by developed matching algorithm. To compensate for the positioning error of input hologram, reference patterns of hologram for different position should be generated in on-line.
[6]Crystian Wendel M."ALTEDED REALITY: AUGMENTING AND DIMINISHING REALITY N REAL TIME" This paper presents removes an object and replaces it with its purposely-modified replica.the solution uses dynamic texture techniques and in plant to enhance the visual response of the modification.
In today's market, people want applications that go beyond leisure, tourism, or marketing and are more cheap. Virtual interfaces must also be enhanced to eliminate flaws like clipping, which causes some solid objects to seem as if they may be passed through. Or to mitigate the affects that VR has on humans, such as motion sickness, which is characterised by dizziness caused by a mismatch between our body's movement and what is observed in the virtual environment. The major technology companies are already working on developing headsets that do not require connections and can display visuals in high definition. They are working on 8K Virtual Reality headsets with even more powerful CPUs.

I. SYSTEM DESCRIPTION

3.1 BLOCK DIAGRAM

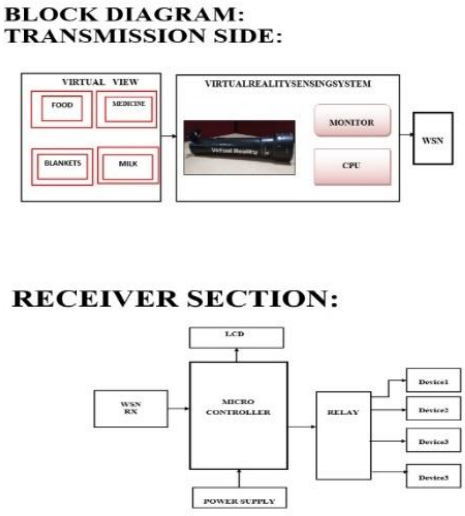


Fig 3.1 Block diagram of the system using virtual reality concept

3.2 HARDWARE REQUIREMENTS

3.2.1 Raspberrypi

The Raspberry Pi board contains a processor and graphics chip, program memory (RAM) and various interfaces and connectors for external devices (figure 4.2). Some of these devices are essential, others are optional .RPi operates in the same way as a standard PC, requiring a keyboard for command entry, a display unit and a power supply. It alsorequires"mass-storage', but a hard disk drive of the type found in a typical PC is not reallyin keeping with the miniature size of RPi. Instead we will use an SD Flash memory card normally used in digital cameras, configured in such a way to'look like' a hard drive to RPi's processor. RPi will 'boot' (load the Operating System into RAM) from this card in the same way as a PC 'boots up' into Windows from its hard disk.

The following are essential to get started:

¢ SD card containing Linux Operating system

* USB keyboard

* TV or monitor (with HDMI, DVI, Composite or SCART input)

* include Power supply (see Section 1.6below)

* Video cable to suit the TV or monitor used recommended optional extras:

* USB mouse

* Internet connection, Model A or B: USB Wi-Fi adaptor

¢ Internet connection, Model B only: LAN (Ethernet) cable

* Powered USB hub

Fig. 3.2 Raspberry pi3

Steps to configuring components to raspberry pi

1. Plug the preloaded SD Card into the RPi.

2. Plug the USB keyboard and mouse into the RPi, perhaps via a USB hub. Connect the Hub to power, If necessary.

3. Plug a video cable into the screen (TV or monitor) and into the RPi.

4. Plug your extras into the RPi (USB Wi-Fi, Ethernet cable, external hard drive etc.). This is where you may really need a USB hub.

5. Ensure that your USB hub (if any) and screen are working.

6. Plug the power supply into the mainssocket.

7. With your screen on, plug the power supply into the RPi micro USB socket.

8. The RPi should boot up and display messages on the screen. It is always recommended to connect the MicroUSB power to the unit last (while most connections can be made live, it is best practice to connect items such as displays with the power turned off). The RPi may take a long time to boot when powered-on for the firsttime.

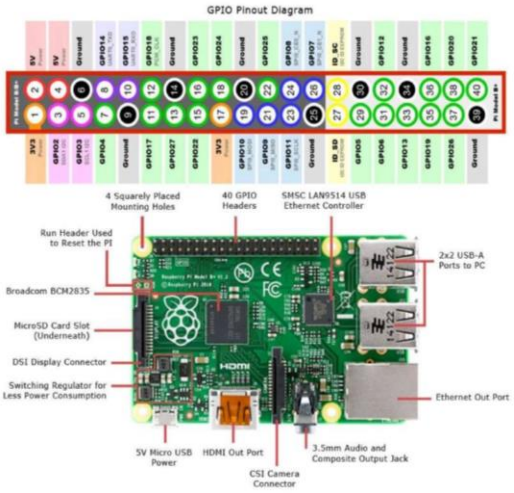


Fig 3.3 Raspberry pi Port specification

The processor at the heart of the Raspberry Pi system is a Broadcom BCM2837system-on-chip (SoC) multimedia processor. This means that the vast majority ofthe system's components, including its central and graphics processing units along with the audio and communications hardware, are built onto that single component hidden beneath the 256 MB memory chip at the centre of the board. It's not just this SoC design that makes the BCM2837 different to the processor found in yourdesktop or laptop, however. It also uses a different instruction set architecture (ISA), known as ARM. The BCM2837 SoC, located beneath a Hynix memory chip

Developed by Acorn Computers back in the late 1980s, the ARM architecture is a relatively uncommon sight in the desktop world. Where it excels, however, is in mobile devices: the phone in your pocket almost certainly has at least one ARM-based processing core hidden away inside. Its combination of a simple reduced instruction set (RISC) architecture and low power draw make it the perfect choice over desktop chips with high power demands and complex instruction set (CISC) architectures. The ARM-based BCM2837 is the secret of how the Raspberry Pi is able to operate on just the 5V 1A power supply provided by the onboard micro- USB port. It's also the reason why you won't find any heat-sinks on the device: the chip's low power draw directly translates into very little waste heat, even during complicated processing tasks. It does, however, mean that the Raspberry Pi isn't compatible with traditional PC software. The majority of software for desktops and laptops is built with the x86 instruction set architecture in ind, as found in processors from the likes of AMD, Intel and VIA. As a result, it won't run on the ARM-based Raspberry Pi. The BCM2837 uses a generation of ARM's processor design

known as ARM11, which in turn is designed around a version of the instruction set architecture known as ARMv6. This is worth remembering: ARMv6 is a lightweight and powerful architecture, but has a rival in the more advanced
ARMv7 architecture used by the ARM Cortex family of processors. Software developed for ARMv7, like software developed for x86, is sadly not compatible with the Raspberry Pi's BCM2837—although developers can usually convert the software to make it suitable. That's not to say you're going to be restricted in your choices. As you'll discover later in the book, there is plenty of software available for the ARMvé6 instruction set, and as the Raspberry Pi's popularity continues to grow, that will only increase. In this book, you'll also learn how to create your own software for the Pi even if you have no experience with programming. The Micro SD-card can be cinto the card-reader and check that there is something stored in the Micro SD-card. If everything looks good, take the Micro SD-card and plug it into the Raspberry Pi.

3.3 SOFTWARE REQUIREMENT

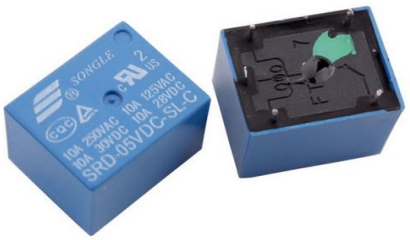
3.3.1 PYTHON

Python is a general-purpose interpreted, interactive, object-oriented, and high-level programming language. It was created by Guido van Rossum during 1985- 1990.
Like Perl, Python source code is also available under the GNU General Public License. This tutorial gives enough understanding on Python programming language. Python is a high-level, interpreted, interactive and object-oriented scripting language. Python is designed to be highly readable. It uses English keywords frequently where as other languages use punctuation, and it has fewer syntactical constructions than other languages. ¢ Python is Interpreted: Python is processed at runtime by the interpreter. You do not need to compile your program before executing it. This is similar to PERL and PHP. ¢ Python is Interactive: You can actually sit at a Python prompt and interact with the interpreter directly to write your programs.
Python is Object-Oriented
Python supports Object-Oriented style or technique of programming that encapsulates code within objects.
Python is a great language for the beginner-level programmers and supports the development of a wide range of applications from simple text processing to WWW browsers to games

A. HOLOGRAM

The setup for 3D optical correlation based on binary computer-generated hologram. The collimated plane wave is generated for the illumination, and the encoding process is conducted based on an iterative approach between spatial space and reciprocal space. Here, the 2Dinput image is divided into some squared blocks which are placed in 3D space [23],[28]-[31]. Each block contains some neighbouring pixels of the input image. During the iterative retrieval, some data, such as the input image placed in 3D space and a series of axial distances, are applied as known parameters, and the encoding objective is to generate an approximated phase-only pattern.

B. RELAY



A relay is an electrically operated switch. Current flowing through the coilof the relay creates a magnetic field which attracts a lever and changes the switchcontacts. The coil current can be on or off so relays have two switch positions andthey are doublethrow (changeover) switches. Relays allow one circuit to switch asecond circuit which can be completely separate from the first. For example a lowvoltage battery circuit can use a relay to switch a 230V AC mains circuit. There isno electrical connection inside the relay between the two circuits; the link ismagnetic and mechanical.

C. DC MOTOR

* DC Motors are continuous actuators that convert electrical energy intomechanical energy.
* The DC motor achieves this by producing a continuous angular rotation thatcan be used to rotate pumps, fans, compressors, wheels, etc.
* As well as conventional rotary DC motors, linear motors are also availablewhich are capable of producing a continuous liner movement

D. ZIGBEEE

ZigBee is a wireless technology developed as an open global standard to address the unique needs of low-cost, low-power wirelessM2M networks. The ZigBee standard operates on the IEEE 802.15.4 physical radio specification andBoperates in unlicensed bands including 2.4 GHz, 900 MHz and 868 MHz.

The 802.15.4 specification upon which the ZigBee stack operates gainedratification by the Institute of Electrical and Electronics Engineers (IEEE) in 2003.
The specification is a packet-based radio protocol intended for low-cost, battery-operated devices. The protocol allows devices to communicate in a variety of network topologies and can have battery life lasting several years.

II. EXPERIMENTAL RESULT

Virtual reality (VR) refers to a computer-generated simulation in which a person can interact within an artificial three-dimensional environment using electronic devices, such as special goggles with a screen or gloves fitted with sensors. In figure 5.1 shows that, the virtual reAlity torch projected 2D and 3D images on the surface. It contains four blocks. So the concept used in flood situation.

Fig. 4.1 Virtual reality

In figure 5.2 shows that, it receives the projected image from the system and sense the virtual reality camara.

Fig. 4.2 Projector input

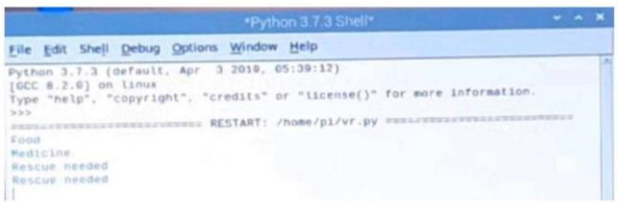


Fig. 4.3 Output

So what we need to touch the virtual block after relay operate to the DC Motor. It shows in the output as in figure 4.3

III. CONCLUSION AND FUTURE WORK

6.1 CONCLUSION

The approach was implemented inside a framework that may be used to redirect food distribution in various virtual and real situations. It is handy for evaluating redirected parameters under different situations.
* In this study, we use virtual reality to show through buttons such as FOOD, CLOTH, MEDICINE, and so on, which are caused by light rays passing through the wall. In the future, laser beam light will be used to depict large distances.

6.2 FUTURE WORK

In today's market, people want applications that go beyond leisure, tourism, or marketing and are more cheap. Virtual interfaces must also be enhanced to eliminate flaws like clipping, which causes some solid objects to seem as if they may be passed through. Or to mitigate the affects that VR has on humans, such as motion sickness, which is characterised by dizziness caused by a mismatch between our body's movement and what is observed in the virtual environment. The major technology companies are already working on developing headsets that do not require connections and can display visuals in high definition. They are working on 8K Virtual Reality headsets with even more powerful CPUs.There is even talk that in the next few years they could integrate Artificial Intelligence.

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