Pushpa Gujral
SCIENCE CITY
THE SCIENCE OF WOW

Virtual reality & Cyberspace gallery
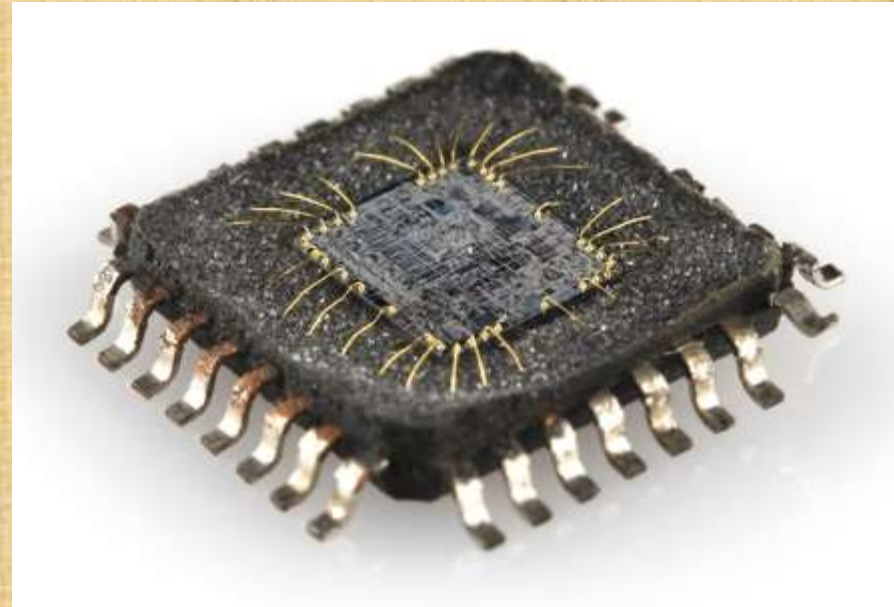
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INTRODUCTION

- Virtual Reality & Cyber Space gallery is designed to provide fun, entertainment and education to people of all ages and backgrounds.

- Gallery consists of awe-inspiring sections like Cyber Space, Virtual Reality Shadow Control and Virtual Game Stations.

- Step in and experience the enigma of the Virtual World!

INTEGRATED CIRCUIT (IC)

- IC is an Electronic Component used in manufacturing of Electronic Devices. Like mobiles, computers, T.V etc.

- They are the heart and brains of most circuits.

REVOLVING IC MODEL

- Giant model of IC made with transparent fiber body is mounted in a cylindrical tube of 4 feet high and 3.5 feet diameter, fitted on a rounded base of 4 feet dia and 2 feet height.

- Model has transparent cover and is embossed inside with many full sized transistors, diodes and resistances to enable visitors to see its inside

ADDITIONAL INFORMATION

- IC is combination of Diodes, transistors, resistance and capacitors built in a single silicon chip as per the design of circuits.

- It facilitates fast manufacturing of electronic devices in the industries.

- ICs can be divided into three classes based on the method or techniques used in manufacturing

  1. Thin and thick film ICs

  2. Monolithic ICs

  3. Hybrid or multichip ICs

ATM STATION
(Automated Teller Machine)

- An ATM is a machine built into the wall of a bank or other building, which allows people to take out money from their bank account by using a special card.

- **Use of ATMs has become very common and it is important to teach its safe use to general public.**
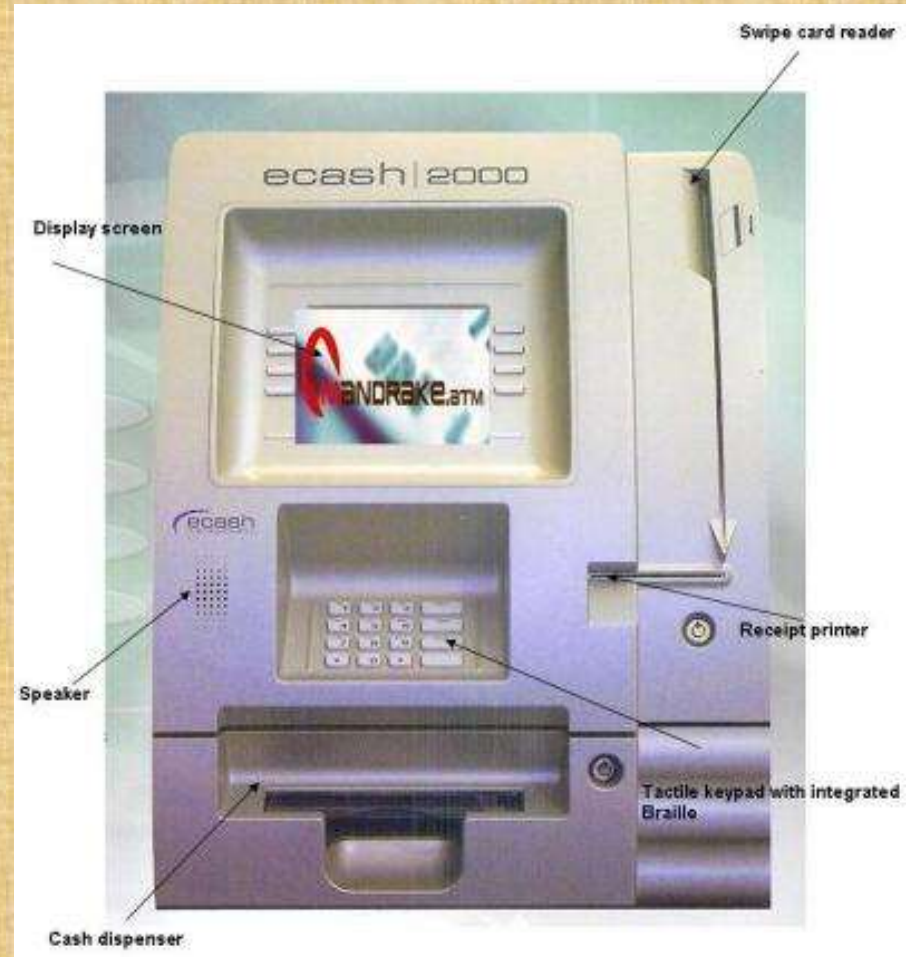
PRINCIPLE OF OPERATION

- The automated teller machine is a data terminal with two input and four output devices.

- These devices are interfaced to the processor.

- The processor is heart of the ATM machine.

- All the ATM machines working around the world are based on centralized database system.

- The ATM has to connect and communicate with the host processor (server).

- The host processor is communicating with the internet service provider (ISP).

COMPONENTS OF ATM

- Input Devices:
    1. Card reader
    2. Keypad
- Output Devices:
    1. Speaker
    2. Display Screen
    3. Receipt Printer
    4. Cash Depositor

TIPS TO AVOID ATM FRAUD

- **Cover Your PIN Code:** Always use your hand to cover the keypad when you are using an ATM machine.

- **Use Familiar ATMs:** If you use the same ATM frequently, you're more likely to notice if something is wrong with the ATM.

- **Check Balances Frequently:** Try to make it a habit to check your account balance at least once a week.

Contd.

TIPS TO AVOID ATM FRAUD

- **Look for Hidden Cameras:** While there is a visible camera inside the ATM, there can also be another camera hidden by thieves to steal your PIN number

- **Monitor ATM Behavior:** Pay attention to anything that seems unusual about the ATM. If it is unusually slow or freezes, or asks for your PIN number twice, it has most likely been tampered with.

- **Sign Up for Account Alerts**: If your bank offers alerts, sign up for them. These alerts inform you whenever there is irregular activity on your credit or debit card every time it is used.

WHAT IS E-MAIL

- Electronic mail, most commonly referred to as email or e- mail since 1993, is a method of exchanging digital messages.

- An email address is required to send & receive email, and that address is unique to the user

- It enables users to easily send and receive documents, images, links and other files.

- It is beneficial way to communicate with individuals or small groups of friends or colleagues.

PRINCIPLE OF OPERATION

- The sender composes a message using the email client on their computer.

- When the user sends the message, the email text and attachments are uploaded to the SMTP (Simple Mail Transfer Protocol) server as outgoing mail.

- All outgoing messages wait in the outgoing mail queue while the SMTP server communicates with the DNS (Domain Name Server) to find out where the recipient's email server is located. If the SMTP server finds the recipient's email server, it will transfer the message and attachments.

PRINCIPLE OF OPERATION

Working of E-Mail

- PGSC has demonstrated working of e-mail using six stations with predefined stored messages .
- Each station has buttons for sending and receiving stored messages.
- Six participants can exchange messages between them at a time.
- Communication of these messages is indicated using LED lights

IMAGE SCANNER

An image scanner is a digital device used to scan images, pictures, printed text and objects and then convert them to digital images

PRINCIPLE OF OPERATION

- The basic principle of a scanner is to analyze an image and process it.

- Image and text capture (optical character recognition or OCR) allow you to save information to a file on your computer.

- You can then alter or enhance the image, print it out or use it as per requirement.

WORKING OF IMAGE SCANNER

- PGSC has demonstrated image scanner by scanning visitors using IR sensor.

- As visitors pass through IR sensor, rays emitted from the sensor are intercepted.

- This causes the corresponding LEDs to glow thereby forming the shadow of the visitor on the screen.

Virtual DJ Music

- Eight colored light beams shine down on a reflective surface.

- When any beam is 'broken' or interrupted, a signal is created which activates stored music.

- The beams stop triggering when it can see the reflective surface again.

PRINCIPLE OF OPERATION

- This is a multi-sensory system that uses LED Interactive light units with customized programmable software.

- Any movement within the beams, interrupted or broken, triggers music, sounds, images, videos, lighting and control of sensory equipment.

- The beams act as clear visual reference points for the user.

- It can be used as a musical instrument, an interactive story telling device & as a virtual switch.

Virtual Game Station (Be a Goalkeeper)

- This exhibit captures you in to a virtual football match environment

- You will find yourself standing as goalkeeper in a football match.

- Show your goal saving skills as ball keeps coming to you at different speeds.

Virtual Game Station (Shark Bait)

- This exhibit captures you into a virtual sea environment.

- Save yourself from different water creatures.

- Show your skills to move in the sea and collect points as you go.

- Collect the most points to be crowned winner.

PRINCIPLE OF OPERATION

- A single video camera captures the image of the player and superimposes the player's image into the virtual scene.

- The system creates a virtual scene with objects to block or courses to navigate, and displays this on a large screen monitor that the player can see in front of them.

- Virtual Game Station enables participants to be placed within a variety of entertaining and engaging computer generated realities.

VIRTUAL GAMES
(Advanced Information)

- **Bio-sensing:** Sensors are attached to a data glove, suit or even the body that record movements made by that person in a 3D space. Those movements are interpreted by a computer and trigger a variety of responses within that space.

- **3D internet:** Explore websites in a dynamic way. Rather than clicking on a link and scanning the information on a web page you will be able to physically touch that page and manipulate it.

VIRTUAL GAMES (Advanced Information)

- **Virtual reality headset: H**ead-mounted device that provides virtual reality for the wearer.

- Widely used with video games but they are also used in other applications, including simulators and trainers.
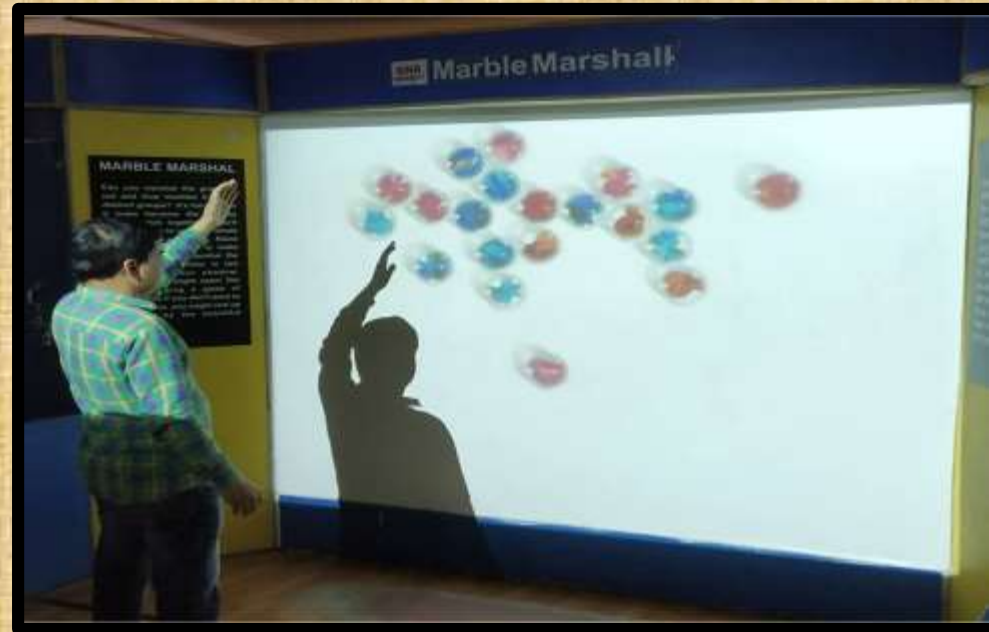
SHADOW GARDEN GAMES

- Shadow Garden is series of six number of interactive exhibits where participants discover a world that reacts to their shadows.

- The participant walks between a projector and a screen, casting a shadow.

- A computer paints images, through the projector, that appear to interact with the shadow in real time.

- Participants will feel the projected images touching them.

Marble Marshall

- Can you marshal the group of red and blue marbles into two distinct groups?

- It's harder than it looks because the marbles tend to stick together.

- You'll probably have to use your whole body and have some help. Before long it might seem like you are playing a game of twister.

Sand

- A stream of liquid sand flows from above and reacts with your shadow as if it were solid.

- Construct concave structures with your hands to catch the sand and then you can pour it from hand to hand or maybe into your friend's mouth.

- Play with it long enough and you might discover some of its many secrets.

Molecular bubbles

- An impossible fluid reacts to your shadow forming long polymer chains and loops. Although exotic, the action of the bubbles is surprisingly intuitive.

- Connect the chains to the color generators and brilliant colors emerge from diffusion.

Shadow Harp

- Shadow Harp is a digital instrument that envelops the participants in a musical playground.

- Use your shadow to create intriguing music.

Mariposa

- A swarm of butterflies circles as if looking for something. When your shadow enters nothing appears to happen at first; eventually, if you remain very still, you gain their trust and they begin to land on your hand or shoulder to rest.

- If you make a sudden movement they will scatter as even the slightest twitch sends them into a panic..

Moderation

- Step on the wooden floor and walk slowly on the projected shallow stream.

- When a person steps, a splash is created and magical flowers grow from the splash point.

- The flowers fade and die after some time.

PRINCIPLE OF OPERATION

- A standard PC equipped with 3D accelerated video card is used to synthesizes images from digital camera in real time.

- These images interact with the shadow of the participant.

- IEEE 1394 based digital camera and Projectors with LCD technology are used to enhance the effects

- Calibration between the camera's point of view and the projector's is achieved by sampling all corners of the screen.

Virtual Jigsaw

- Release stress, relax brain, indulge yourself and plunge into the wonderful jigsaw world!

- Jigsaw is skill based puzzle game played with your image captured through webcam.

- Game. requires assembling of interlocking photo pieces.

- The system provides a set of views where the user can place and group photo pieces with drag-and-drop operations

Virtual Makeover

- If you're worried about your looks, Try our virtual makeover tool to give yourself a Virtual Makeover!

- Makeover is flash based game that will allow you to flirt with your own image captured through webcam.

- Browse through countless haircuts, hair styles, professional hair colors, glasses, headwear's and effects to find the one your dreams.

THANKS