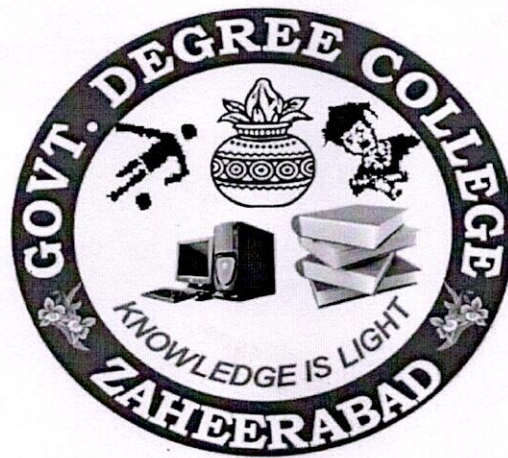


# GOVERNMENT DEGREE COLLEGE

ZAHEERABAD, SANGAREDDY (DIST).

TELANGANA-502220



**Departmental project**  
**Of**  
**Information technology**

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**GOVERNMENT DEGREE COLLEGE**

**ZAHEERABAD, SANGAREDDY (DIST).**

**Study Project**

**on**

**Information Technology**

**Under supervision**


**Of**

**Police Praveen (Lecturer in Computers)**

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# Information Technology

## 1. Introduction

### History of Information Technology

Information technology has been around for a long, long time. Basically as long as people have been around, information technology has been around because there were always ways of communicating through technology available at that point in time. There are 4 main ages that divide up the history of information technology. Only the latest age (electronic) and some of the electromechanical age really affects us today, but it is important to learn about how we got to the point we are at with technology today.

### Ages

#### Premechanical

The premechanical age is the earliest age of information technology. It can be defined as the time between 3000B.C. and 1450A.D. We are talking about a long time ago. When humans first started communicating they would try to use language or simple picture drawings known as petroglyphs which were usually carved in rock. Early alphabets were developed such as the Phoenician alphabet.

#### Mechanical

The mechanical age is when we first start to see connections between our current technology and its ancestors. The mechanical age can be defined as the time between 1450 and 1840. A lot of new technologies are developed in this era as there is a large explosion in interest with this area. Technologies like the slide rule (an analog computer used for multiplying and dividing) were invented. Blasé Pascal invented the Pascaline which was a very popular mechanical computer. Charles Babbage developed the difference engine which tabulated polynomial equations using the method of finite differences.

#### Electromechanical

Now we are finally getting close to some technologies that resemble our modern-day technology. The electromechanical age can be defined as the time between 1840 and 1940. These are the beginnings of telecommunication. The telegraph was created in the early 1800s. Morse code was created by Samuel Morse in 1835. The telephone (one of the most popular forms of communication ever) was created by Alexander Graham Bell in 1876. The first radio developed by Guglielmo Marconi in 1894. All of these were extremely crucial emerging technologies that led to big advances in the information technology field.



## Electronic

The electronic age is what we currently live in. It can be defined as the time between 1940 and right now. The ENIAC was the first high-speed, digital computer capable of being reprogrammed to solve a full range of computing problems. This computer was designed to be used by the U.S. Army for artillery firing tables. This machine was even bigger than the Mark 1 taking up 680 square feet and weighing 30 tons - HUGE. It mainly used vacuum tubes to do its calculations.

## Introduction to Information Technology

Information technology (IT) is an area of business that emphasizes on the areas like computer technology support, computer network and database management, business software operations and information security.

In this current global scenario, information technology is facing new challenges and issues related to diverse aspects like the growth of internet, additional computational capabilities, latest operating systems, web security, wireless and mobile communication protocol systems, etc. Information technology (IT) deals with diverse fields, and each field has its own key focus areas and roles to achieve certain tasks. A few of such areas are discussed below:

Programming is entirely related to software aspects that are involved in developing the system software as well as the application software. Software implementation uses different languages and structures to write the code. Operating systems for several devices are also included in this field. This field deals with the software solutions for personal and professional use.

## 2. Objectives

- To get awareness about computer structure and knowledge
- To know generations of computer
- To know Input and Output devices
- To know online Services
- Online services like E-Commerce, online purchase, sales, payments

## 3. Methodology

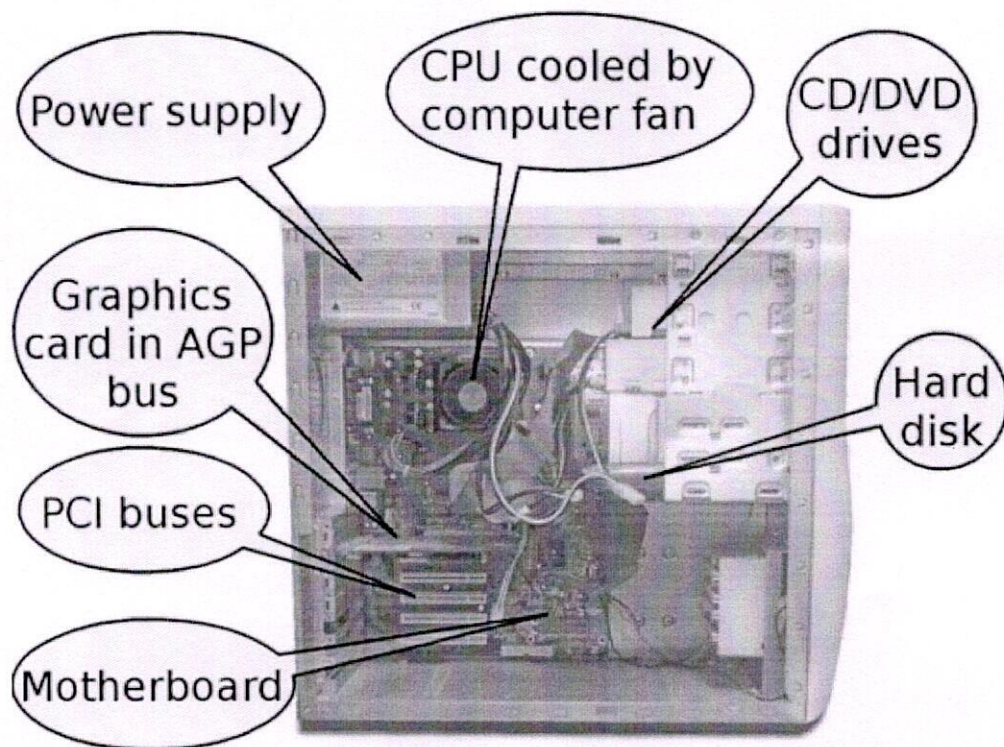


# Internal Computer Hardware

## Introduction

Computer Hardware is the physical part of a computer, as distinguished from the computer software that executes or runs on the hardware. The hardware of a computer is infrequently changed, while software and data are modified frequently. The term soft refers to readily created, modified, or erased. These are unlike the physical components within the computer which are hard.

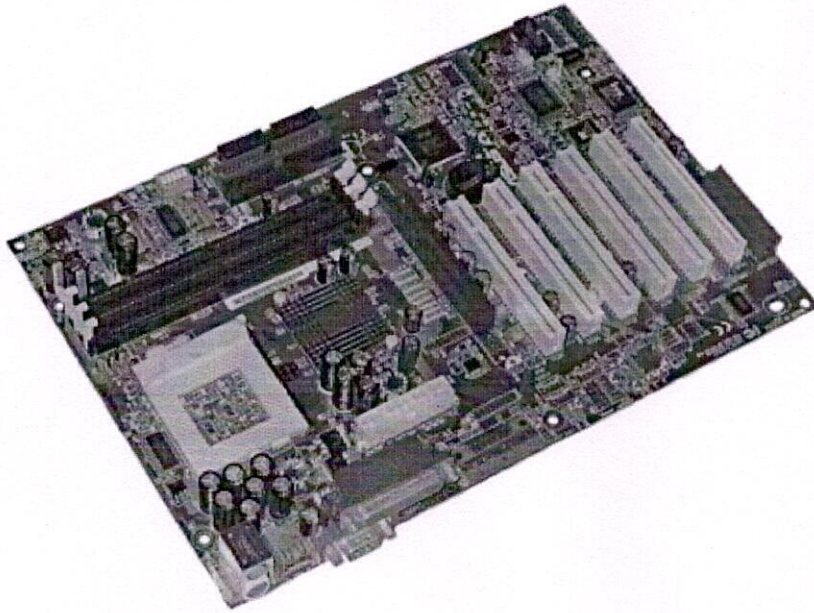
When you think of the term computer hardware you probably think of the guts inside your personal computer at home or the one in your classroom. However, computer hardware does not specifically refer to personal computers. Instead, it is all types of computer systems. Computer hardware is in embedded systems in automobiles, microwave ovens, CD players, DVD players, and many more devices. In 2003, only 0.2% of all microprocessors sold were for personal computers. How many other things in your house or your classroom use computer hardware?



## Motherboard

The motherboard is the body or mainframe of the computer, through which all other components interface. It is the central circuit board making up a complex electronic system. A motherboard provides the electrical connections by which the other components of the system communicate. The motherboard includes many components such as: central processing unit (CPU), random access memory (RAM), firmware, and internal and external buses.

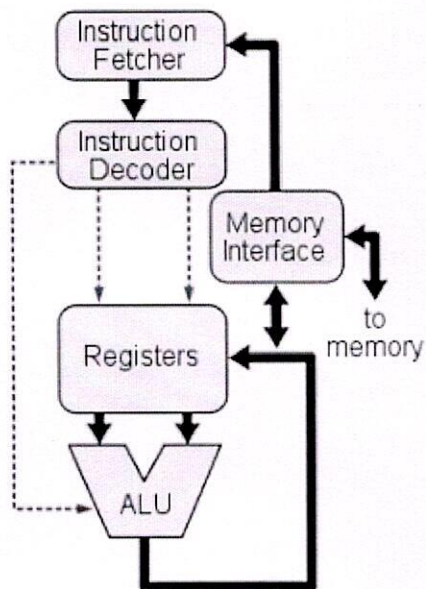




Motherboard

### Central Processing Unit

The Central Processing Unit (CPU; sometimes just called processor) is a machine that can execute computer programs. It is sometimes referred to as the brain of the computer.



### CPU Diagram

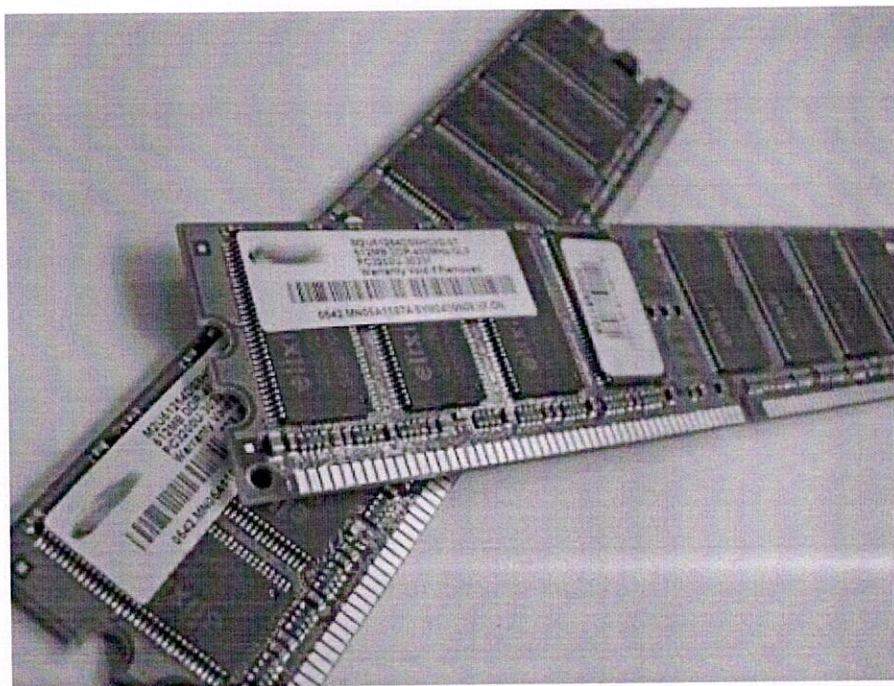
There are four steps that nearly all CPUs use in their operation: *fetch*, *decode*, *execute*, and *writeback*. The first step, *fetch*, involves retrieving an instruction from program memory. In the *decode* step, the instruction is broken up into parts that have significance to other portions of the CPU. During the *execute*



step various portions of the CPU, such as the arithmetic logic unit (ALU) and the floating point unit (FPU) are connected so they can perform the desired operation. The final step, writeback, simply writes back the results of the execute step to some form of memory.

### Random Access Memory

Random access memory (RAM) is fast-access memory that is cleared when the computer is power-down. RAM attaches directly to the motherboard, and is used to store programs that are currently running. RAM is a set of integrated circuits that allow the stored data to be accessed in any order (why it is called random). There are many different types of RAM. Distinctions between these different types include: writable vs. read-only, static vs. dynamic, volatile vs. non-volatile, etc.



RAM

### Firmware

Firmware is loaded from the Read only memory (ROM) run from the Basic Input-Output System (BIOS). It is a computer program that is embedded in a hardware device, for example a microcontroller. As its name suggests, firmware is somewhere between hardware and software. Like software, it is a computer program which is executed by a microprocessor or a microcontroller. But it is also tightly linked to a piece of hardware, and has little meaning outside of it. Most devices attached to modern systems are special-purpose computers in their own right, running their own software. Some of these devices store that software ("firmware") in a ROM within the device itself



## Power Supply

The power supply as its name might suggest is the device that supplies power to all the components in the computer. Its case holds a transformer, voltage control, and (usually) a cooling fan. The power supply converts about 100-120 volts of AC power to low-voltage DC power for the internal components to use. The most common computer power supplies are built to conform with the ATX form factor. This enables different power supplies to be interchangeable with different components inside the computer. ATX power supplies also are designed to turn on and off using a signal from the motherboard, and provide support for modern functions such as standby mode.

## Removable Media Devices

If your putting something in your computer and taking it out is most likely a form of removable media. There are many different removable media devices. The most popular are probably CD and DVD drives which almost every computer these days has at least one of. There are some new disc drives such as Blu-ray which can hold a much larger amount of information than normal CDs or DVDs. One type of removable media which is becoming less popular is floppy disk.

### CD

CDs are the most common type of removable media. They are inexpensive but also have short life-span. There are a few different kinds of CDs. CD-ROM which stands for Compact Disc read-only memory are popularly used to distribute computer software although any type of data can be stored on them. CD-R is another variation which can only be written to once but can be read many times. CD-RW (rewritable) can be written to more than once as well as read more than once. Some other types of CDs which are not as popular include Super Audio CD (SACD), Video Compact Discs (VCD), Super Video Compact Discs (SVCD), PhotoCD, PictureCD, CD-i, and Enhanced CD.





## CD-ROM Drive

There are two types of devices in a computer that use CDs: CD-ROM drive and a CD writer. The CD-ROM drive used for reading a CD. The CD writer drive can read and write a CD. CD writers are much more popular are new computers than a CD-ROM drive. Both kinds of CD drives are called optical disc drives because the use a laser light or electromagnetic waves to read or write data to or from a CD.

## DVD

DVDs (digital versatile discs) are another popular optical disc storage media format. The main uses for DVDs are video and data storage. Most DVDs are of the same dimensions as compact discs. Just like CDs there are many different variations. DVD-ROM has data which can only be read and not written. DVD-R and DVD+R can be written once and then function as a DVD-ROM. DVD-RAM, DVD-RW, or DVD+RW hold data that can be erased and re-written multiple times. DVD-Video and DVD-Audio discs respectively refer to properly formatted and structured video and audio content. The devices that use DVDs are very similar to the devices that use CDs. There is a DVD-ROM drive as well as a DVD writer that work the same way as a CD-ROM drive and CD writer. There is also a DVD-RAM drive that reads and writes to the DVD-RAM variation of DVD.



## DVD

## Blu-ray

Blu-ray is a newer optical disc storage media format. Its main uses are high-definition video and data storage. The disc has the same dimensions as a CD



or DVD. The term “Blu-ray” comes from the blue laser used to read and write to the disc. The Blu-ray discs can store much more data than CDs or DVDs. A dual layer Blu-ray disc can store up to 50GB, almost six times the capacity of a dual layer DVD (WOW!). Blu-ray discs have similar devices used to read them and write to them as CDs have. A BD-ROM drive can only read a Blu-ray disc and a BD writer can read and write a Blu-ray disc.

### Floppy Disk

A floppy disk is a type of data storage that is composed of a disk of thin, flexible (“floppy”) magnetic storage medium encased in a square or rectangular plastic shell. Floppy disks are read and written by a floppy disk drive. Floppy disks are dying and being replaced by the optical and flash drives. Many new computers do not come with floppy drives anymore but there are a lot of older ones with floppy drives lying around. While floppy disks are very cheap the amount of storage on them compared to the amount of storage for the price of flash drives makes floppy disks unreasonable to use.

## Input Device



<http://www.computerhope.com> An **input device** is any hardware device that sends data to a computer, allowing you to interact with and control the computer. The picture shows a Logitech trackball mouse, an example of an input device.



The most commonly used or primary input devices on a computer are the keyboard and mouse. However, there are dozens of other devices that can also be used to input data into the computer. Below is a list of computer input devices that can be utilized with a computer or a computing device.

- Types of input devices
- What are the input devices of my computer
- What does an input device send to a computer?
- Why does a computer need an input device?
- Related input device pages.

## Types of input devices

- Audio conversion device
- Barcode reader
- Biometrics (e.g. fingerprint scanner)
- Business Card Reader
- Digital camera and Digital Camcorder
  
- Gamepad, Joystick, Paddle, Steering wheel, and Microsoft Kinect
- Gesture recognition
- Graphics tablet
- Keyboard
- Light gun
- Light pen
- Magnetic ink (like the ink found on checks)
- Magnetic stripe reader
- Medical imaging devices (e.g., X-Ray, CAT Scan, and Ultrasound images)
- Microphone (using voice speech recognition or biometric verification)
- MIDI keyboard
- MICR
- Mouse, touchpad, or other pointing devices
- Optical Mark Reader (OMR)
- Remote
- Scanner
- Sensors (e.g. heat and orientation sensors)
- Sonar imaging devices
- Touchscreen
- Voice (using voice speech recognition or biometric verification)
- Video capture device
- VR helmet and gloves
- Webcam
- Yoke

Note: Although OMR cards and punch cards contain data they are not considered input devices by themselves. It is the readers that read the cards that are considered the input device.



Tip: Keep in mind that drives such as a CD-ROM, DVD, Floppy diskette drive, and a USB Flash drive may be capable of sending information to a computer, but they are *not* input devices. They are considered storage devices.

### **What are the input devices of my computer**

Every computer comes with a keyboard and a mouse (touchpad with laptop) that are considered input devices. As far as any other input device it all depends on what is included with your computer or attached to your computer. For example, if you also have a scanner it would be another computer input devices. The best method of determining all of the input devices your computer has is to go through the above list and note each of the input devices your computer has.

### **What does an input device send to a computer?**

What a computer sends (inputs) to a computer all depends on a device. However, all input devices send data from the device over a cable or wireless transmission to the computer. For example, as you move a computer mouse the data it sends to the computer are the X-Y axis movements that the computer uses to display the mouse cursor on the screen. You can see a live example of this on our x-axis definition.

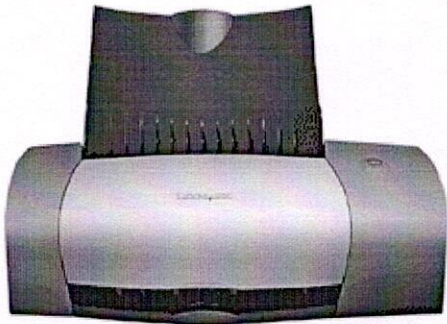
### **Why does a computer need an input device?**

Today, input devices are important to the computer because they are what allows you to interact with a computer and add new information to the computer. For example, if a computer had no input devices it could run by itself but would have no way of having any settings changed, errors fixed, or any other user interaction. Also, if you wanted to add new information to the computer (e.g. text, command, document, picture, etc.) it could not be added without an input device.



# Output devices

Lexmark Inkjet Printer



ComputerHope.com An **output device** is any peripheral

that receives data from a computer, usually for display, projection, or physical reproduction. For example, the image shows an inkjet printer, an output device that can make a hard copy of any information shown on your monitor, which is another example of an output device. Monitors and printers are two of the most common output devices used with a computer.

## Types of output devices

The following list contains many different output devices. For further information, select any of the listings with blue text.

- [3D Printer](#)
- [Braille embosser](#)
- [Braille reader](#)
- [Flat panel](#)
- [GPS](#)
- [Headphones](#)
- [Computer Output Microfilm \(COM\)](#)
- [Monitor](#)
- [Plotter](#)
- [Printer \(Dot matrix printer, Inkjet printer, and Laser printer\)](#)
- [Projector](#)
- [Sound card](#)
- [Speakers](#)
- [Speech-generating device \(SGD\)](#)
- [TV](#)
- [Video card](#)

Tip: Keep in mind that drives such as a [CD-ROM](#), [DVD](#), [Floppy diskette](#) drive, and [USB Flash drive](#) may be capable of receiving information from the computer, but they are *not* output devices. These are considered storage devices.

## Why do computers need output devices?

A computer can still work without an output device. However, without an output device, you'd have no way of determining what the computer is doing,



if there are errors, or if it needs additional input. For example, you can disconnect your monitor from your computer, and it will still function, but it's not going to be very useful.

## **GENERATION OF COMPUTERS**

The first electronic computer was designed and built at the University of Pennsylvania based on vacuum tube technology. Vacuum tubes were used to perform logic operations and to store data. Generations of computers has been divided into five according to the development of technologies used to fabricate the processors, memories and I/O units.

I Generation : 1945 – 55

II Generation : 1955 – 65

III Generation : 1965 – 75

IV Generation : 1975 – 89

V Generation : 1989 to present

**First Generation**

(ENIAC - Electronic Numerical Integrator And Calculator

EDVAC – Electronic Discrete Variable Automatic Computer

UNIVAC – Universal Automatic Computer IBM 701)

Vacuum tubes were used

**Second Generation**

(Manufacturers – IBM 7030, Digital Data Corporation's PDP 1/5/8

Honeywell 400)

Transistors were used in place of vacuum tubes. (invented at AT&T Bell lab in 1947)

Small in size

Lesser power consumption and better performance

metric operations took few milliseconds Bulky

Consume more power with limited performance



### **Third Generation**

(System 360 Mainframe from IBM, PDP-8 Mini Computers from Digital Equipment Corporation)

- ICs were used
- Small Scale Integration and Me

### **Fourth Generation**

- Intel's 8088, 80286, 80386, 80486 ..., Motorola's 68000, 68030, 68040,
- Microprocessors were introduced as CPU- Complete processors and large section of main memory could be implemented in a single chip  
Tens of thousands of transistors can be placed in a single chip (VLSI design implemented)
- CRT screen, laser & ink jet printers, scanners etc were developed

### **Fifth Generation**

(IBM notebooks, Pentium PCs-Pentium 1/

- 2/3/4/Dual core/Quad core.. SUN
- work stations, Origin 2000, PARAM 10000, IBM SP/2)
- Generation number beyond IV, have been used
- occasionally to describe some current

Computer system that have a dominant organizational or application driven feature.

- Computers based on artificial
- intelligence are available



## 4. Analysis & conclusion

Computer knowledge is very important, if we do not have any knowledge about computers those people are treated as illiterates. Now a days Every work should be depends on computers like bank works, e-commerce, goods purchasing ,production and sales. If we observe in the society the total works are going on by using computers. Now a days all works are doing through online, so for that we have to know the knowledge about computers , i.e.