Course work: Hardware

Introduction:

There are four types of Hardware, input devices, output devices, storage devices and CPU.
I will be describing and reporting about these three hardware items: monitor, mouse and Hard disks.
There are many computer components like Power Supply, Mother board(which contains the drive controllers, memory and the microprocessor)CD ROMs drives, hard disk drives and the main ones that we are able to see clearly are mouse, keyboard and the monitor.
I will be discussing to you three main hard ware components-the monitor, printer and Hard disks.
I will be comparing the different types of the components.

Monitors:

A monitor is a screen where the information is displayed, like pictures and texts (if you are typing a letter or an essay you would be able to see what you are typing without a monitor, you can't do much. So the monitor is quiet important.
There are different types of monitors CRT Monitor (the big bulky ones) which stands for Cathode-ray tubes and LCD Monitor (the flat panels) which stands for liquid crystal display .There are advantages and disadvantages for both types of the monitors.
The appearances of those types of the monitors are different but the inner software used for both of the monitors is the same.
Each type of monitor has its advantages and disadvantages. In this work I will provide a comparison of CRT and LCD monitors, along with some of the specifications.
The monitor displays the output of the video card, showing you the results of calculations that the PC has made. Using either a conventional cathode ray tube (CRT) similar to that used by a television set, or a liquid crystal display (LCD) such as those used on notebook PCs, dots called pixels are set to different colours and brightness levels to display text and graphics.

LCDS'
The LCD which is the newer version of the monitors has advantages and disadvantages.
One of the advantages is that it is smaller and flat so you can fit it on to your desktop and easier to carry for any circumstances. Also they look better and keep your desktop nice and clean.

By: Diviya Uthayakumar 10T

This type of monitor is much easier to carry (lighter) it will give you enough space on your desktop to work and also makes your place look quiet neat and tidy.

These types of monitors are about the same price as the CRTs, so they are actually quiet cheap.

Also the LCDs require less power, Power consumption varies greatly with different technologies. CRT displays are somewhat power-hungry, at about 100 watts for a typical 19-inch display. The average is about 45 watts for a 19-inch LCD display. LCDs also produce less heat.

But sadly there are disadvantages too, they don't have a perfect view angle which means if you are sitting at an odd angle to the monitor the colour will be affected and the picture may literally disappear or not be clear.

Another one is the quality or those monitor doesn't last as long as the CRTs.

The LCDs can change their pivot, horizontal (landscape) or vertical (portrait).This is very useful for web surfing, viewing large spreadsheets and desktop publishing.

The Price for a LCD is about £130 Maximum which is quiet cheap as it only is published for a year.

CRTs'

When profiling a CRT monitor, you usually have access to an On Screen Menu on your monitor which allows you to change various aspects of the monitor's performance, including contrast and brightness. Many LCD monitors don't have this facility.

Another advantage is that the contrast ratios and depths of colours displayed are much greater with CRT monitors than LCDs .Also even though the monitor is bigger than a LCD the Colour Clarity and Depth is more valuable than a LCD.

The CRTs are cheaper too, than LCDs so it would be quiet cheap to buy the CRTs.There are disadvantages for the these Monitors too, the CRTs are the old versions of monitors which means they were invented in about 1960s.So they will not suit our modern lives that much.

The CRT is really big and bulky which means if you live in a small house or have little space for your workplace the CRT will not fit.

The Price of a CRT is about £50-60 which has decreased over the last 20 years as the LCD has come out and taken over.

Overall the Monitor is efficient because without it you will not be able to see what is going on and nothing would work, because you will not see where the tool bars and other menus are.

The Monitor works as little dots which are really tiny change colour to let us see the graphics which I on the Monitor and the written text.

By: Diviya Uthayakumar 10T

Out of the LCD and CRT I would buy LCDs' because they are better in appearance but the CRTs are good quality.
The monitors use DB9 9 connectors to connect to the Motherboard.

DB9 9 pins in two rows, used on older monitors, and VGA's. PS/2 style Serial ports also use DB9 connectors.

Printers:

Printers transform Graphics and texts from your PC into hard-copy output on paper. Printers are around since the first PCs were invented. They have got a variety of purposes like from letters and Business documents, to the printing of flyers and sales material, to producing photographs.

There are different types of Printers:

- o **Dot Matrix:** The oldest kind of printer is which was used on PCs in the 1980s. This kind of printer uses an array of pins and a ribbon to print text, and in some cases, graphics. Noisy, slow and low in quality, these have been almost entirely pushed out of the market by inkjet and laser printers. They are still sold for special needs; especially for printing multi-part continuous forms for business purposes (lasers and inkjets can't print through multiple-sheet carbon forms).

- o **Laser:** These printers use technology similar to that of a photocopier to create high-quality printout at high speed. They are expensive, however, and they are generally limited to black and white output unless you want to spend a *lot* of money on a color laser printer.

- o **Ink Jet:** The most popular type of printer sold today, ink jet printers use a special print head that ejects microscopic dots of colored ink onto paper to create an output image. They are relatively inexpensive to buy and almost all will print in color. However, they can be expensive to operate if you do a lot of printing, can be slow, and their output is prone to fading and smudging. Quality also varies widely.

By: Diviya Uthayakumar 10T

- **Color Laser:** These produce amazing output and are fast, but very expensive. They are still not an option for most PC buyers.

There are many reasons to have a printer, it lets you print out documents and Letters which are sources of advertisement and Business. It also has great use for Students and working people who could rather type out their work than write it by hand. It helps work learning resources-without a printer not much could be taught in school and at workplaces, nearly all our everyday needs have some connection to a printer. For example our food comes in packets and which are being printed off-without those print offs no one would like to buy the food. Another example is Magazines- which have a great front page and look good, without a printer these would not have been able to be published.

The Printer works simply by clicking the print button. What will happen next is simply the information you want to print are send to the printer. Depending on what kind of Printer it will either go into RAM memory of the printer or site in the RAM memory of your computer. . If a printer with RAM built inside you can take some strain off of your system. Some really elaborate printers even have there own motherboard and CPU to go along with the operation. Of course this will be much more expensive. The Printer actually gets the text and graphic detail on the paper with inkjet. Inkjets work by spitting tiny dots of coloured ink onto a page. Most of this printing action takes place in the nozzles of the print cartridge. What happens is a interface circuit in the cartridge applies a charge. This is applied to a series of what is called impulse drivers that correspond to the selected colours. Now there are two ways to get the ink out of that cartridge. This is done with by charging and heating up a small amount of ink till it is a vapour ball and gets pushed onto the page. The other method is to apply a charge to a piezoelectric driver that is made up of synthetic quartz. The quartz expands and then pushes the ink onto the paper. This is similar to fuel injector in a sense. The laser printers are neat printers. These are used mostly in business applications and are not cheap. First off laser printers use a fine black toner. The toner itself is made up off magnetic iron compounds, plastics, and pigment that will allow it to be melted, shaped and applied to a page.

The printer normally connects to some interface or port on the motherboard.
These are the basic compounds. The OPC (optical photo conducting) drum. The drum is what is used to transfer this fine black toner to the page. The drum has to be charged first which by the way sucks

By: Diviya Uthayakumar 10T

the electricity out of your office, after the drum is charged it causes static electricity and repels the toner. Now with the drum charged the have a laser comes in and the beam strafes the drum at about 300 pulses a minute (300dpi). Each time the laser strobes this represents a single microscopic dot. The laser also breaks down the charge on the drum allowing toner to stay to the surface of the page. The drum turns allowing this process to keep repeating for every line you are trying to print. Now we have a magnetic roller that comes into play that is covered with toner. Now the roller is subjected to what is called a corona, this is simply a strong static charge and is underneath the moving paper of the drum. The roller will remove the toner from the drum and then onto the paper where it will then be melted by another roller. The roller that actually melts the plastic toner is a heated Teflon roller. This is a complicated process but seems to do a good job in the office.
The efficient of a printer is that it prints the documents that are on the screen exactly as they are in hand out and Document formats.

The overall price of a normal printer is about £40-90, there are a lot different kind of ones so the prices are not certain.

The printer is efficient because without it there would not be any other way to put the graphics including pictures on to a Paper from the monitor.

Out of all the Printers I would buy the All-in-one printers which have a scanner, Copier, Fax and a Printer in it.

HPCN36 male-This is the new "Type-C" IEEE-1284 Parallel port connector which is used on some new laser printers

MINIDIN-8(female)-Serial Mac connector. Mac Printers, Mac printer and modem outputs, etc

By: Diviya Uthayakumar 10T

Mouse:

A Mouse is a hardware item which is not as important as a monitor. It is a control device which is used to go on to links and other toolbars. You actually can use the computer keyboard instead, which is much harder to use. That is why a Mouse comes usually together with a computer.

If you open the mouse and remove the ball inside, you'll notice two bars on the interior. Both bars can rotate freely, and they both control the movement of the pointer: one for the horizontal and one for the vertical movement. If you rotate only the one that controls the horizontal movement, the pointer will move horizontally on the screen, and likewise, if you rotate the one controlling the vertical movement the pointer will move either up or down. If you move both bars, the pointer moves diagonally. When we move the mouse, the ball inside it rolls, and as it rolls it rotates the two bars touching the ball. As a result, the pointer moves in the direction you move the mouse.

The effect of clicking the mouse button mostly depends on where you are pointing. The computer will probably ignore the action when the button is clicked on some "insignificant" area on the screen. The effect of the mouse button click, and the effect of the combination of movement and clicking on the same time (dragging) depends on what sort of program the computer is running to interpret the action.

The top of a computer mouse has two main buttons. The buttons are named by their location on the mouse. The button on the left is called the **left mouse button**. The button on the right is called the **right mouse button**. Sometimes mice have a middle button or a scroll wheel between the left and right mouse buttons. Turn the mouse at your computer over. You will notice a round opening. This opening is a retaining ring which can be removed by turning the ring in a counter-clockwise direction. The retaining ring covers an opening that contains a rubber ball. If you look closely at the opening that contained the rubber ball, you will see three small rollers .These rollers send instructions to your computer to move the arrow in one direction.
One roller moves the arrow right and left, one roller moves the arrow up and down, and the third roller holds the rubber ball in place.

When the mouse is right side up, the ball and rollers work together to move the arrow on the screen. When you slide the mouse along a surface, the rubber ball rolls.

By: Diviya Uthayakumar 10T

The rolling ball turns the small rollers which move the arrow on the screen.

The types mouse connectors that will be used will depend on the PC style and form factor of the motherboard. The newer PCs use the dedicated (PS/2) mouse. Older PCs do not have a dedicated mouse port connector. These PCs use a serial port for the mouse.

These connectors are located at the back of the motherboard.

There are different types of Mice:

Joystick mouse is a mouse that has movement & control similar to that found on video games for control of the movement of the cursor.

Optical Mouse: This type of mouse is designed with an easy glide motion, so a student doesn't need to move his or her wrists as much to navigate the computer. The optical mice all function to ease movement in various ways.

Pen Mouse is a specialized mouse that can be held like a pen, and when a button pressed the pen acts as a mouse. There is no mouse pad needed and the pen can be used while writing in the air, which sends the message to the computer to move the cursor in the same direction. Another alternative is to have a mouse pad that represents the computer screen and move the pen mouse across the pad.

Touch Pad:

Is a mouse that has a specialized surface that is sensitive to touch. When the surface is touched, the cursor on the screen goes in the direction of the touch (similar to touch mice found on most laptops). The touch pad is positioned where a regular mouse would go and the student touches the pad to activate the mouse.

Track balls:

 This type of mouse is designed for those with limited motion in their arms/hands. A person with a disability can "spin" the trackball in the direction he/she wishes the cursor to move on the screen, rather than having to move the entire mouse itself. Track balls also eliminate the need to stabilize or hold the mouse still when clicking.

By: Diviya Uthayakumar 10T

Cordless Mouse:

The mouse has rechargeable batteries. You have to charge it with battery which means you will be using lot electricity. The good thing about it is that you do not need wire which keeps on irritating you while working in the PC.
But the disadvantage is that you have to charge which means you will be using electricity and another thing is that if it was forgotten to be charged it can not be used.

Mechanical Mouse:

The movement of the mouse is questioned by light barries. The inner of the mechanical mouse is a movable control ball, that follows the movements of the mouse. The part-movement is felt over two striking surface in the horizontal axis and the vertical axis. The disks possess light and darkness sectors.
With the help of two phototransistors per disk, it is possible to determine the revolution direction of the ball.
Mostly, a small controller is used. It gets a piece of information from four signals how fast and into which direction the mouse will move. The chip is also responsible for the serial transfer of the data. Let's leave that there and let's take another example.

The Mouse is efficient because without it would take a long time to figure out how to use the Keyboard as a Control device.
The Mouse would be about £ 5-20, it depends what kind of Mouse you buy.

Connectors:

- **USB (Universal Serial Bus) port**

Standard

The Standard USB plugs are used on computers and standard devices like printers, scanners, storage devices...
These support both USB 1.x and USB 2.0

Mini

The Mini USB plugs are designed for mobile and other small devices and appliances. These are part of the USB 2.0 specifications and do not exists for USB 1.x devices.
The inner plastic part of the connector is color coded for easier identification (white part on schematics).

By: Diviya Uthayakumar 10T

Conclusion:

I learned through looking at a lot of information that the efficient has a lot to do with the price because if a flat screen will be bought it is newer and has got lots of different extra things in it which mean it's much expensive.
I also understood how a printer works technically and how I have to use it. I realised that there are many types of mice and each of them have something special on them and different advantages and also disadvantages on them.

By: Diviya Uthayakumar 10T