**CHAPTER ONE**

**INTRODUCTION**

Assembling a desktop computer system, gives maximum satisfaction to the user and a very useful experience in the sense the desktop computer is build with the component specification the user will prefer to have in the computer. To Assemble Desktop PC (Personal Computer) the builders of such systems are probably contemplating building or assembling a computer instead of purchasing one pre-built or pre-assembled from the company. This project is based on assembly of desktop computer system it will enlighten us on to build a computer with less stress and less amount of money, and how the computer built can meet up with the processing requirement of a standard system for the school laboratory. Assembling of desktop computer as a project topic for we student will be really helpful as a practical experience gained in the pursuit of our degree. This project has assumed that the Sub-Assembly of computer components are available and ready to be coupled to make a computer system that will have a strong performance for computing.

1. **BACKGROUND FOR THE STUDY**

Assembling of the computer system on this research begins with gathering different components/devices of computer system together in other to make a well functioning computer system available to the computer laboratory (THE FEDERAL POLYTECHNIC ADO-EKITI) and to enable students to be more familiar to each components of the computer system. Thus, this project will cover all the process of purchasing components, coupling, and the process of installing the OS (operating system) into the computer system. Building or assembling the computer brings significant benefits to students which are identified below. It is good for one to understand that inside the system box, there are components that are connected together which make up the computer. Different kinds of parts for connecting external devices are found outside the system casing. Open bays are for connecting optical devices such as DVD and CD-Rom drive are also found on the front side. A small button is found near the drives door which can be pressed to eject the tray where you can place the CD or DVD disc. Same button can also be pressed to take-in the tray. It can also be operated from the system’s windows operating system. In some cases USB port is also found at the front of the casing which allows your flash drives, printers, Ipod, Ipads, Iphones and external plug and play USB devices to be connected into your computer. At the front panel one can also see ports for camera, memory media reader. Here you can slot in your memory card containing your memory storage removed from the camera or the phone and you insert it into the computer so that the image stored on it can be accessible.

The rear-part of the system unit box are other connectors like parallel port for printers, more USB ports, PS/2 ports for mouse, keyboard, serial ports and others.

These ports are used for connection of the peripheral devices (i.e. the non-essential parts of the computer).

These peripherals include external devices like monitors, speakers, micro-phones etc. At the rear is also found the Ethernet (NIC) port for connecting the computer to the network.

When you open the system unit casing by unscrewing, you will see some individual components connected via cables or plugged directly into large board attached to the side of the casing. This board is the motherboard and is used to connect all the individual devices inside the computer box. The power supply unit also provides power supply to these components as they are connected to it.

The memory (RAM) and the microprocessor is also seated fixed on the motherboard. The interface or add-on cards are also connected as they communicate with the board where it is properly fixed.

1. Good understanding of how computer components work and how they fit together
2. Understanding the internal and hardware workings of a computer. Spending time putting together will add benefit of giving you a great insight into the inner workings of a PC -- by the time you've finished, we will know the purpose of each internal component and how they all fit together through the motherboard.
3. It expand knowledge about computer hardware terminology.
4. Ability to customize a computer according to specialized specifications.
5. Since it gives us understanding of the internal and hardware workings of a computer. It could help students to develop interest in hardware aspect of computer science
6. Another advantage of building your own computer is that you can leave room for future upgrades. Not only can you plan ahead and buy a motherboard capable of expansion, you'll also be much more clued up when it comes to buying better and more powerful components when the time comes

**1.2 MOTIVATION**

What brought about our interest in this project is that, I have a great passion to know the function of the internal component of a computer and how they work and to be able to be capable of building a computer that will be useful in the school laboratories.

**1.3 OBJECTIVE OF STUDY**

The aim of this research is to build a well functioning computer

1. Understanding the internal working of a computer.
2. Learning more about computer technology
3. Identifying computer component and how they fit and work together.
4. To be able to customize a computer according to a specialised technology
5. Assembling of computer system from its components
6. Gathering technical problem solving ability
7. To reduce the cost of purchasing new computer system.
8. Customizability of your personal computer opens up a lot of ways to upgrade it in the future. Eventually, your brand new PC will get old and you may wish to replace some parts or add some new parts. If you have built it yourself, you do not need to worry about voiding your warranty. Feel free to swap parts any time you want.
9. One of the best parts about building a custom-made PC is being able to ensure it runs at its maximum efficiency. If you buy a new computer in a store, there may be some software on it that you never use.
10. You are your own tech support

By the time you have finished building your personal computer, you should know how it inside and out. In case you encounter some issues with it in the future, you will know where to look and what to do.

**1.4 JUSTIFICATION OF THE PROJECT**

Computer system is an intricate machine as a result, many a times it is proved difficult to explain to the undergraduates of higher institution. So this project is a better idea of solving the problem. The knowledge acquired on the course of this work will enable the students understand better what the computer is, in this computer age. Carrying out such project will also overcome the barrier/limitation facing Nigeria undergraduate on the knowledge of computer. This will also help many Nigerians to be ICT compliance.

**1.5 SCOPE OF STUDY**

The scope of this research is to show how computer components could be purchased, assembled and installed with the necessary software to meet the required specification needed in the laboratory.

**1.6 EXPECTED CONTRIBUTION TO KNOWLEDGE**

It gears us up to know the functionality of human to computer system.

1. The study will expose us to understanding different functions of computer component and how to couple them together to make a single unit
2. It will give us some knowledge on how troubleshoot some computer hardware related problem
3. An understanding of how Operating system is installed will be gained. Also we will learn how to install some other software like device drivers, microsoft word and so on.
4. The study is expected to specify the fact that computer is made up of several components functioning together as a single unit.
5. It will enable us to know that hardware cannot work alone to makes a computer without software being installed.

**1.7  LIMITATION OF THE STUDY**

One of the challenges I encountered during this project research was the scarcity of/unavailability of some components in the market. Nevertheless, some of these components are exorbitant even when you see them in the market.

Further limiting factors that I encountered are explained below:

1. TIME CONSTRAINT: The time to carry out this project is short such a research cannot be completed in a semester let alone this few weeks. Researching at the library needs time.
2. FINANCIAL CONSTRAINT: As a student, I was not financially buoyant. I was affected because there was not enough money to buy components, browse the internet, pay and gather other researching materials that will certify this project a research work.

Nevertheless, the work added to my academic work load in the campus, serving as a great constraint, yet all these could not hamper the research work.

However, the project, Assembly of desktop computer system has sub-units such as

1. The system casing
2. The motherboard
3. The Central Processing Unit (CPU).
4. The drivers
5. The Input/output Unit.
6. The Software.

**1.8 METHODOLOGY**

Method used to make complete system are:

1. Know the market price between a whole PC Desktop and Sub-assembly

computer.

1. Choosing the components that make a complete system such as: the system casing, Motherboard. Hard disk. CDROM. Monitor, Keyboard, Mouse and some internal components.
2. Buying tools that will be use to assemble the system these are: Needle Nose Pliers, Screwdriver, small plastic bin to put your screws and other small parts into, small flashlight.

**1.9 DEFINITION OF TERMS**

1. **Computer**: A computer is a programmable machine which can accept data as input, process data, store data and generate output as information which helps the user in quick decision making. The main components of digital computer include CPU (Central Processing Unit), memory, input/output devices etc.
2. **Central Processing Unit (CPU)**: The CPU is the brain of the computer. It executes user programs and controls memory and input /output devices.
3. **Hard Disk drive (HDD)**: It is the main storage device used for storing data and information as well as computer programs. This information can be retrieved by the user at will. The hard drive is made up of a rotating disk that is coated with magnetic material.
4. **The system casing**: A computer case, also known as a computer chassis, tower, system unit, CPU (when referring to the case as a whole rather than the processor), or cabinet, is the enclosure that contains most of the components of a personal computer (usually excluding the display, keyboard, and mouse).
5. **The drivers**: A driver, or device driver, is a set of files that tells a piece of hardware how to function b y communicating with a computer's operating system. All pieces of hardware require a driver, from your internal computer components, such as your graphics card, to your external peripherals, like a printer
6. **An input/output device:** often known as an IO device, is any hardware that allows a human operator or other systems to interface with a computer. Input/output devices, as the name implies, are capable of delivering data (output) to and receiving data from a computer (input).
7. **The Software:** software, instructions that tell a computer what to do. Software [comprises](https://www.merriam-webster.com/dictionary/comprises) the entire set of programs, procedures, and routines associated with the operation of a [computer system](https://www.britannica.com/technology/computer).
8. **The motherboard**: The motherboard is the backbone that ties the computer's components together at one spot and allows them to talk to each other. Without it, none of the computer pieces, such as the CPU, GPU, or hard drive, could interact.

### The RAM: RAM (Random Access Memory) is the [hardware](https://www.techtarget.com/searchnetworking/definition/hardware) in a computing device where the operating system ([OS](https://www.techtarget.com/whatis/definition/operating-system-OS)), application programs and data in current use are kept so they can be quickly reached by the device's [processor](https://www.techtarget.com/whatis/definition/processor).