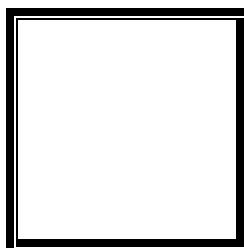**PAMANTASAN NG LUNGSOD NG MAYNILA**

(University of the City of Manila)

Intramuros, Manila

MICROPROCESSOR (LECTURE)

Activity No. 1
Review of Terminologies

Score

Submitted by:
Molo, Jericho B
S 7:00 – 10:00am / CPE 0412-1

Date Submitted
29-09-2023

Submitted to:

Engr. Maria Rizette H. Sayo

Instruction:

A. Define and discuss the following terminologies related to microprocessor systems:

1. MPU
   - A microprocessor, also known as a microprocessing unit (MPU), is a device used to process digital data that integrates the essential components of a computer system into a single integrated circuit or several integrated circuits working together as a single functional unit. MPUs are often found in general-purpose computer systems such as workstations, servers, and personal computers. They can run complex operating systems and software programs and are built to accomplish a variety of activities. The number of cores, instruction set architecture, and clock speed of MPUs are frequently used to describe them.

2. MCU
   - The MCU serves as the circuit's main building block. Microcontroller Units, often known as MCUs, are small integrated circuits (ICs) that have input/output peripherals, memory, and a microprocessor core. MCUs are made for specialized applications and embedded systems, where they are used to control processes or actions. Consumer electronics, automobile control systems, industrial automation, and Internet of Things devices are just a few examples of the many embedded systems where MCUs are frequently utilized. MCUs are designed for minimal power consumption and real-time control, as opposed to MPUs, which are more adaptable. They are perfect for specialized applications since they are frequently programmed to carry out a predetermined set of activities.

3. Features of microprocessor and microcontroller
   - Features of microprocessor:
     o Purpose: MPUs are created for general-purpose computing and can run a variety of software programs.
     o High Performance: Better suited to multitasking and demanding activities due to their faster clock rates and processing capability.
     o External Components: For MPUs to work properly, external parts like RAM, ROM, and peripheral controllers are necessary.
     o Circuit Complexity: External connection makes the circuit complicated.
     o Memory and I/O components: Memory and I/O components can be connected externally

   - Features of microcontroller:
     o Purpose: MCUs control tasks or functions and are made for specialized embedded systems.
     o Low Power: It is designed to consume less power, making it suitable for battery-powered and energy-saving applications.
     o On-Chip Components: On a single chip, MCUs combine memory, timers, I/O ports, and other peripherals.
     o Circuit Complexity: Simpler architectures and instruction sets
     o Memory and I/O components: The memory and I/O components are available.

4. Applications of microprocessor and microcontroller
   - Microprocessors are commonly used in general-purpose computing devices such as workstations, servers, and personal computers. They are excellent at handling data-intensive jobs, multitasking environments, and operating complicated software applications. Microprocessors power high-performance computing systems used in scientific research, data processing, and simulations in addition to conventional computing. Additionally, they power the central processing units in gaming consoles, ensuring immersive gameplay. Also, microprocessors are essential for the advancement of cutting-edge fields like

artificial intelligence and machine learning, enabling operations like deep learning and neural network processing.

- On the other hand, microcontrollers work for the proper functioning of the embedded system, which is responsible for the appropriate working of the device. Power tools, implantable medical devices, car engine control systems, office equipment, remote-controlled appliances, toys, and many other automatically operated inventions and appliances use microcontrollers embedded computing. Thus, it is a key component of the Internet of Things (IoT), which manages sensors, data gathering, and communication in a variety of smart devices. Overall, microcontrollers are essential parts of numerous embedded systems and consumer electronics due to their superior real-time control, low-power operations, and ability to do specific tasks.

B. Cite your References below.

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