MICROCONTROLLER AND MICROPROCESSOR

* Microprocessors and microcontrollers are the internal components of electronic devices. A microprocessor is a very small processing unit inside a CPU.
* It's a single integrated circuit on a computer chip that performs various arithmetic and logic functions on digital signals. Several dozen microprocessors work together inside high-performing servers for data processing and analytics.

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| MICROPROCESSOR | MICROCONTROLLER |
| Requires external memory and data storage. | On-chip memory modules (ROM, RAM). |
| Needs additional parts. Connect with the external bus. | On-chip peripherals (timers, I/O ports, signal converter). |
| Capable of complex computing tasks. | Limited to specific application logic. |
| Very fast. GHz range. | Fast but slower than microprocessors. kHz to MHz range. |
| Requires operating systems. | Operating system is optional for some microcontrollers. |
| High power consumption. No power saving mode. | Consumes minimal power. Built-in power saving modes. |
| Handles high-speed data transfer. Supports USB 3.0 and Gigabit Ethernet. | Supports low to moderate speed communication. Serial Peripheral Interface (SPI) and I²C. Universal asynchronous receiver-transmitter (UART). |

* Basically, Microcontroller=Microprocessor+Peripherals
* Peripherals include-

1.WiFi

2.Bluetooth

3.ADC

4.DAC

5.Touch Sensor

