- micro Processor (μP): it's a IC (integrated circuit) used for general Purpose functions and consist of mostly for ALU + Control Unit + Register + Small memory

- micro Controller: μP + Prepherals + Memory

micro Controller

micro Processor
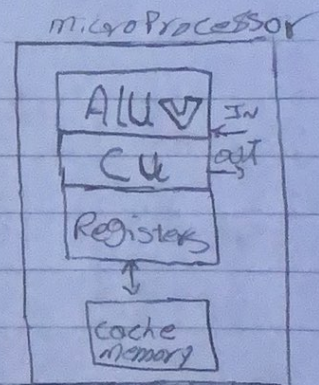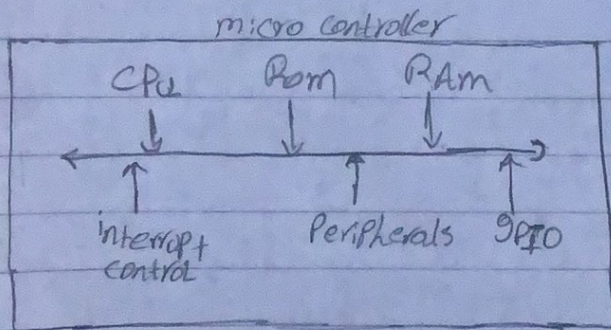
- Embedded system: it's a system like computer But smaller used for specific Purpose and with more constrains in time, speed and storage

- mechatronics system: it's a system that contain a mechanical Part drived with controller and contain also Electrical Part.

- n-bit Processor: it's a Processor that understand a word with n-bits only, and any larger word must be broken into Pieces

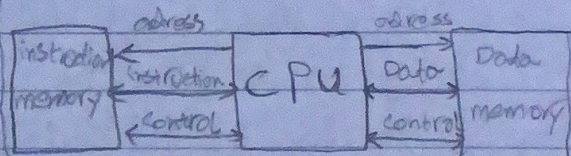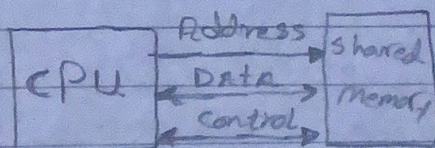- Micro Processor Vs Microcontroller:

General Purpose	Specific Purpose
Part of micro controller	Contain microprocessor
Can add to it more RAM and memory	Can't add any Peripherals to it

- Von-Neuman Vs Harvard Architecture

instruction and data share the same memory device and busses	instruction and data has separate Busses and memories

- Rom Types:

1- PRom: Read only memory, it can Programmed only once by the User

2- Mask Rom: same as Prom but it can Programed once by manofatured not user

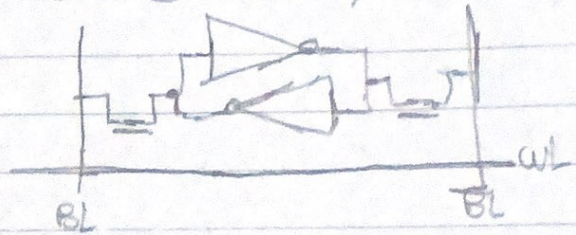3- EPRom: it can be Programmed many times but it's not Ilectrically Erasing, it can be Fully erase by UV-EPRom

RAm Types:

1- SRAM: static RAm because it doesn't need to be refreshed, it consist of 6 transistor so it's high cost but faster and Better then DRAM, used for cache memory

2-DRAM: Dynamic RAm because its need to be refreshed because of leakage of The voltage, consist of 1 transistor and 1 capacitor so it's cheaper Then SRAm But slower and more power consamption because of refreshing Process and used in Main Memory
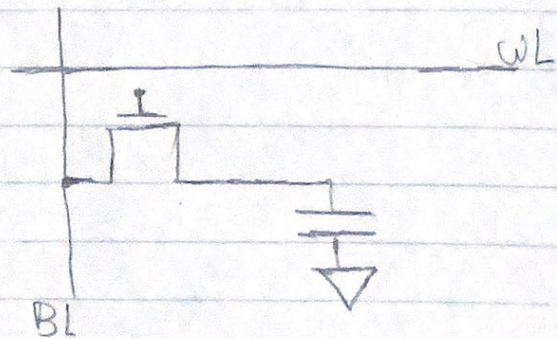
why Rom is Read only Memory Although you can write on it?

It can be written on it by cpu itself, but by another devices.

learn in depth

Type	volatile?	writable	Erase size	max erase cycle	cost (per byte)	speed
SRAM	yes	yes	Byte	unlimited	Expensive	Fast
DRAM	yes	yes	Byte	unlimited	Moderate	Moderate
Masked Rom	No	No	N/A	N/A	Inexpensive	Fast
PRom	No	No	N/A	N/A	Moderate	Fast
EPRom	No	once	Entire chip	Limited	Moderate	Fast
EEPRom	No	yes	Byte	Limited	Expensive	Fast to Read slow to write/erase
Flash	No	yes	sector	Limited	Moderate	Fast to Read slow to write/erase
NVRAm	No	yes	Byte	unlimited	Expensive (SRAM + Battery)	Fast