Assignment 1

الاسم: احمد أسامة إبراهيم مصطفى النجار/ B.N:1

1. **PIC Microcontroller:** PIC Stands for Peripheral Interface Controller is a kind of microcontroller component that was used in the development of electronics, computer robotics, and similar devices. Even though the PIC was produced by Microchip technology and based on hardware computing architecture, here the code and data are placed in separate registers to increase the input and output. Pic has a built-in data memory, data bus and dedicated microprocessor for preparing all I/O purposes and methods.

   - **Brands**:
     i. Microchip Technology
     ii. Renesas Electronics
     iii. Nuvoton

2. **ARM Microcontroller:** ARM stands for Advanced RISC Machine. It's the most popular Microcontrollers Programming in the digital embedded system world, and most of the industries prefer only ARM microcontrollers since it consists of significant features to implement products with an excellent appearance. It is cost sensitive and high-performance device which has been used in a wide range of application such as Industrial Instrument control systems, wireless networking and sensors, and automotive body systems, etc.

- **Brands**:
    i. STMicroelectronics (e.g., STM32 series)
    ii. NXP Semiconductors (e.g., LPC series)
    iii. Texas Instruments (e.g., Tiva C series)
    iv. Microchip Technology (e.g., SAM series)

3. **8051 Microcontroller:** Intel created 8051 microcontrollers in 1981. It is an 8bit microcontroller. It's made with 40 pins DIP (Dual inline package), 4kb if ROM storage and 128 bytes of RAM storage, 2 16-bit timer. It consists of are four parallel 8-bit ports, which are programmable as well as addressable as per specification.

- **Brands**:
    i. Intel
    ii. Silicon Labs
    iii. STMicroelectronics
    iv. NXP Semiconductors

4. **AVR Microcontroller:** AVR stands for Alf and Vegard's RISC Processor. It was the modified Harvard architecture machine, where program and data were stored in the separate physical memory system that appears in different address spaces but having the ability to browse information things from program memory victimization particular directions. AVR isn't associate degree signifier and doesn't symbolize something specially.

- **Brands**:
  i. Arduino (e.g., ATmega328 in the Arduino Uno).
  ii. Clone manufacturers

5. **MSP Microcontroller:** MSP stands for Mixed Signal Processor. It's the family from Texas Instruments. Built around a 16 -bit CPU, the MSP is designed for low cost and respectively, low power dissipation embedded statements. It's the controller's appearance is directly related to the 16-bit data bus, and seven addressing modes and the decreased instructions set, which allows a shorter, denser programming code for fast performance.

- **Brands**:
  i. Texas Instruments
  ii. Ambiq Micro
  iii. Renesas Electronics