

# CSE


## Microcontroller Application



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## Watchdog timer

- ▶ A specialized program found as part of the microcontroller designed to prevent the microcontroller from halting or “locking up” because of a user-written program since the instructions are processed step-by-step.
  - ▶ Uses a routine that is based on timing. If a program has not been completed or repeated as a loop within a certain amount of time, the watchdog timer issues a reset command.
  - ▶ A system reset sets all the register values to zero.
  - ▶ The reset feature allows the controller to recover from the crash. It releases the program and sets the controller to start over again.
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## **Stack Pointer and Program Counter**

- ▶ Stack pointer - keeps track of the last stack location used while the processor is busy manipulating data values, checking ports, or checking interrupts.
- ▶ Program counter - is used to hold the address of the instruction to be executed next.

## **Buses**

- ▶ Bus represents a physical connection used to carry a signal from one point to another inside a microcontroller. The signal carried by a bus may represent address, data, control signal, or power.

## **MICROCONTROLLER OPERATION**

### **MODULE**

- ▶ When a microcontroller is mounted on a circuit board with other components function as a single unit, is referred as a module or a microcontroller board.
- ▶ A microcontroller module typically consists of microcontroller, a power source, an interface for connecting to a programming device, I/O ports, and additional memory.

**Thank You**