

CSE360 Computer Interfacing

Contents

1 Introduction to Computer Interfacing

- 1.1 Basic Interfacing and real life example
- 1.2 Types of Interfacing
- 1.3 Necessity of Computer Interfacing
- 1.4 Block Diagram of input output Interfacing
- 1.5 Introduction to the system bus
- 1.6 Introduction to low level program execution

2 Bus Interfacing

- 2.1 Basic Bus Interfacing
- 2.2 Tri-state bus

3 Different kinds of Computer Ports

- 3.1 Serial and Parallel Ports
- 3.2 PS/2 Ports
- 3.3 Universal Serial Bus (USB)
- 3.4 Firewire Ports
- 3.5 Ethernet Ports

4 Computer interfacing ICs

- 4.1 Basic I/O (Memory mapper and Isolated) and diagram
- 4.2 Introduction to 82C55 programmable interfacing IC
- 4.3 Pin configuration and Block diagram
- 4.4 Control word of 82C55
- 4.5 Time diagram of handshaking input and output

5 Techniques of sensing and sensors and their Interfacing

- 5.1 Physical properties of sensing (optics, sound, temperature, etc.)
- 5.2 Types of sensors (active, passive, simple, complex etc.)
- 5.3 Sensor fusion
- 5.4 Sensor circuit and hardware calibration
- 5.5 Integration and software calibration of sensor
- 5.6 Advance sensors
- 5.7 Necessity and applications of sensor

- 6 Low Level IO Devices devices**
 - 6.1 LED and interfacing
 - 6.2 LCD and interfacing
 - 6.3 7 segment display and interfacing
 - 6.4 Multiple 7 segment display and interfacing
 - 6.5 Matrix Keyboard
 - 6.6 Switches
- 7 Output devices**
 - 7.1 Motor Characteristics
 - 7.2 Working mechanism and Interfacing of Printers
- 8 Interfacing and Communication standards (Synchronous and Asynchronous)**
 - 8.1 Inter-IC (I2C)
 - 8.2 Serial Peripheral Interface (SPI)
 - 8.3 Universal Asynchronous Transmitter Receiver (UART)
 - 8.4 Universal Synchronous/Asynchronous Receiver/Transmitter (USART)
- 9 Advanced researches on Interfacing**
 - 9.1 Human Computer Interfacing (HCI)
 - 9.2 Brain Computer Interfacing (BCI)
- 10 Introduction of software and hardware tools for interfacing systems**
 - 10.1 Understanding Data sheet, PCB design, 3D printing
 - 10.2 Integrate Hardware and prototyping: Input, Output, Processor, Communication and Power
 - 10.3 Case Study
 - 10.4 Step of developing a interfacing project
 - 10.5 Documentation, Demonstration, Presentation and Publication