

Course Name : CPEN6252010 - Introduction to Microcontroller
Effective Period : February 2024

Mini Project 2. Build Simple Application with AVR UART and Interrupt Session 17 – 18

Outline

- Build AVR Simple Circuit with RS232 interface
- Build AVR Simple UART Program
- Prepare for demo and presentation

Build AVR Simple Circuit with RS232

- Build AVR Simple Circuit for UART Communication:
 - Send String from uC to PC every 1 sec
 - Receive Char and send it back
- Circuit contains:
 - AVR basic circuit: Reset circuit, crystal, power supply
 - RS232 interface (MAX232)
- Circuit can used wire wrap or PCB
- Use USB2Serial converter for USB Port
- Challenge:
 - Develop program that automatic know start and end data transmission

Build AVR Simple UART Program

- Purpose:
 - Build AVR Program to send and receive character to PC via UART
- Development stage:
 - Build Simple program to send 1 character ('A') to PC
 - Make simple program to received 1 character from PC
 - Make UART receiving program using UART RX Interrupt
- Tools used:
 - AVR IDE (AVR Studio or Code Vision)
 - AVR Device Programmer or Debugger

Reference

- Muhammad Ali Mazidi, Sepehr Naimi, Sarmad Naimi (2017), **"The AVR microcontroller and Embedded systems: Using Assembly and C (ATMEga32)"** 1st edition, MicroDigitalEd, ISBN 9780997925951.
- Barrnet, Richard. (2007). ***Embedded C Programming and the Atmel AVR***. 2nd edition. Delmar learning. ISBN 1401812066.
- V. Garde, Dananjay. (2001). ***Programming and customnizing the AVR microcontroller***. 1st edition. McGraw-Hill. ISBN 007139978X.