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Microprocessor Lab, AB2, Ground Floor
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19CCE283 Embedded Computing Lab

Course Outcomes:

CO1: Able to analyze various real-world sensors and actuators that can be interfaced with a microcontroller
CO2: Able to develop programming skills for configuring MSP43x on-chip peripherals
CO3: Able to implement Task Management in a Multi-Tasking System using FreeRTOS
CO4: Able to design and develop an embedded computing platform using MSP43x Microcontroller.

List of Experiments

1) GPIO interfacing using MSP43x Microcontroller [CO1]
   a) LED Blinking using MSP43x.
   b) Seven Segment Interfacing using MSP43x.
2) General Purpose Input Programming using MSP43x [CO1]
   a) Control of LED using Switch.
   b) Control of Seven Segment Display using Switch.
3) Serial Transmission and Reception using MSP43x [CO2]
   a) Continuous Transmission of a Character using UART.
   b) Reception and Transmission of a Character using UART.
   c) Device Control using UART.
4) Analog to Digital Conversion using MSP43x. [CO3]
   a) ADC peripheral programming and digital output display on LED.
   b) Temperature Controller implementation using ADC.
5) Timer Programming using MSP43x [CO3, CO4]
   a) LED control using SysTick Timer.
   b) LED control using Timer32 Timer.
   c) LED control using TimerA.
6) PWM Generation using MSP43x
   a) Edge Aligned PWM Generation

b) Centre Aligned PWM Generation
c) PWM Generation based on ADC Input

7) LCD Interfacing using MSP43x
   a) Hello World display using LCD
   b) Voltmeter implementation using ADC and LCD
8) Interrupt Programming using MSP43x
   a) GPIO Port Interrupt Programming
   b) UART Serial Port Interrupt Programming