COLLEGE OF ENGINEERING & TECHNOLOGY

Department : Computer Engineering

Lecturer : Dr. Sherif Fadel

Course Name : Microprocessor

Course Code : CC421

Microprocessor lab Project

Welcome to the Microprocessor course final project. This document outlines the requirements, guidelines, and expectations for the successful completion of the project. Please carefully review this document to ensure that your project aligns with the specified criteria.

Objective:

The project objective involves designing a system to achieve specific functionality, using the topics we covered in the lab, such as microcontroller programming, interrupts, ADC, Timers, UART, PWM. You have the flexibility to choose the application based on your interests and creativity. Consider real-world applications where a microcontroller can be employed, such as home automation, sensor interfacing, or communication systems

Deliverables:

- Assembly code file (.asm).
- Hex file (.hex).
- Proteus project.
- Real hardware (Optional) for extra 5 marks.

Project Constraints:

- Code must be implemented using assembly language, C language is not acceptable.
- You must use the At89C52 microcontroller, any other microcontroller is not acceptable.
- You must implement interrupts in your project.
- You must implement at least two of lab covered topics: ADC, Timer, UART, PWM.
- You must interface with any sensor or electronic components.

Team Composition

- Maximum 2 members per team for simulation only submissions.
- Maximum 3 members per team for real hardware submissions.

Deadline:

- The deadline for project submission is at the end of Week 14.
- Late submissions will be subject to a penalty.

Real Hardware Implementation (Optional):

- Teams have the option to implement the project on real hardware for an extra 5 marks.
- All projects need these hardware components:
    - AT89C52
    - 11.0592 Mhz crystal
    - Breadboard
    - Jumper wires
    - 2 * 33pf capacitors
    - 10µf capacitor
    - Push button
    - Any sensors for interfacing

Additional Resources:

For additional guidance and reference, you may find the following resources helpful:

- https://developer.arm.com/documentation/101655/0961/8051-Instruction-Set-Manual/Instructions
- http://www.8052mcu.com/tutorial