

# K. S. SCHOOL OF ENGINEERING AND MANAGEMENT

## Department of Computer Science and Engineering

### Microcontroller and Embedded Systems Laboratory

#### LIST OF EXPERIMENTS

##### PART - A

Conduct the following experiments by writing program using ARM7TDMI/LPC2148 using an evaluation board/simulator and the required software tool.

1. Write a program to multiply two 16 bit binary numbers.
2. Write a program to find the sum of first 10 integer numbers.
3. Write a program to find factorial of a number.
4. Write a program to add an array of 16 bit numbers and store the 32 bit result in internal RAM
5. Write a program to find the square of a number (1 to 10) using look-up table.
6. Write a program to find the largest/smallest number in an array of 32 numbers.
7. Write a program to arrange a series of 32 bit numbers in ascending/descending order.
8. Write a program to count the number of ones and zeros in two consecutive memory locations.

##### PART - B

Conduct the following experiments on an ARM7TDMI/LPC2148 evaluation board using evaluation version of Embedded 'C' & Keil Uvision-4 tool/compiler.

9. Display "Hello World" message using Internal UART.
10. Interface and Control a DC Motor.
11. Interface a Stepper motor and rotate it in clockwise and anti-clockwise direction.
12. Determine Digital output for a given Analog input using Internal ADC of ARM controller.
13. Interface a DAC and generate Triangular and Square waveforms.
14. Interface a 4x4 keyboard and display the key code on an LCD.
15. Demonstrate the use of an external interrupt to toggle an LED On/Off.
16. Display the Hex digits 0 to F on a 7-segment LED interface, with an appropriate delay in between

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