SUMMARY OF FACULTY INDUSTRIALTRAINING PROGRAM

Industry: Efftronics Systems Pvt. Ltd, Mangalagiri

Dates: 17-1-2022 to 16-5-2022

Learning objectives: To get familiarity with LPC1769 Programming.

Topics Covered:

- ➢ Introduction to Embedded Systems and PDLC(Product Development Life Cycle)
- ➢ ARM processors - Architecture and internal architecture
- ➢ Understanding Datasheet and User Manuals of LPC1769 and LPC804
- ➢ Introduction to Keil - Development of Program for LPC1769 controller - Package Installation - Startup Code - Main function execution - Peripherals Viewing - Watch Window
- ➢ Programming exercises on Configure Clock source of LPC1769 controller with internal RC oscillator and generate a square wave of 1Hz using delay routine.
- ➢ Programming exercises on Define 24MHz, 48MHz and 60MHz and load different count values based on selected clock frequency and generate 1 Hz square wave - Use #define to perform conditional compiling.
- ➢ Programming exercises on Define 24MHz, 48MHz and 60MHz and load different count values based on selected clock frequency and generate 1 Hz square wave - Use array and switch case to perform run time conditional check and generate delay.
- ➢ Programming exercises on Read 4-bit DIP switch and load correspond ON and OFF values from arrays and generate pulse width waveform accordingly - Use single Timer peripheral.
- ➢ Programming exercises on Read 4-bit DIP switch and load correspond ON and OFF values from arrays and generate pulse width waveform accordingly - Use two timers in auto reload and with interrupt.
- ➢ Programming exercises on Read 4-bit DIP switch and load correspond ON and OFF values from arrays and generate pulse width waveform accordingly - Use PWM function of Timer peripheral.

- Perform ADC in Single step and Burst Mode in Software triggering mode.
- Perform ADC at sample interval of 10ms and averaging for 200 samples with step size of 0.2V in Hardware Triggering Mode.
- Perform ADC Calibration.
- Understanding the basics of UART and estimation of DLL and DLM values to generate desired baud rate Perform Writing and reading data from UART.
- Programming exercises on Transmission and reception of data serially using UART.
- Programming exercises on Transmit ADC data in particular packet format into UART with baud rate of 115200 bps in 16ms using SysTick timer.
- Perform ADC at different sampling intervals and averaging for 200 samples with step size of 0.2V in Hardware Triggering mode and pull down the adjacent ADC channels.
- Perform clock correction using push buttons.
- Perform Real Time Clock program.
- Study and perform program on Serial Peripheral Interface.
- Study and perform program on I2C.
- Perform programming to Interface temperature sensor through I2C.
- Perform programming to Interface LCD display.

Project Handled: 1. Current Sensing Module (LPC804) in BHMU

2. Indoor Air Quality Module Using LPC 1769

OUTCOMES:

1. Giving training to students on Lpc1769 ARM controllers to train them for industry requirements.
2. Efftronics Systems Pvt. Ltd, Mangalagiri sponsored Lpc1769 ARM controller kits along with debugger and supporting connectors with worth rupees 36,575/-
3. Efftronics Systems Pvt. Ltd, Mangalagiri has given consultancy project on LPC 54608 ARM controller.

List of major equipment's sponsored by Efftronics Systems Pvt.Ltd