Ref:Workshop-1/WECON-CU/2015

Hands-On Workshop on

Embedded Systems Design using MSP430 Puppy

Workshop Objectives:

The aim of this workshop is to provide hands-on experience on Embedded-System which uses a low-cost board called "MSP430 Puppy" to drive home the concepts. MSP430 is a 16-bit low-power microcontroller from Texas Instruments which is widely used in applications such as Wireless Sensor Networks, Medical Applications, Wearable Electronics, and many more, where power efficiency is critical.

About MSP 430:

The MSP430 is a mixed-signal microcontroller family from Texas Instruments,built around a 16-bit CPU, it is designed for low cost and, specifically, low power consumption embedded applications. The electric current drawn in idle mode in MSP430 can be less than 1 µA with top CPU speed of 25 MHz.MSP430 also uses six different low-power modes, which can disable unneeded clocks and CPU. Additionally, the MSP430 is capable of wake-up times below 1 microsecond, allowing the microcontroller to stay in sleep mode longer, minimizing its average current consumption. The device comes in a variety of configurations featuring the usual peripherals: internal oscillator, timer including PWM, watchdog, USART, SPI, I²C, 10/12/14/16/24-bit ADCs, and brownout reset circuitry. This kit also includes peripheral options include comparators (that can be used with the timers to do simple ADC), on-chip op-amps for signal conditioning, 12-bit DAC, LCD driver, hardware multiplier, USB, and DMA for ADC results. Apart from some older EPROM (MSP430E3xx) and high volume mask ROM (MSP430Cxxx) versions, all of the devices are in-system programmable via JTAG (full four-wire or Spy-Bi-Wire) or a built in bootstrap loader (BSL) using UART such as RS232, or USB on devices with USB support.

Workshop Topics:

- MSP 430 processor architecture
- MSP 430 Instruction set
- MSP 430 Clock and Reset mechanism
- GPIO peripherals,Interrupts, PWM , ADC
- Development of applications using MSP 430

Resource Person:

SaralpAggarwal and Ritika Malik

TI Center of Embedded System Design, Netaji Subhas Institute of Technology, New Delhi

Who can attend?

- UG students working in area of Embedded System product & design
- Researchers (Masters, Doctoral students and Fellows) with thesis in embedded system
- Academicians for enhancing skills in delivering embedded systems at Institute/University
- Design engineers from industry

Pre-requisites:

- Basic Knowledge of Embedded System
- Basic understanding of C programming
- Basic Knowledge of microcontroller operations

Registration

- Prior registration for the workshop by submitting the duly filled registration form is mandatory before **March 16**. Registration Form & Registration Process is available at Registration Page (CLICK HERE)
- There is a nominal registration fee for attending the workshop. Please visit Registration Page (CLICK HERE) to know the fee structure.
    - There is a special discount on Fee for IEEE & IETE members

- For Conference Authors, workshop registration is absolutely FREE.
- *MSP430 Puppy kit will be available for purchase at a very nominal price of INR800. Interested participant shall pay INR800 along with their registration fee to purchase the kit.*
    - *If conference authors wish to purchase the kit, they also need to make the payment of INR800.*

Contact

If you have any queries, please contact Mr. Vishal Mehta (vishal.mehta@chitkara.edu.in , 9888836451)