



Ref:Workshop-2/WECON-CU/2015

## Hands-on Workshop on ARM based Embedded Processing using Stellaris Guru

### **Workshop Objectives:**

ARM-based microcontroller platforms are very popular today because they provide high performance and power efficiency. ARM processors support both 32-bit and 16-bit computations. A number of architectural features are included to support low-power operation. Texas Instruments-Stellaris microcontroller platforms are based on ARM Cortex-M embedded processor family. Typically, these microcontroller platforms work in the 80 MHz range and are intended for control applications, including robotics. A number of peripherals are included to further enhance the performance of these applications. This hands-on tutorial will make use of a kit designed by TI Center for Embedded Product Design, called “Stellaris Guru” based on LM3S608 controller. The participants are expected to have a background in C programming and some prior exposure to embedded systems. It will be most useful to someone who is interested in learning about microcontrollers, embedded programming, and peripherals.

### **About ARM Cortex-M processor family**

The ARM Cortex-M processor family is a range of scalable and compatible, energy efficient, easy to use processors designed to help developers meet the needs of tomorrow’s smart and connected embedded applications. Those demands include delivering more features at a lower cost, increasing connectivity, better code reuse and improved energy efficiency. The Cortex-M family is optimized for cost and power sensitive MCU and mixed-signal devices for applications such as Internet of Things, connectivity, smart metering, human interface devices, automotive and industrial control systems, domestic household appliances, consumer products and medical instrumentation.

### **About Stellaris Guru Microcontroller Evaluation Kit v1.0**

**Stellaris Guru** is based on LM3S608 microcontroller family from the TI Stellaris 600 series. This kit has user programmable push buttons and ultra-bright LEDs, both unicolor and RGB including Reset pushbutton and power indicator LED. A LM35 temperature sensor is used for taking temperature readings using the Analog to Digital Convertor. Thumbwheel potentiometer is integrated for reading analog voltage through one of the ADC channels of the microcontroller. Microphone amplifier with high gain and sensitivity connected to an independent ADC channel of the microcontroller. This also includes ambient light sensor using a LED operated in reverse bias. This kit has inbuilt standard ARM 20-pin JTAG debug connector, Arduino compatible interface connector, UART0 accessible through a USB virtual COM port (VCP), programmable through UART using preinstalled boot loader and USB interface for all communication and power

### **Workshop Topics**



- ARM CORTEX-M for control system applications.
- ARM CORTEX-M for robotic applications.
- ARM CORTEX-M in low power design operations.
- Hands on experience with kit designed by TI Centre called as “Stellaris Guru” based on LM3S608 controller.

### Resource Person:

Nikhilesh P. and IshanPardesi,

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

### Who can attend?

- UG students working in area of robotics , microcontrollers , embedded systems
- 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

- Basics of Embedded System
- Basic understanding of C programming
- Basic knowledge of microcontrollers

### 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.

### Contact

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