

G. H. Patel College of Engineering & Technology, Vallabh Vidyanagar



A WORKSHOP ON “DIGITAL SIGNAL PROCESSOR APPLICATIONS WITH TMS320C67XX”

12TH & 13TH APRIL 2016

Organised by:

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING



TECHNICALLY SPONSORED BY SPS CHAPTER, IEEE GUJARAT SECTION
AND

SUPPORTED BY IEEE GCET SB

INTRODUCTION

Electronics and Communication Engineering Department of GCET took an initiative to enhance skills and knowledge in the domain of Digital Signal Processor by organizing a two day workshop on 'Digital signal processor application with TMS320C67XX' on 12th and 13th April, 2016 at GCET. The workshop was technically sponsored by signal processing society (SPS) chapter, IEEE Gujarat section and voluntarily supported by IEEE GCET Student Branch. All the sessions of the workshop were conducted by Mr. Ramanand from EdGate Technologies Pvt Ltd, Bangalore. It was Co-ordinated by Dr. Rahul K. Kher, Associate Professor, Electronics and Communication Engineering Department, GCET.

Total 31 attendees including students from UG, PG and faculty members took keen interest and participated in the workshop.

The whole programme was comprised of following 4 sessions:

1. Session I - Introduction to DSP Architecture(C600)
2. Session II - Introduction to DSP codec and McBSP
3. Session III - Introduction to C6748 Processor and LCDK-C6748 Development Kit.
4. Session VI - Introduction to video interface Example

12TH APRIL

SESSION I: INTRODUCTION TO DSP ARCHITECTURE (C6000)

On first day, the first session of workshop about ‘Introduction to DSP Architecture (C6000)’ commenced at 10:00am in GCET Premises. Initially Honourable Speaker Mr. Ramananda discussed about aim and benefits of ‘Workshop’. Then he moved towards Introduction to C6713 DSK On-board ICs, BOOT switches, Peripherals. He Creation of a project for C6713 DSK using CCSv5/6. It was followed by break of five minutes from 11am onwards. At 11:05am, Mr. Ramananda continued the session with explaining the Implementation of Non real time programs. Then he moved towards linear convolution and circular convolution. It was followed by lunch break of thirty minutes from 1:00pm onwards.



Picture 1: Workshop Speaker Mr. Ramananda delivering lecture in front of participants in Session I

SESSION II: INTRODUCTION TO DSP CODEC AND McBSP

Mr. Ramananda started the session with brief explanation DSP codec and McBSP after that he create a project to read and write to AIC23 CODEC. Then he create Generation of SINE WAVE and output it to headphone/Speaker. Session II was followed by tea Break of fifteen minutes from 3:30pm onwards. At 3:45pm, Mr. Ramananda continued the session with given an introduction to Digital filters of Understanding finite impulse response filter and Understanding infinite impulse response filter. Then he had taken a LAB on Real Time Implementation, FIR filter and Real Time Implementation of IIR filter. The first day of workshop ended at 5:30pm with end of second session with lots of fundamental knowledge transfer about the Topic.



Picture 2: Mr. Ramananda explaining about Introduction to DSP codec and McBSP in Session II.

13TH APRIL

SESSION III: INTRODUCTION TO C6748 PROCESSOR AND LCDK-C6748 DEVELOPMENT KIT

Second day of the workshop started at 10:00am. Mr. Ramananda started the session with brief Introduction to C6748 Processor and LCDK-C6748 Development Kit. Then after he completed Analog Input & Output, Analog IO uses AIC3106-Stereo codec and Initialization & configuration of Audio Codec. Then he taken a lab on Real Time IO using Polling & Interrupts, Real Time Sine wave Generation Investigation of Re- construction, Aliasing & Properties of AIC3106 codec. After a short break of five minutes he taken a second lab of session on Sine Wave generation using Look-up Table, Generation of audio-effects and Implementation of audio- delay, Echo effect, Flanging effect. It was followed by lunch break of thirty minutes from 1:00pm onwards.

Mr. Ramananda started the session by taking remaining labs of session on Design of an Average Filter to remove noise in signal and Design of an FIR Filter to remove noise in signal. Session was followed by tea Break of fifteen minutes from 3:30pm onwards.



Picture 3: Workshop Speaker Mr. Ramananda delivering lecture in front of participants in Session III

SESSION IV: INTRODUCTION TO VIDEO INTERFACE EXAMPLE

Following the tea break from 3:45pm fourth and last session of the workshop started. Again it was an Introduction to video interface example. Mr. Ramananda gave explanation about video interface. Then he had taken lab of this last session of the workshop that is Demonstration of video loopback example, Demonstration of Face-detect example.

In the end, the participants of the workshop gave positive feedback about the workshop and showed overwhelming desire to take part in further such workshops. The participants were motivated by the department and by giving certificates of participation.



Picture 2: Mr. Ramananda explaining about Introduction to video interface in Session IV