Embedded Systems Lab

This lab is offered to M.Tech., VLSI & Embedded System students and it is specially designed and developed for the students to study the architecture of ARM microcontroller using assembly language and Development of application using C language for MCB 2300 board platform. The lab is well equipped with keil 4.7 software, Xilinx Vivado Design suite, MCB 2300 boards which has NXP LPC2378 ARM System-on-chip, Spartan3E, Spartan6 and Advanced Zynq FPGA board (Zed Board) for embedded system development. The lab gives hand on experience on embedded system development using Xilinx EDK/Xilinx Vivado/keil software and how to debug and prototype using MCB 2300 board. At the end of semester students will handle ARM based embedded system development for various applications. This lab provides resources to build real time embedded system and working with various protocols. The Budget of this lab is around Rs.9,36,000/-.

Major Equipment:

S.No.	Name of the Equipment	Qty.	Cost in Rs.
1.	HP desktop-intel(R) COR(TM) i 3- 3240CPU@3.09GHZ,18.5" LED	36	3,50,000.00
2.	Xilinx Vivado 2017.2	36	1,17,747.00
3.	ARM Microcontrollers teaching Kit-ARM 7 Academic Only - (777448-79) Keil 4.7 Software	--	57,420-00
4.	ARM Microcontrollers teaching Kit-CORTEXM3 Academic only- (777448-80)	--	86,130-00
5.	Virtex-5FT ML 506 Kit	1	1,17,170-00
6.	SPARTAN 6 Evaluation Board	2	1,00,670-00
7.	XUP Virtex 5 Open SPARC Board with USB cable and PCI Interface	1	69,170-00
8.	Xilinx Zynq Zed Board	5	37,661.39
Total (Nine Lakh thirty six Thousand Rupees only)			**9,36,000.00**

List of Experiments (As per curriculum):

S.No.	Name of the Experiment
1	ARM Assembly Language Programming-I
2	ARM Assembly Language Programming-II
3	Program to Interface 8 Bit LED
4	Program to demonstrate Time delay program using built in Timer/Counter feature
5	Program to Displaying a message in a 2 line x 16 Characters LCD display and verify the result in debug terminal.
6	Generation of PWM Signal
7	Serial Communication
8	Traffic light Controller
9	Stepper motor Controller
10	Program to demonstrate I2C Interface on IDE environment
11	Design of System On Chip platform using Xilinx FPGAs and Embedded Development Kit Tools
12	Hardware Software co-design using Xilinx EDK Tools and Advanced FPGA Board Zynq 7000 series

Lab Mentor : Dr. P. Latchi Reddy, Professor
Lab Incharge : Mr. K. Sasi Bhushan, Associate Professor
Lab Co-Incharge : Mr. K. V. Ashok, Assistant Professor
Lab Technician : Mr. Y. Srinivasa Reddy.