

“IoT Application Design” under Project Based Learning AY 2018-19

Resource Persons:

1. Mr. Rather Sajad, Application Development and R&D Engineer, EdGate Technologies Pvt. Ltd. (TEXAS Instruments University Program)
2. Mr. Javad Baig D Application Engineer, Edgate Technologies Pvt. Ltd.

Program Coordinator:

1. Mr. Selvin Furtado
2. Ms. Veena Gawade
3. Mr. Mahesh C. Pawaskar

About Program: Texas Instrument Innovation centre is established at A. P. Shah institute of Technology, Thane College under “TI University Program” in July 2018. TI university program aimed at establishing a collaborative bridge between corporate and colleges with the objective of making students in the Engineering Colleges have a greater hand on experience in technologies related to embedded system, Analog system design and Internet of Thing.

Department of Electronics & Telecommunication Engineering, in association with Texas Instruments University Program conducted three days workshop on “IoT Application Design” under Project Based learning. Main objective of this workshop was to make faculty comfortable dealing with MSP430, Tiva C, Design of Embedded server along with Internet of Things. It was organised in such way that, students could get hands-on experience on current industry standard technologies, thus enabling people from various levels to participate, interact and share their expertise.

Participant spend more than 80% time for laboratory session. Participant gained valuable hands on experience with the help of relevant software and development boards. Students from SE EXTC had participated and benefited from this workshop.

Duration: It was three days faculty Development program conducted from 29th December to 31st December 2018.

Software Tools: 1) Code Composer Studio v6.1 (CCS)
2) Energia v17

Program Schedule:

Sr. No.	9:30 am to 11:00 am	11:15 am to 12:45 pm	1:30 pm to 3:00 pm	3:15pm to 4:30 pm
1	Introduction to MSP430 <ul style="list-style-type: none"> Architecture, 	Getting started with Code Composer Studio v6	Pulse Modulation Introduction to MSP430	Getting started with 10-bit ADC Understand single channel ADC

	<ul style="list-style-type: none"> Functional Block Diagram Clock system overview 	<p>GPIO Configuration</p> <ul style="list-style-type: none"> Lab: Configure GPIO to blink LEDs and GPIO interrupts configure button 	<p>Timers & its configuration to generate PWM signal</p> <ul style="list-style-type: none"> Lab: Generate PWM signals using Timer 	<p>Conversion of DC motor using potentiometer</p> <p>Lab: Speed control of DC motor using potentiometer</p>
2	<p>ARM Cortex M4</p> <ul style="list-style-type: none"> Introduction Architecture Launch Pad features 	<p>Energia Framework Overview of Energia and its API usage</p> <ul style="list-style-type: none"> Lab: Led, switch, UART, ADC, PWM Labs using Energia 	<p>Internet of Things</p> <ul style="list-style-type: none"> What is IOT? TCP/IP, CC3100 Booster-Pack overview 	<p>Overview of Energia Wi-Fi Libraries</p> <ul style="list-style-type: none"> Lab: Wi-Fi connection acquiring IP Address, Gateway IP, Static and Dynamic IP Address
3	<p>Design of Embedded server</p> <ul style="list-style-type: none"> Overview of HTTP protocol Lab: IO manipulation on Launch Pad using Web browser 	<p>MQTT Protocol Basic elements of MQTT protocol.</p> <ul style="list-style-type: none"> Lab: Configure IoT bundle as publisher and subscriber MQTT 	<p>Introduction to TI EZRF430</p> <ul style="list-style-type: none"> Lab: Temperature sensor Network based on EZRF430 Lab: TI RSLK Demo 	<p>Simulation & Quick Start on ASLK Pro Board</p> <ul style="list-style-type: none"> Lab: Negative feedback Op-Amp Lab: VCO Design



Figure 7:Mr. Rathar Sajad (extreme Right), Sr. R&D Engineer from EdGate Technologies, Bangalore solving students doubts during Project Based Learning session organized under TIIC.



Figure 8: Workshop participant getting hands-on training.