

### 3 Days Workshop on IOT

An Internet of Things (IoT) workshop was organized recently by Society of Electronics and Communications Engineering Students (SENCEs) in association with Focus Computer Training Center at Agnel Institute of Technology and Design, Mapusa, Goa . The workshop was held from 21<sup>th</sup> to 23<sup>rd</sup> June 2017 between 9 am to 5 pm. This workshop was conducted by Mr. Amit Bandekar, Ms. Madhura and Mr. Samuel from the Focus Computer Training Center, Bicholim-Goa. Various theoretical concepts were explained with the help of a PowerPoint presentation. Theory sessions were followed by hands-on sessions

Day 1:

On the first day, that is, on 21.06.2017, we were taught some basics of Internet of Things and cloud computing. We were told about the various models of cloud computing viz. service model, deployment model and so on. The second session of the day comprised of basics of JAVA programming. Ms. Madhura taught the basic syntax and commands of JAVA. This session was followed by a hands on session where we wrote and compiled a few JAVA programs.

Day 2:

On 22.06.2017, the morning session comprised of a presentation regarding API's and architecture of cloud computing. Various types of cloud architectures were explained in detail. In the second session, we were taught Raspberry pi. The internal working, pin layout, various ports and connection methods were shown to us. In the practical session, we configured Raspberry Pi by connecting it to the computer. We executed a few JAVA codes with the help of previously created API's (Application Programming Interface), on the Pi. Further on, we also created our own API's and tested JAVA codes using those. Some of the codes we executed included a blinking LED code, an AC bulb glowing code, an AC switch code and a motor rotating code.



Day 3:  
On

23.06.2017, we were taught basics of Android programming. We installed Android Studio and learnt how to create simple pages of an app. In the evening session, we were asked to do a mini-project which included all the concepts covered in the previous sessions. We decided to make a robotic car. The wheels were controlled by motors. We mounted an ultra-sonic sensor over the car to detect obstacles. All of this was controlled by the raspberry pi. Internet connection was provided to the pi through Ethernet cables. We wrote a JAVA code wherein given a certain value to the car through the

pi, through the API would make the car change its direction. We enabled the car to move ahead, backwards, to the right and to the left. Also, on detecting any obstacle within a distance of 20cm, the pi would send a signal back to the API and the car would stop.

We were able to implement all of these features successfully by the end of the third and the final day of the workshop. Over all, it was an amazing experience. We got to learn a lot of things in detail, with practical examples, which would be very difficult for us to learn on our own. All the participants were pleased and excited about attending more such workshops, if held, in the future.

*Nidhi Singbal*  
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## **WORKSHOP ON EMBEDDED SYSTEMS**

SENCEES( Society of Electronics N Communication Engineering Students ) of Electronics and Communications Engineering Department, Agnel Institute of Technology and Design conducted a two day workshop on Embedded Systems using 8051 Microcontroller in association with Embudding

Engineers which was held on 8<sup>th</sup> and 9<sup>th</sup> of September 2017 . The main objective of the workshop was to provide a useful insight and hands-on-training on Embedded System.

The first day started with the basic introduction to Embedded Systems, Microprocessors and Microcontrollers. We also learnt about the architecture of Microcontroller in depth. On the second day we learnt about Assembly Language, Timers and Counters along with the concept of Interrupts. We also performed a practical session on Interfacing the Microcontroller with the LCD, Analog to digital (ADC) converters and LEDs.

The workshop was concluded with a thanks giving by Prof. Laxmikant Bordekar HoD of ECE Department, along with certificate distribution. A feedback session was also done from which it was known that participants understood the topics very well and were happy to learn new thing along with some programming knowledge.

Following was the feedback of the participants after the workshop,



**1) Darshan Morlekar, Second Year ECE Student AITD – Assagao, Goa**

Upon attending this two day workshop on embedded systems I've gained interest and knowledge about this field. Also the hands on experience on various equipment provided to us helped a lot in properly understanding how the connections are to be done. Also new concepts were taught to us including working of the various IC's, LCD display and the 8051 microcontroller. Some commands which are used to program the microcontroller were explained both in assembly language and in embedded C. This workshop has truly created an interest in my mind r regarding embedded systems.



**2) Omkar Pai, Second Year ECE Student AITD – Assagao, Goa**

As a whole the workshop organized by the “Embudding engineers” was highly informational as well as exciting since we were taught about the working of the microcontrollers in-depth along with the hands on experience. Given the time frame of two days the program was well paced within the allotted time. The instructor also was an excellent communicator and knowledgeable about the topic at hand, approachable and was successful in getting his points across to the students. The concepts were presented in a well-organized manner and clearly divided into sub-topics to avoid

confusion. What I most enjoyed about the workshop was the hands on experience with the hardware for the first time and being able to program the hardware.



**3)Anirrudh Prabhu Moye, Second Year ECE Student AITD – Assagao, Goa**

Genuinely, it was one of the best workshops I've ever attended. Embedded Systems is a very important part of electronics engineering and has a good scope and also it is important for the students to know it well in advance. The teaching was inspiring and informative. The method of delivery was very insightful that the students learnt a lot in the process although we had limited time and the concepts were new. The Two day workshop was well structured and every student was able to implement assembly codes and Embedded C on the 8051 microcontroller using Keil software. The main objective of the workshop was to teach the basics of Embedded Systems and to generate a spark of interest within the students. We look forward for having more workshops like this.

## **2 Days Workshop on MSP-430**

SENCE(Society of Electronics N Communication Engineering Students ) conducted a two day workshop on MSP-430 microcontroller In association with Mrinq which was held on 15<sup>th</sup> and 16<sup>th</sup> of February 2018 . The main objective was to provide a useful insight and hands-on-training on the use of MSP-430 in electronics industries.

This workshop was being conducted by Mr Rohin Parkar(owner of Mrinq technologies) and his associates.

About 35 students participated in the workshop which consisted of the second years as well as the third year students.The following topics were covered:

- 1) Introduction to Micro controllers and Microprocessors.
- 2) Modules in Microcontroller (RAM, ROM, ALU, I/O).
- 3) Architecture (Data/Address bus, RAM and ROM , Flags, Ports, Timer/ Counter , Interrupts).
- 4) Introduction to launchpad and installation of code composer studio software.
- 5) Writing codes for various operations.

Along with this, we also had the opportunity to get a Hands on experience with

- 1) Interfacing of temperature sensor with the msp-430 microcontroller.
- 2) Working and programming of Timer/Counter.
- 3) Working and programming of Interrupts.

The first day started with the basic introduction to Microprocessors and Microcontrollers followed by discussion on IoT. We also learnt about the architecture of Microcontroller in depth and working of Interrupts. We wrote and performed a practical session for the most basic program i.e the LED blinking program.

On the second day we learnt about Timers and Counters along with the concept of Interrupts . We also performed a practical session on Interfacing the Microcontroller with the temperature sensor. The session ended with a thanks giving by our H.O.D Mr. Laxmikant Bordekar. A feedback session was also done from which it was known that participants understood the topics very well and were happy to learn new things along with some programming knowledge.



# LFR WORKSHOP

AITD SENSES had organised a two day workshop on line follower robotics on the 15<sup>th</sup> and 16<sup>th</sup> of February 2018 .The workshop was held in the Electrical lab of AITD. Entries were kept open for all the branches of the third and final year students. The workshop was conducted by our own BE electronics students of AITD, Mr Anish J Motekar and Yashesh D Kambli, who are members of the Soul Tech community. A total of 61 students enrolled for the workshop with immense interest.

The following topics were covered in the workshop on the first day.

- 1) Brief introduction on Robotics.
- 2) Introduction to Arduino UNO.
- 3) Basics of programming on Arduino IDE.
- 4) Interfacing different sensors with Arduino UNO.

The following topics were covered in the workshop on the second day.

- 5) Assembling chasis.
- 6) Motor testing.
- 7) Building LFR robot (Using 2 and 3 IR sensors).
- 8) Obstacle detection robot (Using ultrasonic sensor).

Participants were expected to get their own Windows or Linux laptops. Kits were provided by the organisers. As per schedule, Soul Tech covered all the topics with good efforts and received good cooperation from the participants and the workshop was a success.