



## ESA Events Report for Academic Year 2020-2021

Date: 13<sup>th</sup> June 2021

Electronics Student's Association (ESA) has had a successful academic year 2020-21, with numerous events which had the students using their brains in technical, financial and analytical domains. Whether it was Ace-A-Case where there were participants from as far as University of Birmingham, or inQUIZitive which had participants just from FE ETRX, ESA-SPIT organised events one and for all. The list of the events is attached below for further reference

Semester 5 -

1. LTSpice workshop
2. Online Guest lecture by Dr. Ashwini
3. Ace-A-Case
4. AICTE event(provided technical help for STTP 1 and STTP 2 events held in the months of December 2020 and January 2021).

Semester 6 -

5. FE Induction
6. Sequel Workshop
7. Seminar on Stock Market Investing.
8. InQUIZitive

The details of all the events have been attached below.



## Report on LTSpice Workshop

LTSpice is a high performance SPICE simulation software, schematic capture and waveform viewer with enhancements and models for easing the simulation of analog circuits.

- On 22nd August 2020 ESA organised an online workshop on LTSpice which was mentored by Shrestha, Chairperson of ESA.
- Shrestha taught about:
  1. Different types of analysis e.g. DC, AC, transient, noise etc
  2. Covered as many spice directives as possible
  3. Taught how to generate different types of input signals i.e. standards signals like sin, square and non-standard signals of some other shapes.All by the means of presentations and live simulations.
- Over 40 SE students attended the workshop for an hour from 5pm on Saturday.
- This workshop helped students with the ongoing online education during the pandemic times. Objectives taught in class could be implemented and studied in detail by simulating circuits online using LTSpice.

The screenshot displays a Zoom meeting interface. The main window shows a presentation slide titled "Topics to be covered:" with the following bullet points:

- Generation of various types of input signals.
- Types of analysis e.g. DC, AC, Transient, Noise, etc.
- Graph plotting fundamentals (Waveform Mathematics and scaling).
- Running multiple simulations with varying component values.
- SPICE Directives.
- Importing third party SPICE models and adding external Spice file

Overlaid on the presentation is a live LTSpice simulation window. It shows a waveform plot with a sawtooth pattern. Below the plot is a circuit schematic diagram. A "Component" dialog box is also visible, showing a list of components.

On the right side, the "Meeting details" sidebar is open, showing a list of 28 participants in the meeting, including names like Kushiya Gautam, Akanksha Garg, and others.



Online Guest Lecture on :



## **Atomic Level Characterization of Micro/Nano Sensing Platforms by Dr. Ashwini Gajarushi**

**Date :** 30/10/20

Electronics Engineering Department in association with Electronics Students Association (ESA) of Sardar Patel Institute of Technology had the pleasure of hosting and attending a very interesting guest lecture on the **29th of October, 2020** from **6pm- 7:30 pm**. We would like to extend our thanks to Professor P. V. Kasambe for bringing us this opportunity and for the motivational exposure.

The details of the lecture have been mentioned in this report.

**Venue:** Google Meet (link: <https://meet.google.com/dkn-tcne-vab>)

Lecture Recording:

<https://drive.google.com/file/d/123E6L2TBvV1oMm4kyygPBdPVjj7A14Fw/view>

### **Guest Expert's Introduction:**

Dr. Ashwini Gajarushi is a Research Associate at Electrical Engineering Department, IIT Bombay and also the Director of Technoceutics Pvt. Ltd. She is currently working in Translational Research. Industry-based Research and Academic Interactions are one of her many specialties. Some of her key projects include :

1. IOT based one stop solution for precise tinnitus matching and multi-modal treatment.
2. Electronic Neuropathy shoes for enhanced peripheral circulation
3. Novel wound-healing methodology for diabetic foot ulcer

### **Objectives of the Session:**

To have an interactive session for an enhanced and more elaborate learning about:

1. Fabrication Process flow of SU8 CB Piezoresistive Cantilever
2. Fabrication Process flow of Graphene FET based Sensor
3. Characterization of sensing platforms using SEM and KPFM: Block diagram and working principle of characterization tool
4. Block diagram of signal conditioning circuit for TNT sensing platform
5. List the possible real life applications of Micro/Nano Sensing Platforms

**Contents covered in the Session:**

1. Piezoresistive Cantilever platform for sensing
  - a. Basics of Cantilever
  - b. Fabrication of Piezoresistive Cantilever
  - c. Block diagram for Electrical system of Explosive detection platform
  - d. Immobilization of Analyte specific Receptor Layer
  - e. E-nose platform for Explosive detection
2. Graphene based sensing platform
  - a. Top down approaches to Fabrication of Graphene based devices
  - b. Electrical Measurement for GFET based microsensors
  - c. Graphene based microsensors
  - d. Scanning Electron Microscopy
  - e. Kelvin probe force Microscopy & its application for TNT detection
  - f. Work function engineering of Graphene
  - g. X-ray photoelectron spectroscopy
  - h. Brief about Raman spectroscopy
  - i. Atomic level characterization of Graphene based sensors.
3. Doubt Solving and Discussion about various aspects and importance of VLSI and Fabrication.


**Attendees:**

**BE , TE , SE** students from Electronics Department

No. of attendees : 50

## Event Images :


**Dr. Ashwini S. Gajarushi, (Ph.D. , IIT-Bombay)**  
**Director, Technoceutics India Pvt. Ltd.**



- *Translational research mentorship: Prof. Maryam Shojaei Baghini, IIT-Bombay*
- *Translational research in affordable biomedical product development: A learning experience in conception, market-understanding (need identification), system design, alpha testing, regulatory approvals*

*Key-projects handled:*

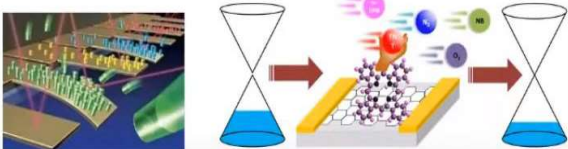
- o *"IoT-based One-stop solution for precise tinnitus matching and multi-modal treatment": Ready for clinical trials and MVP ready for commercialization*
- o *Electronic Neuropathy Shoes for enhanced peripheral circulation: Prototype level*
- o *Novel wound-healing methodology for diabetic foot ulcer: Conception level*




Prashant Kasambe

**Prof. Kasambe introducing Dr. Gajarushi**

### Atomic Level Characterization of Micro/Nano Sensing Platforms



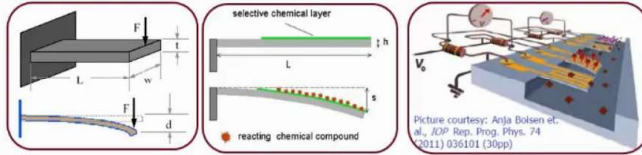
Presented by,  
**Dr. Ashwini Gajarushi**  
Indian Institute of Bombay, Mumbai



Ashwini Gajarushi

**Overview of the presentation by Dr. Gajarushi**

## Basics of Cantilever



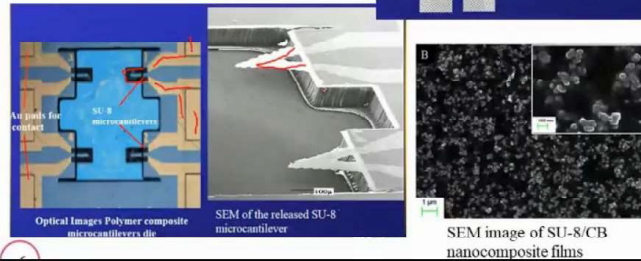
- ❑ Sensing principle: Translation of analyte-target interaction into nano-mechanical motion  $\rightarrow$  measured by electrical transduction
- ❑ Micro-cantilever integrated with piezo-resistive element  $\rightarrow$  converts change in strain into resistance
- ❑ Surface functionalized cantilever (with selective coating material)  $\rightarrow$  adsorption of analyte molecule  $\rightarrow$  change in surface stress  $\rightarrow$  change in resistance



## Basics of Cantilevers

## Fabrication of Piezoresistive Cantilever

- Anchor layer: SU-8 180 $\mu\text{m}$
- Releasing of microcantilevers in BHF:



## Explanation of Cantilever Basics



## Report for Ace-A-Case Competition organised in the month of November

Date-29/11/2020

The Electronics Students' Association had organised Ace-A-Case, a national online case study competition during the period of 4th November to 28th November. The competition was aimed at finding and cultivating young business minds and evaluating them on their problem solving, growth development and business analysis abilities and was held in association with Tech Table, an IIT Madras led start-up which provides mentorship and career opportunities to individuals. The details of the competition were posted on Dare2Compete, an online portal for posting college events and competitions. The event saw a huge turnout from colleges pan India with the majority of them being from Tier 1 management colleges such as IIMs, XLRI Jamshedpur, Delhi School of Business etc.

The competition was decided to consist of 3 rounds. A total of 110 teams took part in the first round of the competition, of which 10 teams were selected for the second round. After a really zealous round, 5 teams were selected for the final round. For the final round, a panel of judges were invited, consisting of the founder of TechTable Mr. Rakesh Raushan, Mr. Amarjeet Singh Lamba and Mr. Alan Anthony, alumni of BITS Pilani and our very own, professor Kaisar Katchhi. The further details of the competition are mentioned below.

### **Round 1-**

- Total of 110 teams in round 1.
- It was scheduled during the period of 4th November to 7th November.
- For round 1, the participants were provided with a problem statement regarding a well known breakfast startup, TeaParade. The participants had to answer a certain set of questions which were to provide an in-depth analysis of the finances, business development and growth analysis of the company for expansion in Tier-2 and Tier-3 cities.
- The submissions were to be done in .pdf format and the word limit was set to 2000.
- The results of this round were declared on 11th of November.

### **Round 2-**

- After the round 1, 10 teams were selected.
- The dates for this round were from 14th November to 17th November.
- The participants were asked to propose a strategy for sustaining profit during the covid pandemic. They were also told to provide solutions to increase local demand in rural regions, which was substantially low compared to the urban areas.
- The submissions were to be done in .ppt files and maximum slides allowed were 12.
- The results of this round were declared on 22nd November.

### **Round 3-**

- The third round was scheduled on 28th of November.
- The top 5 teams from round 2 were selected for this round
- In this round the participants were asked to present their PowerPoint presentations.
- The panelists judged the presentations on the parameters such as qualitative analysis, pitching skills, practical feasibility, Research and Analytics, Social impact and the Question and Answer round.
- After a competitive round of presentations, the judges announced their results and the winners were as follows
  - Rank 1:- Team Victorious Secrets, IIM Indore.
  - Rank 2:- Team Here to Stay, IIM Amritsar.
  - Rank 3:- Team Threat Level Midnight, SPIT.

Link for the recording of third round- [Ace-A-Case Round 3.mp4](#)

All the participants of the winning teams of the competition were provided with appreciation certificates and internship offer from TechTable.





## Report on FE Induction Event

On 6<sup>th</sup> March 2021 Electronics Students' Organisation organised an online induction program for the FEs to clear any of their doubts regarding the academics, curriculum, placements and guided them regarding their career preferences.

- Objectives of the Session
  1. To get acquainted with college and it's daily affairs.
  2. To guide the students regarding the committees by inviting their representatives to help them realise the committees of their interest.
  3. Guided the students regarding their curriculum and syllabus.
  4. Told the students about the various events and activities organised by the college for their betterment.
  5. Gave them an idea about the placements and the companies coming to our college and the various job opportunities provided by them.
  6. General Q&A session.
- 45 FE students attended the event for 2 hours from 4pm on Saturday.

The screenshot shows a Zoom meeting interface. The main content is a Slido poll titled "Do you have a LinkedIn profile?". The poll results are: Yes (55%) and No (45%). The meeting title is "ESA Freshers Meet.mkv" and the host is Harsh Agarwal. The meeting ID is 18407858-1. The meeting is currently active, and the host is presenting. The meeting details show the time as 4:49 PM and the date as 02/03/2021. The meeting controls at the bottom include "Raise hand", "Turn on captions", and "Harsh Agarwal is presenting".

Response	Percentage
Yes	55%
No	45%



## Report on SEQUEL Workshop Organized in the month of March

Date: 30<sup>th</sup> March 2021

Electronics Student's Assosiation (ESA) organized an informative session on SEQUEL software on 29<sup>th</sup> march 2021 from 11:00 am-1:00 pm in collaboration with the electronics engineering department of Sardar Patel Institute of Technology for FE ETRX. SEQUEL is a general-purpose circuit simulation package developed by IIT-B. It provides a GUI for schematic entry and plotting. It was conducted by proff. Payal shah and 38 student attended this workshop.

Venue: google meet (link- <https://meet.google.com/ogv-febk-dmc>)

Recording:

[https://drive.google.com/file/d/1K1SrCt-jc8rbK0x6jzkYAilhQICBj\\_8\\_/view?usp=sharing](https://drive.google.com/file/d/1K1SrCt-jc8rbK0x6jzkYAilhQICBj_8_/view?usp=sharing)

The workshop was conducted to help the first years to get more familiarized with the simulation software. Various topics covered in this session were:

- DC Analysis
- Transient Analysis
- Steady State form Analysis
- AC analysis

The feedbacks given by the students were excellent, as this workshop provided the oppurtunity to get them entirely clear with the concept of SEQUEL and it also helped them develop a better understanding of the software.

Payal Shah is presenting

Devraj Panchal and 18 more

12:11

The screenshot displays a video conference interface. At the top, it shows 'Payal Shah is presenting' and 'Devraj Panchal and 18 more' participants. The time is 12:11. The main content is a software application window showing a circuit diagram. The circuit consists of a voltage source  $V_1$  (labeled 'SC'), a resistor  $R$ , and a capacitor  $C$  (labeled '5.3n'). The circuit is connected to ground. The software interface includes a toolbar with various icons, a search bar, and a list of participants on the right side. The participants list includes 'Payal Shah' (highlighted), 'P', 'V', 'S', 'T', 'V', 'C', 'A', and 'P'.



## Seminar on Stock Market Investing

Date: 10<sup>th</sup> March 2021

Electronics Students Association (ESA) S.P.I.T. in collaboration with VSM (Oculus) and Enactus S.P.I.T. hosted an online webinar on 10 March 2021 at 5:30 pm on “Finance, Investment and Stocks” covering various topics such as what is stock, what is stock market, securities, equities, IPOs, derivatives, balance sheet, financial analysis.

**Venue: Zoom**

### **Guest Expert’s Introduction:**

Mr. Harsh Goela, founder of Groww and Herody app, is one of the youngest finance and investment experts in India. He is also the Co-Founder of Goela School of Finance, a Stock Market Investor, Entrepreneur, Mentor, and Public Speaker. He did not go to college and entered the world of Stock Markets at the age of 18 in 2010. First, multibagger investment in 2013. After which he was introduced to the world of mentoring others in Stock Markets. One of the youngest trainers on behalf of Bombay Stock Exchange and National Stock Exchange.

### **Objectives of the Session:**

To have an interactive session to learn about and have an in-depth understanding of:

1. Stocks and Stock Market Basics
2. Stock Exchanges, Financial Intermediaries in Stock Trading and Stock Index
3. Analysis of Financial Statement

### **Contents covered in the Session:**

1. Stocks and Stock Market Basics
  - a. what is stock?
  - b. Understanding Primary Market
  - c. Understanding IPO & FPO
  - d. Secondary Markets
2. Stock Exchanges, Financial Intermediaries and Stock Index
  - a. Stock Exchanges
  - b. Financial Intermediaries in Stock Trading
  - c. Securities
  - d. Stock Index
3. Analysis of Financial Statement
  - a. Common Size Analysis of Balance Sheet
  - b. Common Size Analysis of Income Statement
  - c. Common Size Analysis of Cash Flow Statement
4. QnA session

### **Attendees:**

BE, TE, SE, and FE students from all the branches.

No. of attendees: 150

Event images:

**STOCK MARKET** Groww

Real Estate (12%) → Stock Market (17%)

30 yr Growth Rate

① Risk  
② Lack

Interest rate

Participants: Rani, Siddharth Sasane, Jeenal Mehta, Swarangi, GEETA BHAT

00:13:50 | 00:17:10

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With more than 10 million users
- Making investing cool for millennials**  
Median age of users is 27 years
- Democratizing financial services**  
60% users beyond top 6 cities
- First touch point for millennials**  
67% users never invested before

Participants: Rani, Siddharth Sasane, Jeenal Mehta, Swarangi, Yug Harlalka

00:13:50 | 00:17:10

Recording

 Harsh Goela	Rani	Siddharth Sasane	Jeenal Mehta	Swarangi
GEETA BHAT	 Abhishek Chopra	Rishi	Gouri	Suyog Shah
Anushree	wajid	22 Jagannath Pa...	Bhavika Vaishnavi	Savita Agarwal
Shruti Modi	Deshita Paul	Prathamesh She...	 Tanay Tibdewal	Kushagra



## **Report on “inQUIZitive” A fun event organised in the month of June**

Date : 07/06/2021

Marking the starting for the summer term , with the purpose of relaxation and having some fun the Electronics Student Association organised a fun quiz event named “inQUIZitive” on 6<sup>th</sup> June, 2021 from 4pm onwards. This quiz event was aimed to ensure the First year students unwind a bit and have some fun filled interaction among themselves as well as with the SE and TE students from the ESA.

This quiz consisted of 2 rounds and had a total 22 participants which after elimination gave us the top 6 finalists. A wide range of questions from Entertainment , Sports , Trends that have gone viral and some General Knowledge. This wide range of questions was mainly included so that no one feels left out and each person can contribute accordingly.

Each of the two round was further divided into 3 parts mainly :

1. Race Against Time - A rapid fire
2. Eureka Moments - A slightly tougher question asked individually to each participant
3. Andaaz Apna Apna - A type introduced to give brownie points to the participant with amazingly correct Estimation

The winners of this Quiz were :

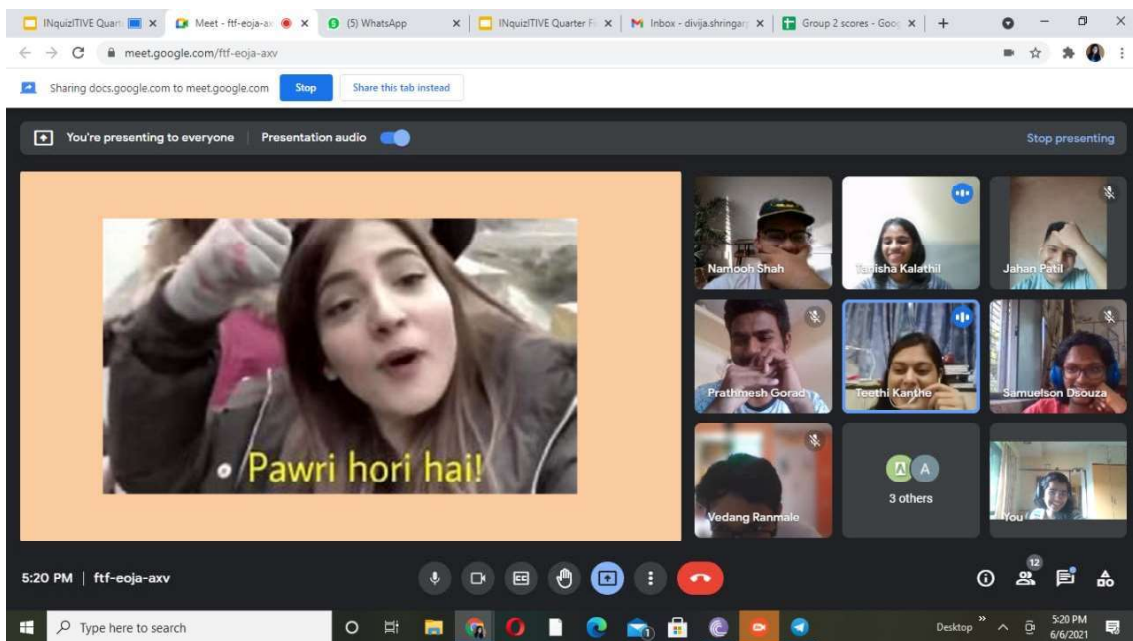
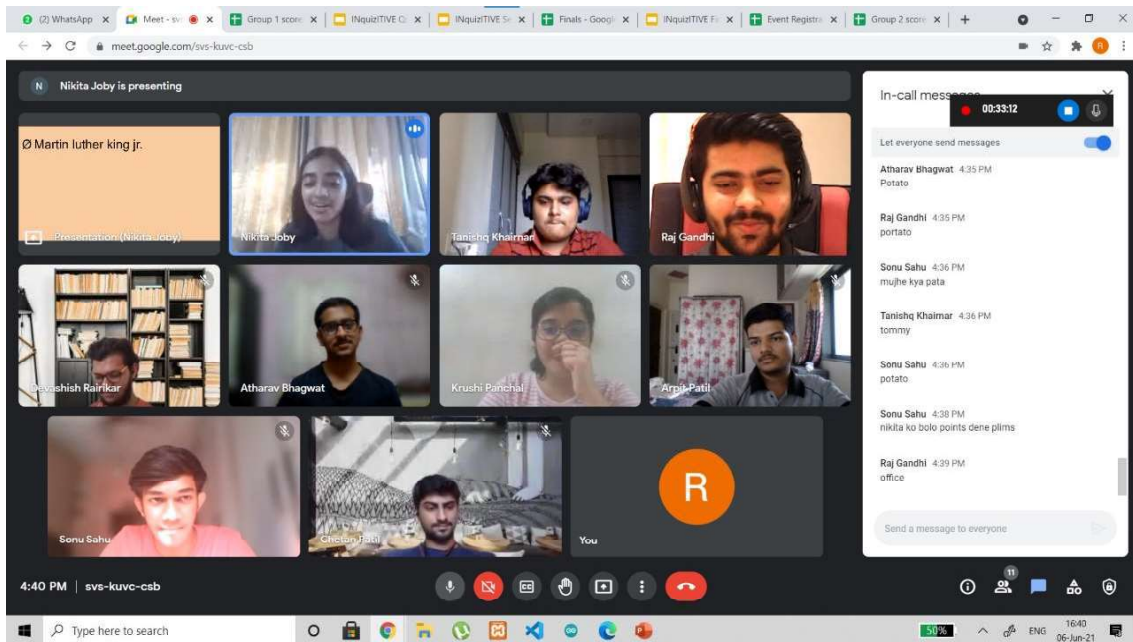
1. Raj Gandhi
2. Vedang Ranmale
3. Krushi Panchal

The quiz was created as well as conducted by the core and the sub committee members of ESA.

Thus, this fun event organized with a success ended with an amazing JAM session among the participants and the organizers.

Some glimpses of the event :

Semifinals :





# Final event :

