



Vidya Vikas Education Trust's

# Universal College of Engineering

Approved by AICTE, DTE, Maharashtra State Government and Affiliated to Mumbai University

Accredited with B+ Grade by NAAC | Recognised as Linguistic (Gujarati) Minority Institution

## ELECTROBUZZ

**COMPILED AND DESIGNED BY:**

*Ms. Sampada Pimpale*

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### *Department Vision:*

To be recognized for practicing the best teaching-learning methods to create highly competent, resourceful and self-motivated young electronics engineers for benefit of society.

### *Department Mission:*

- To nurture engineers who can serve needs of society using new and innovative techniques in electronics.
- To improve and apply knowledge of electronics subjects through participation in different technical events.
- To enhance carrier opportunities of electronic students through industry interactions and in plant training.
- To install the passion and spirit among students to pursue higher education in electronics and entrepreneurship.

# Manthan 2020

Hosted by ISA Maharashtra Section of Universal College of Engineering

The various Events are as follows:

✳️ Student Section Annual Report by IASM Student Section Liaison

✳️ Expert Talk on Automation in Ventilators By

➔ Mr. Rushikesh Bhagat

Strategic Manager

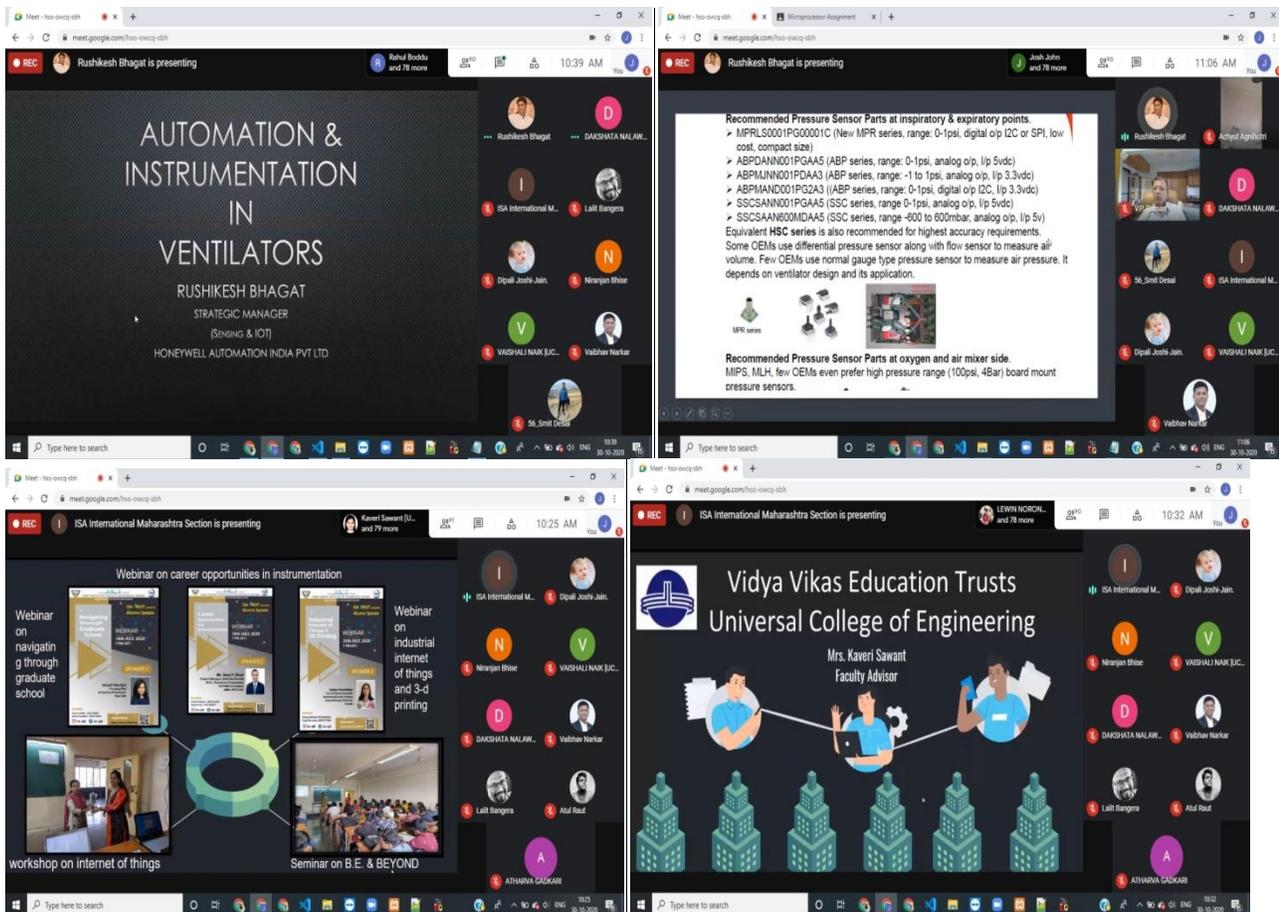
Honeywell Automation

Date: 30th October, 2020.

Time: 9:45 AM to 1:00 PM.

Venue: Google Meet

ISA UCeE



## *Smartphone, electronics plants face shutdown as components wait for customs clearance*

The stock of components in several [smartphone](#) and electronic factories has reached critically low levels because [import consignments](#), particularly from China, are piled up for customs clearance, and several manufacturers said they may have to stop production this week.

Three senior industry executives said components of brands like [Xiaomi](#), Oppo, Realme, Haier and Carrier Midea among others are stuck for custom clearance for more than a week now, impacting their production plans.

“These issues related to custom hold up are completely unnecessary right now and will further badly affect our business and job creation,” said [Pardeep Jain](#), chairman of Jaina Group that also contract manufactures for some third-party brands. “We are already facing challenges to scale up manufacturing after Covid-19 with social distancing norms and shortage of migrant workers,” he said.

A leading contract manufacturer said it will run out of components for mobile phone production in 2-3 days, while one of the largest Chinese brands that runs its own factory said it has components for only six days of production.

Videotex International, which designs and manufactures LED television for 15 brands, will be forced to shut production from Thursday unless consignments are cleared immediately, its director Arjun Bajaj said.

The customs department has decided to thoroughly check each and every consignment coming from China before clearing it, leading to a pileup of goods in ports and airports for a week now. Earlier, consignments would get cleared in 1-2 days.

## *ROBOTS PARTNERING WITH HUMANS: AT FPT INDUSTRIAL FACTORY 4.0 IS ALREADY A REALITY THANKS TO COLLABORATION WITH COMAU*

What will the factory of the future be like? How will it be organized? To answer these and many other questions about the Industry 4.0 production model, all it takes is a trip to the FPT Industrial Driveline plant in Turin, dedicated to the production of transmissions and axles for heavy equipment. Here, in the department dedicated to assembling spindles for heavy equipment axles, AURA (Advanced Use Robotic Arm) operates: this is a robot designed and built by Comau and used in the HuManS (Human-centered Manufacturing System) project, launched in the area of the Piedmont Region tender dedicated to the Intelligent Factory Platform and with which FPT Industrial, Comau and another 17 companies specialized in the sector participated. It is a project that places humans at the center of the production system, surrounded by machinery that helps and shares the space with them in complete safety.

Almost three meters high and weighing about three tons, AURA is a collaborative industrial robot capable of working alongside humans, without barriers and in the same work station, to help them

and perform the most tiring and repetitive tasks and, where necessary, it is ready to be manually guided by the human operator. Specifically, AURA retrieves a part from the supply cart in complete autonomy and delicately hands it to the operator it shares the station with. And it is precisely the human operator who, at this point, takes control of the operations, guiding the robot using a specific handle so that the mechanical arm takes the part to the work bench, where it is coupled with a lever. Perfect collaboration and synergy, where each of the subjects involved is able to perform at their best. The robot performs the heavy work methodically and effortlessly, the only collaborative machine on the market capable of lifting up to 170 kilograms, whereas the delicate assembly stage is controlled by a human, thereby using human skills to adapt to operational situations and assembly strategies that vary from model to model, sometimes greatly.



But strength is not the only feature that makes AURA a robot without rivals. In fact, in its role as a collaborative machine, it must be able to perceive a presence, whether it be other machinery or a real person, in the space where it operates and consequently modulate its behavior. And, in order to do this in the best possible way, it uses its “senses”.

A “sensitive skin” – soft and inspired by human skin – that allows it to decide whether to reduce its speed or stop entirely. A “view” in the form of a 3D camera that the robot uses to scan the piece being retrieved in order to perceive its position. And last, but not least, “the touch” it expresses through a gripper, capable of lifting the component being moved with a firm, but delicate grip. But that’s not all. In order to work without any barriers alongside a human on the FPT Industrial driveline assembly line, AURA was outfitted with a true “sixth sense”: an advanced and complex laser scanning system that investigates and monitors the work space when the arm is in operation.

FPT Industrial and Comau actively participated in the HuManS project from the preliminary stages of defining the requirements and the areas of application in 2017, with the goal of improving processes and making them more efficient thanks to the implementation of new technical solutions expressly targeted at factory ergonomics. Also, as an end user, FPT Industrial and Comau consistently guaranteed effective monitoring of the actual industrial validity and the results, thereby streamlining their transition from the scientific area to the application area.

“We are happy to have moved this project forward with an excellent partner like Comau”, said Giuseppe Daresta, Manufacturing Manager for FTP Industrial. “The configuration created at the Turin Driveline plant represents significant innovation, as it improves the ergonomics in manual assembly operations of heavy elements thanks to the support of robots capable of safely sharing the spaces with the human operator. It also represents an important vehicle to spread new technologies developed thanks to their application in a real production setting.”

“The synergy between two leading companies in the technological field such as FPT Industrial and Comau has led to an innovative solution focused on the collaborative AURA robot. Comau has always been involved in developing products and systems aimed at improving customer production processes in terms of flexibility, quality and efficiency – commented Pietro Ottavis, Chief Technology Officer for Comau. ‘Cobots’ and digital instruments are just some of the main technologies that Comau has developed following its own approach to Industry 4.0, called HUMANufacturing, to create complete and safe collaboration in production operations between humans and machines, called on to support humans in operations that require greater speed, strength and repeatability, as well as dangerous operations.”

[Source:https://www.techmezzine.com/top-10-news/robots-partnering-humans-fpt-industrial-factory-4-0-already-reality-thanks-collaboration-comau/](https://www.techmezzine.com/top-10-news/robots-partnering-humans-fpt-industrial-factory-4-0-already-reality-thanks-collaboration-comau/)

## *RSL10 Mesh Platform from ON Semiconductor*



ON Semiconductor (Nasdaq: ON), driving energy efficient innovations, has introduced a new Bluetooth® Low Energy mesh networking solution based on its ultra-low-power RSL10 System-in-Package (RSL10 SIP). Using the RSL10 Mesh Platform, engineers can easily implement ultra-low-power mesh networking, using Bluetooth Low Energy technology, and move quickly towards full deployment. Optimized for smart home, building automation, industrial IoT, remote environment monitoring, and asset tracking

and monitoring applications, this multi-faceted solution has all the essential elements needed for developing and deploying a mesh network. It consists of two RSL10 Mesh Nodes and a Strata Gateway for connectivity to the Strata Developer Studio™.

Complementing the RSL10 SIP, an array of sensing and indicator devices have been incorporated into the node hardware, including an ambient light sensor (LV0104CS), temperature sensor (N34TS108), magnetic sensors, LED indicators and a triple-output NCP5623B LED driver (for color mixing purposes). Alongside this is a built-in battery charger suitable for batteries with either Li-Ion or Li-Poly chemistries.

The mesh nodes can be easily configured to take on different roles and demonstrate particular functional aspects. The accompanying Strata Gateway allows evaluation processes to be carried out using the highly intuitive Strata Developer Studio. This cloud-connected software enables provisioning of additional mesh and supports firmware-over-the-air (FOTA) updates. Using the virtual workspaces for common mesh networking examples, including a smart office, developers can access sensor data and trigger settings. The highly energy efficient RSL10 radio is supported by an Eclipse-based Integrated Development Environment, a mobile application for provisioning, configuring and controlling a Bluetooth Low Energy Mesh network, and a Mesh Networking software package compliant with the Bluetooth SIG.

“The value of Bluetooth Low Energy mesh networking and the elimination of range limitations are now being recognized within a multitude of different contexts in the industrial, agricultural, enterprise and logistics sectors, as well as in relation to the emergence of smart cities. However, operational constraints and ease of implementation still represent major challenges,” stated Wiren Perera who heads IoT at ON Semiconductor. “Through this new platform we are helping to dramatically accelerate mesh networking development, so that nodes can be more rapidly deployed which push the performance envelope in terms of range, resiliency and power budget.”

[Source:https://www.techmezzine.com/latest-electronics-components-news/rsl10-mesh-platform-semiconductor/](https://www.techmezzine.com/latest-electronics-components-news/rsl10-mesh-platform-semiconductor/)

## *New Wireless SoCs Help Drive Digital Transformation in Retail, Commercial and Industrial IoT Markets*

Silicon Labs (NASDAQ: SLAB) announces a new family of secure, proprietary wireless system-on-chip (SoC) devices designed for power- and size-constrained IoT products powered by batteries or energy harvesting sources. Target applications include electronic shelf labels (ESL), building security, industrial automation sensors and custom modules for commercial lighting. Based on Silicon Labs’ Wireless Gecko Series 2 platform, the new EFR32FG22 (FG22) SoCs deliver an

optimal combination of security features, 2.4 GHz wireless performance, energy efficiency, and software tools and stacks to enable the next generation of ESL and pricing automation products.

According to Mordor Intelligence, global ESL market value topped \$581 million (USD) in 2019 and is expected to reach \$1.82 billion by 2025, achieving a combined annual growth rate (CAGR) of more than 21 percent over the 2020-2025 forecast period. ESL technology enables cloud-based applications that enhance retail automation, shopper engagement and data analytics. Most ESL system designs are based on proprietary wireless protocols, and Silicon Labs' new FG22 SoCs provide a best-in-class connectivity solution for this rapidly emerging market.

"IoT developers deploy custom wireless protocols in multiple applications to radically optimize their systems for high performance and low power consumption," said Ross Sabolcik, vice president and general manager of IoT commercial and industrial products at Silicon Labs. "We designed our FG22 product family to help customers quickly deliver optimized, cost-effective solutions based on our latest Series 2 wireless SoCs for demanding applications like ESL."

The FG22 integrates a 38.4 MHz Arm® Cortex®-M33 core with TrustZone and a high-performance radio with a receive sensitivity of -106.4 dBm. The SoCs' combination of ultra-low transmit and receive power (8.2 mA TX at +6 dBm, 3.6 mA RX) and 1.2 µA deep-sleep mode power delivers exceptional energy efficiency. Additional low-power on-chip features such as RFSense, which wakes the FG22 in the presence of RF energy, further extend the operating life of IoT products with limited battery or energy harvesting options.

Silicon Labs delivers an industry-leading suite of security features implemented in Series 2 products including the new FG22 SoCs.

### **Pricing and Availability**

The EFR32FG22 SoCs are planned to start shipping in March 2020 in a choice of 5 mm x 5 mm QFN40 and 4 mm x 4 mm QFN32 packages. The EFR32FG22 SoC starter kit is planned to be available in March, with kit pricing starting at \$99.00 (USD MSRP). Developers can download Simplicity Studio including development tools and reference software at no charge. For FG22 SoC product pricing, contact your local Silicon Labs sales representative or an authorized distributor. For additional information, visit [silabs.com/FG22](https://silabs.com/FG22).

*Source: <https://www.techmezzine.com/latest-electronics-components-news/new-wireless-socs-help-drive-digital-transformation-retail-commercial-industrial-iot-markets/>*

## Zigbee Alliance targeting IoT within commercial buildings



Featuring the likes of [Amazon](#), [Google](#) and [Apple](#), the project has the aim of establishing a royalty-free connectivity standard to increase compatibility among smart home products. Now, it is forming a team dedicated to the development and promotion of the standard for use in commercial markets. Within the IoT landscape, the standard is targeting devices in categories such as lighting and electrical, HVAC controls, access control, safety and security, window coverings/shades, TVs and access points.

Specifically, it's addressing the needs of the commercial buildings category, where the Alliance anticipates the install base of connected devices to grow from 1.7 billion in 2020 to nearly 3 billion by 2025. Think multi-tenant residential buildings, offices and hotels, supermarkets, warehouses and shopping malls.

From multi-tenant residential buildings, offices and hotels, to supermarkets, warehouses and retail malls, many smart home use cases that the Project will address at launch also have wide applicability across the commercial landscape. The standard is well-suited to commercial applications as it is being built on market-proven solutions and best practices from major technologies to ensure secure, scalable architectures. Of particular importance, the Project is based on an IP networking foundation, which enables the reuse of flexible and familiar connectivity options.

The agenda for new team includes clarifying the commercial use cases that can be supported by the project's initial specification; to define the new features required for additional commercial use cases; to facilitate collaboration among members to strengthen use and adoption of IP-based connectivity standards and to advocate and encourage others to join and contribute.

"The industry is constantly investing in new technologies to achieve interoperability and offer an augmented use case experience to customers and tenants within commercial buildings," said Murat Eti, Vice President Strategy and Future Technologies, Legrand. "The Project will help drive the development and growth of a large, multi-vendor device catalogue that commercial solutions providers can tap into to drive value and efficiencies across both residential and commercial environments."

*Source:* <https://www.electronicweeklly.com/news/products/rf-microwave-optoelectronics/zigbee-alliance-targeting-iot-within-commercial-buildings-2020-11/>



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