INTRODUCTION AND EVENT'S DESCRIPTION :

IEEE region8
ENTREPRENEURSHIP
I N I T I A T I V E

The event will be held in the entrepreneurship week along with other similar event(s) from this initiative since we believe that we need to cover all the Tunisian territory and we want the participants to have various themes for the competition. There will be 3 winners from the competition who will be selected to participate in the YP summit to pitch their ideas.

Getting into the entrepreneurial world is a risky adventure full of difficulties, especially for young entrepreneurs lacking technical skills, business intelligence and funds.

Therefore, highlighting its motto **"Advancing Technology For Humanity"**, IEEE R8 organization launched a very promising initiative known as the IEEE R8 Entrepreneurship Initiative, aiming at strengthening the knowledge of young entrepreneurs and exposing them to the IEEE wide network.

In order to reach this goal, IEEE R8 is relying on its very unique and strong entrepreneurship ecosystem consisting of a variety of technical foundations and organizational units.

The IEEE R8 entrepreneurship initiative was the best chance for us as youth to make a change and that's why we decided to organize the **"Tunisia Entrepreneurship Summit: Industry innovation and Infrastructure (3I) "**

TUNISIA
ENTREPRENEURSHIP
SUMMIT
INDUSTRY INNOVATION AND INFRASTRUCTURE (3I)

It will be a two-day summit which encompasses various panel sessions, workshops and mentorship for the future entrepreneurs about the technical and soft skills needed to build a business and to make their ideas get developed and see the light, and also a pitch competition for teams with innovation, startups and small business owners.

EVENT'S THEME :

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

WHAT'S THE GOAL HERE?

To build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

In fact, economic growth, social development and environment action are heavily dependent on investments in infrastructure, sustainable industrial development and technological progress. In the face of a rapidly changing global economic landscape and increasing inequalities, sustained growth must include industrialization that first, makes opportunities accessible to all people, and second, is supported by innovation and resilient infrastructure.

WHY?

The growth of new industries means improvement in the standard of living for many of us. If industries pursue sustainability, this approach will have a positive effect on the environment (increased investment in renewable energy, recycling,..) and the quality of life for many people (smart cities, energy and resources efficiency,..)

Investment in infrastructure and innovative ingenious solutions are crucial drivers of economic growth and development, as industry develops, it drives an increase of value addition and enhances the application of science, technology and innovation.

NEXT STEP?

Thinking off the beaten track and taking part in the Tunisia Entrepreneurship Summit: **TRIPLE I: INDUSTRY, INNOVATION AND INFRASTRUCTURE**

Ihis challenge fuels innovation. It is the perfect opportunity for impact-driven organizations , aspiring scientists, engineers and entrepreneurs to be game-changers and take a comprehensive look at a complex issue rooted in social , economic and environmental factors and come up with outside the box solutions and startup ideas to meet broader and sustainable development objectives .

HOSTS:

Led by 6 ambassadors from the initiative, ensuring the smooth running of the event's organization, **"Tunisia Entrepreneurship Summit: Industry innovation and Infrastructure (3I)"** is a two-day summit, hosted by two Tunisian IEEE Student Branches which are the ENISo's Student Branch and the INSAT's Student Branch .

IEEE
ENISo Student Branch

IEEE
INSAT STUDENT BRANCH

The event will take place in the:

📅 21st of November

OUR PITCH COMPETITION :

The program **"IEEE Region 8 Entrepreneurship Initiative"** this year is focused on the topic **"Advance Technology for Humanity: Sustainable Engineering"** in form of a competition for established teams or formed startups that present their thematic solutions at a local competition.

The **"Tunisian Entrepreneurship Summit: Industry Innovation and Infrastructure"** encompasses a pitch competition, for the young entrepreneurs and promising ideas, highlighting the 9th SDG which is "Industry Innovation and Infrastructure" as a thematic. The contest will be around these axes:

1 Increasing ROI (Return on investment)

Return on investment (ROI) is a ratio between net profit (over a period) and cost of investment (resulting from an investment of some resources at a point in time). A high ROI means the investment's gains compare favorably to its cost. As a performance measure, ROI is used to evaluate the efficiency of an investment or to compare the efficiencies of several different investments. In economic terms, it is one way of relating profits to capital invested.

Any manufacturer would be happy to ensure that he will get a beneficial return on his investment. The ROI can be increased in several ways:

Reduce costs:

Another way to improve your return is to reduce your expenses. Divide your expenses into overhead and production costs to help you better find expense-reduction opportunities. Overhead costs are non-production expenses such as rent, insurance and phones. Production costs are the expenses you incur to make one unit of your product, such as materials and labor.

Identify Investments with Potential Benefits:

The most important thing that most of the investors miss is to recognize the potential investments with higher return policies. To benefit from your investments, it is very crucial for you to have the knowledge of potential investments that have promising returns.

Increase sales the right way:

generate more sales and revenues or raise your prices. If you can raise your prices without decreasing your sales enough to erode profits, you have improved your return.

Invest in Things that Stay Permanently:

Investing in educating or learning skills that develop your caliber always turns out to deliver good results. Those who achieve a correct balance in short term and long-term investments are the ones that will maintain their sail on the surface.

For that reason, industries nowadays are applying several methods, such as using the ERP software to reduce costs and as a result increase the ROI or relying on the LEAN Manufacturing to enhance the management strategies.

2. Industrial Internet of Things (IIoT)

The Industrial Internet of Things (IIoT) refers to interconnected sensors, instruments, and other devices networked together with computers' industrial applications, including manufacturing and energy management. This connectivity allows for data collection, exchange, and analysis, potentially facilitating improvements in productivity and efficiency as well as other economic benefits. The IIoT is an evolution of a distributed control system (DCS) that allows for a higher degree of automation by using cloud computing to refine and optimize the process controls.

To increase the efficiency and ensure the security of the industrial enterprise's data, IOT is highly applied in the manufacturing world since the 4th industrial revolution. We are witnessing an era in which we can command of a production line via a click on a button.

We are highlighting the interconnection of devices across the factory floor and enabling the automated transfer of manufacturing data to a common location, and potentially up to the cloud, for future analysis.

The IIoT is enabled by technologies such as cybersecurity, cloud computing, edge computing, mobile technologies, machine-to-machine, 3D printing, advanced robotics, big data, internet of things, RFID technology, and cognitive computing. Five of the most important ones are described below:

Cyber-physical systems (CPS):

the basic technology platform for IoT and IIoT and therefore the main enabler to connect physical machines that were previously disconnected. CPS integrates the dynamics of the physical process with those of software and communication, providing abstractions and modeling, design, and analysis techniques.

Cloud computing:

With cloud computing IT services and resources can be uploaded to and retrieved from the Internet as opposed to direct connection to a server. Files can be kept on cloud-based storage systems rather than on local storage devices.

Edge computing:

A distributed computing paradigm which brings computer data storage closer to the location where it is needed. In contrast to cloud computing, edge computing refers to decentralized data processing at the edge of the network. The industrial internet requires more of an edge-plus-cloud architecture rather than one based on purely centralized cloud; in order to transform productivity, products and services in the industrial world. Big data analytics: Big data analytics is the process of examining large and varied data sets, or big data.

Artificial intelligence and machine learning:

Artificial intelligence (AI) is a field within computer science in which intelligent machines are created that work and react like humans.[8] Machine learning is a core part of AI, allowing software to more accurately predict outcomes without explicitly being programmed.

③ **Next generation cities:**

Smart Cities, Smart Innovation: The Next Generation City

1- Defining a smart city:

"A smart sustainable city is an innovative city that uses ICTs and other means to improve quality of life, efficiency of urban operation and services and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social and environmental aspects."

International Telecommunication Union

2- Smart infrastructure :

A smart infrastructure is the foundation of some connected components including smart people, smart mobility, smart economy, smart living, smart governance, and smart environment. These components generate a massive amount of data that should be efficiently used to ensure the optimal use of resources and improve performance, data should be used efficiently.

2.1- Smart buildings:

The implementation of smart solutions in buildings contribute to a better effectiveness and optimum results in terms of the usage of water, waste management, energy efficiency, … It is estimated that implementing smart building solutions could save as much as 30 per cent of water usage and 40 per cent of energy usage and reduce overall building maintenance costs by 10 to 30 per cent.

For example, in Austria, plus-energiebürohochhaus is acclaimed as the first smart office building, feeding more energy into the grid than it uses.

2.2- Smart mobility:

There are new approaches and smart ways to go for a greener, faster, and cheaper transportation options. These approaches are mainly based on collected data from a variety of sources about mobility patterns to help optimize traffic conditions in a holistic manner.

Smart mobility systems include mass transit systems as well as individual mobility systems that feature bicycle sharing, ride sharing (or carpooling), vehicle sharing and, more recently, on-demand transportation.

2.3- Smart energy:

The main goal in the implementation of smart solutions in energy is to optimize its distribution and usage. The smart management of energy is based on the use of sensors, advanced meters, renewable energy sources, digital controls, and analytic tools to automate.
There are several innovations in smart energy infrastructure, such as distributed renewable generation, microgrids, smart grid technologies, energy storage, automated demand response, virtual power plants and demand-side innovations such as electric vehicles and smart appliances.

2.4- Smart water:

Cities are constantly trying to solve water scarcity problems with innovative technologies and the better management of water. proved metering and flow management are key to a good water distribution system.
A smart water management system uses digital technology to help save water, reduce costs, and increase the reliability and transparency of water distribution.

2.5- Smart waste management:

Cities are increasingly finding it difficult to source, separate and use different kinds of waste that can potentially be returned to a consumer life cycle. Waste management typically includes the monitoring, collection, of waste. Smart waste management systems reduce waste and categorize the type of waste at the source and develop methods for the proper handling of waste. Such systems may be used to convert waste into a resource and create closed-loop economies., processing, recycling, and disposal.

2.6- Smart health:

Smart cities can develop the capacity to use technology such as big data to develop predictions or identify hotspots of population health (such as epidemics or health impacts during extreme weather events). Smart health-care management converts health-related data into clinical and business insights, which include digital health records, home health services and remote diagnoses, treatment, and patient monitoring systems.

2.7- Smart digital layers:

Smart digital infrastructure helps to increase understanding and the control of operations and optimize the use of limited resources in a city. One of the key value propositions of ICT in a smart city is the ability to capture and share information in a timely manner.

One way to consider digital infrastructure is in the form of different supporting digital layers, as follows:

(a) Urban:

The layer where physical and digital infrastructures meet. Examples include smart buildings, smart mobility, smart grids (for utilities such as water, electricity, and gas) and smart waste management systems.

(b) Sensor:

his layer includes smart devices that measure and monitor different parameters of the city and its environment.

(c) Connectivity:

This layer involves the transport of data and information from the sensor level to storage and to data aggregators for further analysis.

(d) Data analytics:

This layer involves the analysis of data collected by different smart infrastructure systems, to help predict some events (such as traffic congestion).

(e) Automation:

The digital enabling interface layer that enables automation and scalability for many devices across multiple domains and verticals.

SPECIFICATIONS:

The rules for the competitions are:

- teams of 3-5 with at least one IEEE student or young professional member
- the team is required to have a minimum viable product (MVP) or a prototype
- teams are allowed (and encouraged) to get external sponsors
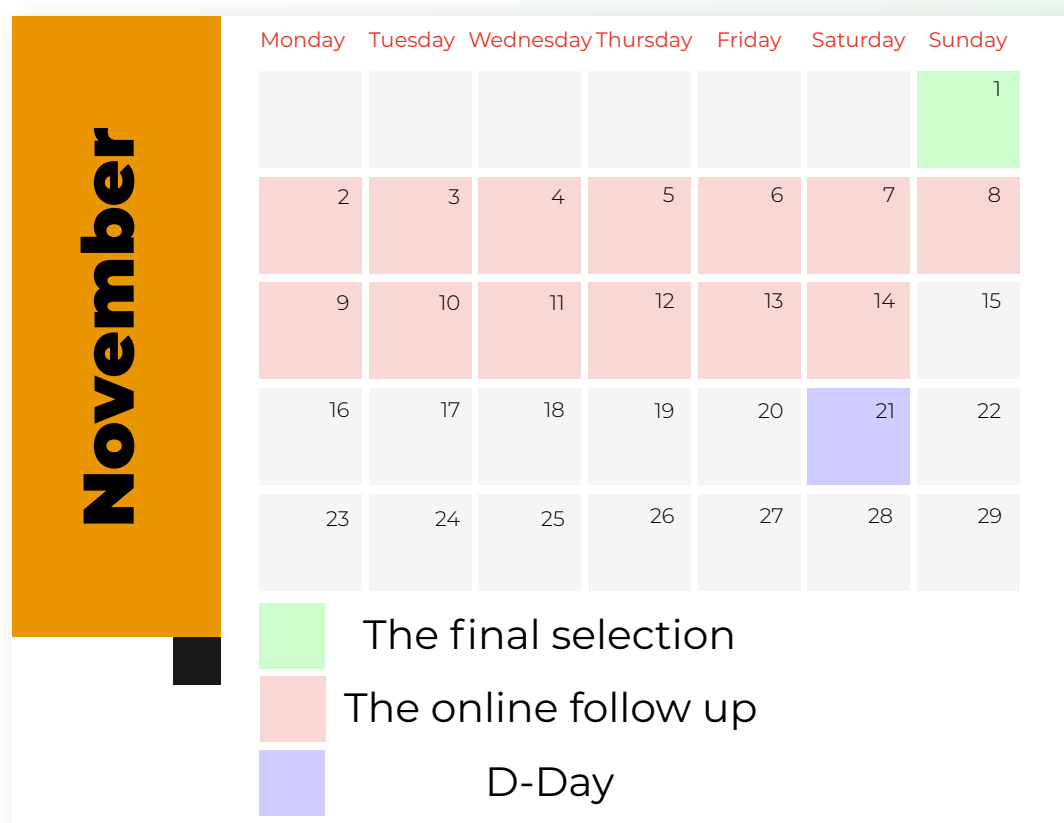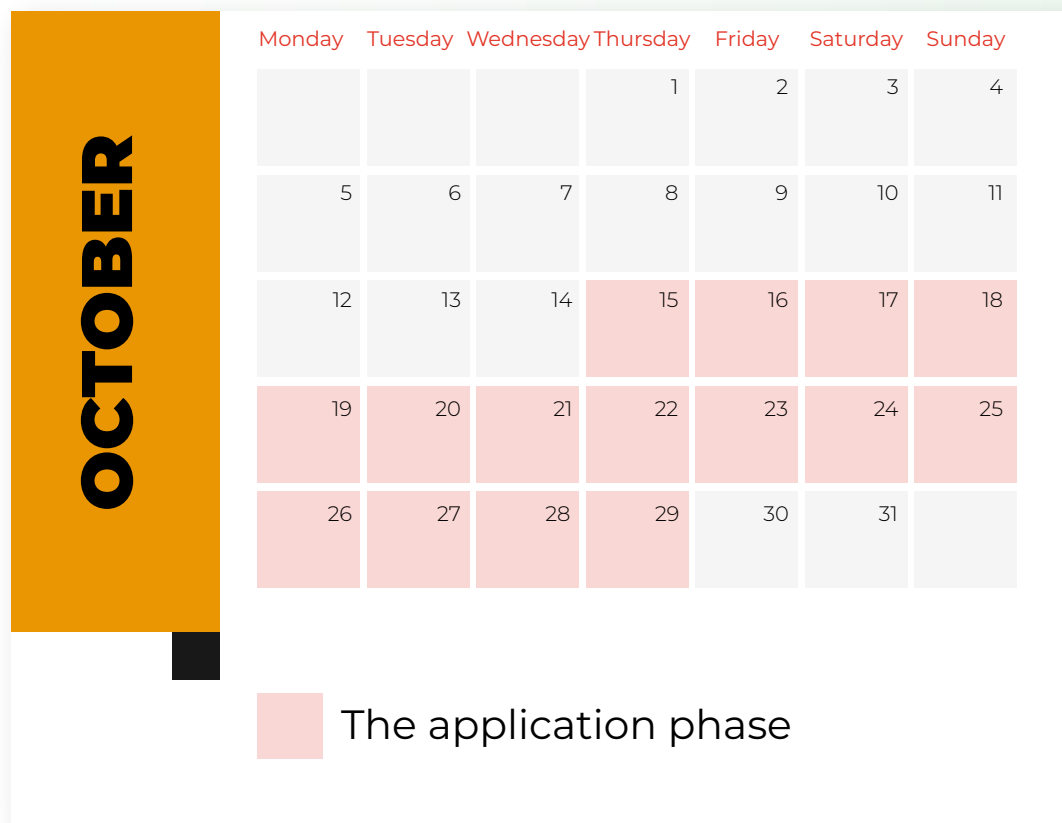- innovation is aligned with state-of-the art in sustainable engineering

We value (evaluate):

- innovative and ambitious vision from sustainable engineering area
- originality and "wow-effect"
- clarity, quality, and replicability of the innovation
- interdisciplinary approach

HOW TO PARTICIPATE:

A form will be published soon on the Facebook page of the event (lien) in which you will be asked to submit some details about the team of participants, the project they are suggesting, the goal of the project and its targets, preliminary budget estimation ...

IMPORTANT DATES:

OCTOBER

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

☐ The application phase

November

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

☐ The final selection

☐ The online follow up

☐ D-Day

RESOURCES:

https://www.ctamericas.com/smart-cities-smart-innovation-next-generation-city/

https://unctad.org/meetings/en/SessionalDocuments/ecn162016d2_en.pdf

https://en.wikipedia.org/wiki/Industrial_internet_of_things

https://smallbusiness.chron.com/improve-roi-67173.html#:~:text=One%20way%20to%20increase%20your,you've%20improved%20your%20return

FOR MORE DETAILS:

For any question or clarification, please don't hesitate to contact us via the email of the event : tes.actioniii@gmail.com .

You can also visit our Facebook and Instagram pages to follow the updates of the event.