ABB

Competition Guide

Intervarsity Innovation Challenge 2019
"Writing the Future of Digitalization and Sustainable Technologies"

Organized by ABB Malaysia Sdn Bhd

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Abstract/Executive Summary

The Intervarsity Innovation Challenge (2019) is open to all full-time students in both public universities and private institutions of higher learning located in Malaysia. The objective is to stimulate creativeness and innovative thinking amongst undergraduates apart from building an interactive platform between the academic circle and industry experts.

The competition covers the following topics which aligns with the core theme of

"Writing the Future of Digitalization and Sustainable Technologies"

There are four (4) main topics which are:

TOPIC 1:   **INNOVATIVE MOBILITY SOLUTIONS**

TOPIC 2:   **DATA ANALYTICS SOLUTIONS**

TOPIC 3:   **LOW LATENCY TECHNOLOGY**

TOPIC 4:   **ANALYTICS AND ARTIFICIAL INTELLIGENCE**

There will be two (2) major activities between June 12, 2019 and October 15, 2019:

June 12, 2019   Briefing on competition scope to representative/s from participating institutions

October 15, 2019   Presentation by shortlisted teams to competition jury in the finals and prize presentation

Shortlisting of entries for the final round will be conducted by a panel comprising subject matter experts from ABB Malaysia.

The competition comprises only one (1) category open to full-time undergraduate students in both public universities and private institutions of high learning located in Malaysia.

Innovation Challenge Summary

A. Entries

Full-time undergraduates studying in either Public or Private University located in Malaysia.

B. Method of entry

- Completed entries are to be submitted via email to **my-iic-abb@abb.com**
- Participation is open to teams (not more than three (3) per team) or individuals
- Participants in group shall be required to select a team leader, who is responsible for the registration and entry submission
- If the team is shortlisted to enter the final round, the team members will be responsible for the presentation of the team's entry and content clarification, if required by the jury

C. Topic of competition

The competition consists of four (4) topics and entries must be based on only one (1):

TOPIC 1: INNOVATIVE MOBILITY SOLUTIONS

TOPIC 2: DATA ANALYTICS SOLUTIONS

TOPIC 3: LOW LATENCY TECHNOLOGY

TOPIC 4: ANALYTICS AND ARTIFICIAL INTELLIGENCE

D. Entry requirement

- Entries must be aligned and consistent with any one of the topics listed in Item C. Any deviation is subject to immediate elimination
- Submission of report must be done using English in a "PDF" format
- Submission must include a plagiarism report attested by the university. (Turnitin Plaigarism Report)
- Word count for submission shall be between 5,000 and 7,500 words. File size must not exceed 5MB
- The entry can be crafted based on a specific product, technology, or solution, aligned with the chosen topic

- The entry must include the following details:
  - Topic followed by Project title

    (e.g. **INNOVATIVE MOBILITY SOLUTIONS**- FLYING ELECTRIC BUSES)
  - Purpose of project and reason for choosing it
  - Introduction/abstract
  - Problem to be solved by the product/technology/solution
  - Current state of technology
  - Detailed findings and discussion
  - Advantages or innovation points of the product/technology/solution
  - Conclusion
  - References & appendices (not included in word count)

E. Work/Project

The work/project must be original, not yet published or patented, and without infringement of intellectual property

F. Scoring guide

- 50% for innovativeness: creativity and originality of proposal
- 40% for feasibility: feasibility in real life application
- 10% for document format and report presentation: well-written and argued in a compelling manner, potentially publishable, with extensive research-level references.

G. Competition jury

- Shortlisting of entries for the final round will be conducted by technical specialists from ABB Malaysia
- Jury for the finals will comprise leading industry professionals and technical experts

H. Awards

1. Champion = MYR 12,000.00 per team
2. First runner-up = MYR 6,000.00 per team
3. 3 Appreciation Awards = MYR 1,500.00 per team

I. Competition schedule

June 12, 2019	Launch of competition and briefing to representative/s from participating universities
September 18, 2019	Close of submission All entries must be submitted through email to **my-iic-abb@abb.com** with subject "IIC 2019: (*University- Project Title*)" *Eg: IIC 2019: Open University Malaysia – AI Smart Grid*
October 15, 2019	Presentation by five shortlisted teams to competition jury. Jury deliberation and prize presentation

Appendix A – ABB in Malaysia Overview

ABB in Malaysia

Driving a digital future

ABB is the product of many acquisitions and mergers, but primarily the 1988 coming together of ASEA of Sweden and Switzerland's BBC, formerly known as Brown Boveri, two of the proudest and best-known names in European electrical engineering history.

With a history of innovation spanning more than 130 years, ABB is today a leader in digital industries with four customer-focused, globally leading businesses: Electrification, Industrial Automation, Motion, and Robotics & Discrete Automation, supported by its common ABB Ability™ digital platform. ABB operates in more than 100 countries with about 147,000 employees.

ABB Ltd, the ultimate parent company of the ABB Group, is listed on the SIX Swiss Exchange in Zurich, the NASDAQ OMX in Stockholm and the NYSE in New York.

In Malaysia	ABB's history in Malaysia began when the first power generator was installed in 1904 by MFO Oerlikon. Today, most of ABB's operations are consolidated under ABB Malaysia Sdn Bhd which was established in 1973, with its head-office based in Subang Jaya, Selangor.
Where to find us	Head office: Subang Jaya, Selangor
	Branch offices: Pulau Pinang, Kertih, Selangor, Johor, Kuching, Miri and Kota Kinabalu

ABB

Business portfolio

Electrification:

ABB's Electrification business offers a wide-ranging portfolio of products, digital solutions and services, from substation to socket, enabling safe, smart and sustainable electrification. Offerings encompass digital and connected innovations for low- and medium-voltage, including EV infrastructure, solar inverters, modular substations, distribution automation, power protection, wiring accessories, switchgear, enclosures, cabling, sensing and control.

Industrial Automation:

ABB's Industrial Automation business offers a broad range of solutions for process and hybrid industries, including industry-specific integrated automation, electrification and digital solutions, control technologies, software and advanced services, as well as measurement & analytics, and marine and turbocharging offerings. Industrial Automation is #2 in the market globally. Working closely with customers, ABB's Industrial Automation business is writing the future of safe and smart operations.

Motion:

ABB's Motion business is largest supplier of drives and motors, globally. We provide customers with the complete range of electrical motors, generators, drives and services, as well as mechanical power transmission products and integrated digital powertrain solutions. We serve a wide range of automation applications in transportation, infrastructure and the discrete and process industries.

Robotics & Discrete Automation:

ABB's Robotics & Discrete Automation business provides value-added solutions in robotics, machine and factory automation. Our integrated automation solutions, our application expertise across a wide scope of industries and our global presence deliver tangible customer value. Our focus on innovation includes extensive work in artificial intelligence, an ecosystem of digital partnerships and the expansion of our production and research capabilities through our $150-million investment in a new world-class robotics factory in Shanghai.

Appendix B – Intervarsity Innovation Challenge Themes

The competition is based on a central theme of "Writing the Future of Digitalization and Sustainable Technologies" and entries are invited for the following topics:

TOPIC 1:   INNOVATIVE MOBILITY SOLUTIONS

According to a study by the United Nations, 68% of the world population is projected to live in urban areas by the year 2050. With rapid urbanization, traffic condition within the city is expected to become more congested as a city sprawls and the population density increases. Innovative mobility solutions are the key to ensuring that a city can continue to grow, without causing social and environmental stresses. From flying cars to smart buses, the goal is to be able to move large crowds of people in a smart, safe and sustainable manner.

TOPIC 2:   DATA ANALYTICS SOLUTIONS

Big data analytics is a key enabler in identifying hidden patterns, correlations, trends and create predictive models. It enables collection of existing and emerging technologies working together to increase efficiency in production, transport and consumption; improve reliability and economic operation; integrate renewable power into the grid; and increase economic efficiency through electricity markets and consumer participation. The goal is to use big data to extract valuable information so that people can make better decisions that will lead to greater efficiency and sustainability.

TOPIC 3:   LOW LATENCY TECHNOLOGY

Communication technology such as 5G has advanced to a stage where it is possible to achieve high connectivity in the outdoor environment. This represents a huge leap in technology that will change how people live their lives. There are plenty of potential for innovative consumer products, such as fit bits, remote operational applications and mobile apps that can benefit from the increased mobile connectivity. The goal is to realize the full potential of low latency technology.

TOPIC 4:   ANALYTICS AND ARTIFICIAL INTELLIGENCE

With the advancement of the fourth industrial revolution, more factories are looking in to apply analytics and artificial intelligence to reduce cycle times, improve product quality and optimize production costs. Applications include the incorporation of vision system for faulty products detection, intelligent conveyors and logistics management. The goal is to create a solution that can be readily applied to the factory floor of the future.

ABB Digitalization
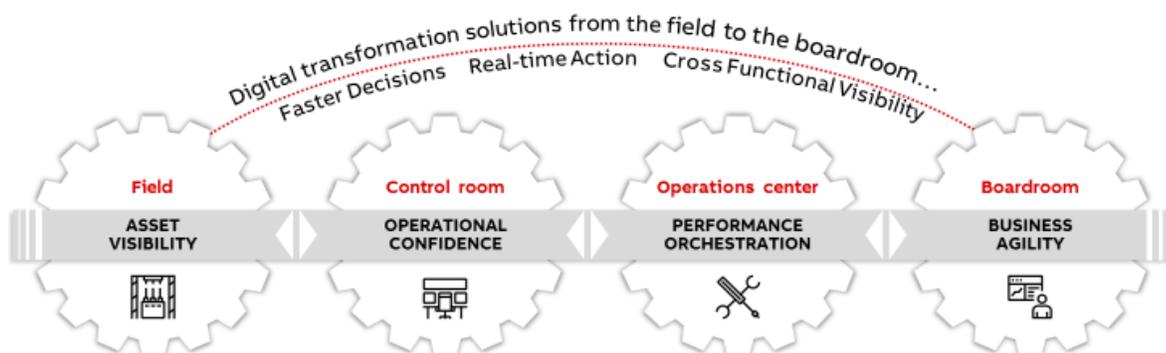
Digitalization technology enables collection of existing and emerging technologies working together to increase efficiency in production, transport and consumption; improve reliability and economic operation; integrate renewable power into the grid; and increase economic efficiency through electricity markets and consumer participation.

As manufacturers across all industries face skills shortages, rising raw-material costs, increased market competition and ever-stricter environmental regulations, ABB is delivering the software, systems, services and digitally enabled hardware to enable industry players lead the Fourth Industrial Revolution.

ABB Ability™ is a full portfolio of digital solutions for all industrial applications that draws on ABB's profound sector knowledge and 40 years of expertise in the digital sector. From flexible robotics and drives to virtual commissioning and predictive maintenance solutions, ABB Ability™ is enabling quantum leaps in the planning, execution and management of manufacturing processes.

With ABB's portfolio of digitally enabled products, manufacturers are writing a future where risks are reduced, resources are utilized with maximum efficiency, humans are spared dangerous and repetitive tasks, and cloud-driven connectivity drives new levels of quality and performance.

Appendix C – General Rules of the Intervarsity Innovation Challenge

Word count restriction:

There is a required length of min 5,000 words, max 7,500 words, for each submission to reflect credible attempt at pushing boundaries and depth of innovative thinking.

References, tables, diagrams and appendices are not part of the word count. Appendices should be used only as appropriate, and not as a means of inserting additional text into the report.

A. Reference Style:

   a. Paper size: A4

   b. Spacing: 1.5 line or doubled spaced.

   c. Font: Arial 11 point or equivalent font size.

   d. Margins: 4.0cm on the left, 2.0cm on the right, top and bottom.

   e. Page numbering: Sequential throughout the whole report. This includes references and appendices.

   f. Layout of front page as shown in Page 13.

B. Plagiarism and Collusion

   a. All project work is expected to be the original work of individuals/teams submitting it. Please avoid committing either plagiarism or collusion.

      i. Plagiarism: plagiarism is the offence of attributing someone else's work to your own name. If you feel it would be helpful to use another author's own words to illustrate a point that supports your findings, please use quotation marks and clear reference to the author.

      ii. Collusion: collusion is the offence of submitting work as your own when it has been done jointly with another person/persons. This applies mainly for individual submission and less relevant in the case of teamwork.

   b. ABB respects innovation work in full and regards plagiarism and collusion offences seriously. An awarded price or submitted project may be disqualified or withdrawn if plagiarism or collusion are subsequently discovered.

   c. ABB reserves the right to run our own plagiarism assessment for all submitted entries.

d. Layout of Title Page

"Title of you project"

Intervarsity Innovation Challenges Year 2019

Name/s & Student ID:

University:

Lecturer/Sponsor from

University:

Appendix D – Event Contact List

Competition Organizing Team

      i.   Vincent Hoy <vincent.hoy@my.abb.com>

     ii.   Paul Wong <paul.wong@my.abb.com>

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  viii.   Laurent Maillefer <laurent.maillefer@my.abb.com>