PETRONAS Powering Knowledge

#RBTX2024

Awarded by:

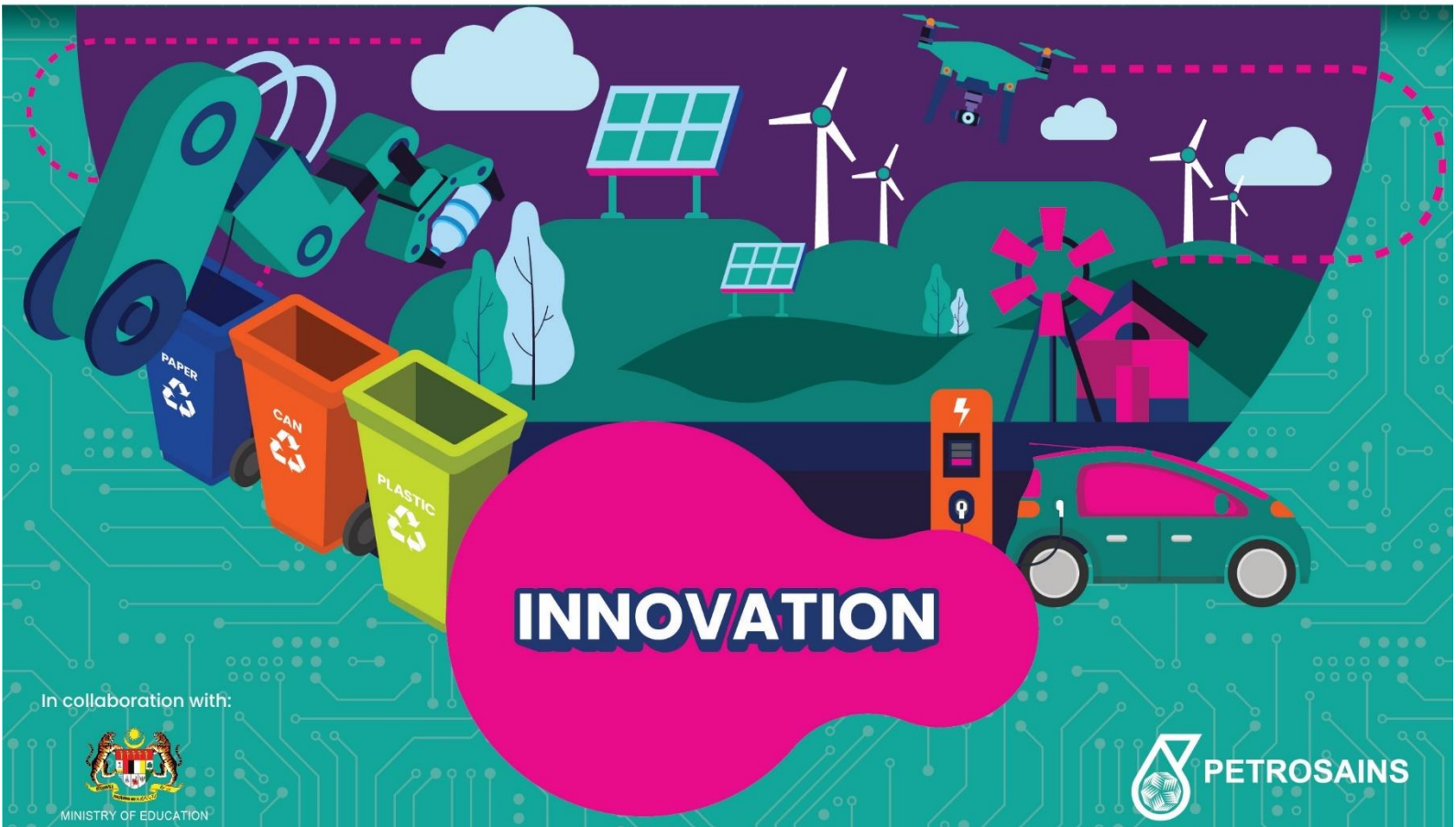
Largest participation in a robotic interactive learning event

PETROSAINS RBTX CHALLENGE 2024

RULES AND REGULATIONS

NET ZERO CARBON EMISSIONS

It is recommended that you review the General Terms and Conditions prior to reading the rules for a specific category, as it applies to all categories throughout the entire competition.



In collaboration with:

MINISTRY OF EDUCATION

PETROSAINS

1. INTRODUCTION AND THEME

Petrosains continues to support the recommendations by the Malaysian Ministry of Education to strengthen STEM knowledge in alignment with Dasar Sains, Teknologi dan Inovasi Negara (DSTIN 2021 - 2030), the Malaysian Education Development Plan 2013 - 2025, and the Malaysia MADANI framework; based on the core of Creativity and Sustainability. In this regard, Petrosains will continue to organize the Petrosains RBTX Challenge 2024 which has proven to enhance knowledge among the public on skills related to the Fourth Industrial Revolution, particularly to accelerate the adoption of innovation and technology.

According to the World Economic Forum (WEF), the term **net zero** applies to a situation where global greenhouse gas emissions from human activity are in balance with emissions reductions. At net zero, carbon dioxide emissions are still generated, but an equal amount of carbon dioxide is removed from the atmosphere as is released into it, resulting in zero increase in net emissions.

Agreements reached at the COP26 climate talks in Glasgow, UK, are a vital chance to gain a global consensus on action to cut emissions and reach net zero. Commitment is needed from global leaders to at least halve global emissions by 2030 and reach net zero by mid-century. And a clear plan for how to deliver on these commitments is needed, along with interim emissions targets. [***Source***: *What does net zero emissions mean and how can we get there? | World Economic Forum (weforum.org)*]

To further amplify this agenda for Malaysia And accelerate progress towards a greener future, Malaysia's Government has introduced the National Energy Transition Roadmap (NETR). This strategic initiative aims to shift the country's energy focus from traditional fossil fuels to cleaner, sustainable alternatives. By tackling climate change challenges head-on, bolstering energy security, and ensuring long-term sustainability, the NETR encompasses various sectors like electricity generation, transportation, industry, and residential energy usage. With ambitious targets, Malaysia aims to achieve net-zero emissions by 2050. The roadmap includes gradual increases in renewable energy adoption, aiming for 31% by 2025, 40% by 2035, and an impressive 70% by 2050. Further details can be found here *NETR_S3.pdf (st.gov.my)*]

2. TEAM COMPOSITION

- This category open to participants aged **10 years old and above.**
- The competition is group-based consisting of a maximum of 4 participants including a mentor/ advisor.
- Schools may send as many teams as possible, but a participant may only participate in **ONE** category.
- All rules and regulations are subject to change without prior notice.

3. PROJECT REQUIREMENT

The proposed solutions must align with the above-mentioned theme.

4. INNOVATION CATEGORY MECHANISM

The competition mechanism is divided into **elements** as follows:

4.1 Registration with Innovation Project Proposal & Pitching Video

- Registration and all submissions are to be made via RBTX Portal.
- **The Innovation Project Proposal** must be in ppt. format. The ppt. template can be downloaded via the RBTX Portal. Maximum 5 slides excluding front and thank you page.
- **Pitching Video**: The video can be a maximum of three (3) minutes in duration and MP4 format. It is compulsory for all participants to appear in the video. The video link can be either a YouTube or a Google Drive link. Videos uploaded on YouTube are compulsory to be set as "Unlisted" and to remain until the competition ends.
- The Petrosains RBTX Challenge judging committee will review the submission of complete innovation project proposals and pitching videos.
- Judges' review will be based strictly on the rubric. Rubric for Innovation Project **Proposal** as below:

Criteria	Details	Percentage (%)
Problem Statement	Clear problem statement and well mapped to the theme.	20
Ideation	The proposed solution is highly feasible to solve problem, and technology requirements are extensively included to develop the proposed solution. ***Directly addresses the core issue.*** ***Delivers measurable improvements*** *(e.g., efficiency, cost reduction, improved user experience)*	50
Commercial Value	The prototype/idea has extraordinarily strong potential to be adopted, enhanced, and leveraged by energy companies or industries. It should be commercially viable and has market potential. Additionally, the solution should be highly cost effective compared to other similar solutions even after it is being scaled up.	20

Presentation Quality	Audio and video are noticeably clear. Highly creative storyline, noticeably clear wordings, and figures/images.	10

- Best Innovation Project Proposals will be announced on Petrosains RBTX Challenge 2024 website and the selected teams are required to develop the prototype to be presented during the online Bootcamp session.

4.2 Online Learning Engagement

- Learning enrichment platform for participants to provide an overall idea of the theme, competition structure, the designated challenge, as well as related learning modules such as Petrosains Design Thinking, Artificial Intelligence (AI), Machine Learning (ML) and its tools.
- There will be 2 parts.
  1. Meet the Expert engagement live session
  2. E-learning through RBTX Portal.
- Meet the Expert engagement is an hour-long live session scheduled between June – August to equip participants with knowledge from the industrial view. The date of the sessions will be announced on the website.
- Participants are required to take the assessment in the RBTX Portal to be entitled to an E-Certificate of participation in the competition. The **passing mark is 80%.**

4.3 Online Bootcamp & Mentoring

- Selected teams must attend an online boot camp session as part of the competition requirement. Teams MUST showcase a prototype during this inclusive session of technical mentoring by both subject matter experts from academia.
- Technical evaluation will take place during this preliminary session to select the best teams for the Grand finals.
- Preliminary evaluation during Bootcamp is as below:

Criteria	Details	Percentage (%)
Ideation & Functionality	**Innovative Solution** Cater problem statement, solving problems with findings presented.	10%
	Project Development Illustrates the progress. Creating solutions that instill empathize to both end user and stakeholder.	15%
	Creative and Effective Visual Aid Digestible visual aid.	5%

	Model Development Models were tested, assessment of model, tuning of hypermeters and deployment.	30%
	Minimum Viable Product (MVP) Functional, with user experience within certain reasonable range.	30%
	General Programming The code is readable and organized. The code is efficient with good readability.	10%

- The Mentoring phase will include a coaching session to equip finalists with relevant communication skills and familiarity with stakeholder management.
- Each group will be given an hour-long online session through Microsoft Teams that will be updated after the boot camp.

5. The Grand Finals

- The teams are required to present their project creation at the Grand Finals.
- Judges consisting of experts from academia and industry partners will evaluate the team's presentation according to the rubric shared.
- The top innovation will advance to the pitching stage, with the finalist number revealed during the Grand finals.
- The presentation schedule and mechanism shall be shared with the finalists during the Mentoring session.

6. JUDGING CRITERIA

The rubric for the Grand Finals **is divided into elements as follows:**

Criteria	**Details**	**Percentage (%)**
Ideation & Innovative Solution	**Problem Statement** Provides context supporting rationale for proposed project with related case study and research background.	30%
	Project aligns with theme	
Functionality	**Minimum Viable Product (MVP)** Functional, with user experience within certain reasonable range.	30%
	Project Development Illustrates the progress. Creating solutions that instill empathize to both end user and stakeholder.	
	Model Development Models were tested, assessment of model, tuning of hypermeters and deployment.	
	General Programming The code is readable and organized. The code is efficient with good readability.	

	Creative Visual Aid Digestible visual aid.	
Communication	**Progress & Pace** Progresses and speaks clearly and distinctly.	20%
	Eye Contact & Facial Expression Makes eye contact with facial expressions and body language generate interest.	
Impact	**Impact to Society** The invention has good impact if implemented and shall benefit the society both local and globally.	20%
	Commercial Viability The prototype/ idea has potential to be adopted and enhanced to be commercially viable**.**	

7. IMPORTANT DATES [TENTATIVE]

Date	Events
6 May 2024	Registration Open
31 July 2024	Registration Closed
May – August 2024	Online Learning 1. Meet the Expert Engagement 2. E – Learning through RBTX Portal (self-paced)
1 August 2024	Online Briefing
7 August 2024	Proposal & Video Submission Closed
15 August 2024	Proposal Selection Announcement
28 September 2024	Online Bootcamp (15 Teams) Preliminary Session
29 September 2024	Finalist Announcement
9 October 2024	Grand Finals Briefing Finalist mentoring
26 - 27 October 2024	Grand Finals

***All dates are subject to change. Kindly refer to the website for the latest update*

8. JUDGES

- The judges' decision in determining the winner shall be final and no appeals against the decision will be entertained.
- Participants should completely respect the judges' vote and decisions.
- Petrosains reserves the right at any time without prior notice to add, alter, modify, change or vary the terms and conditions contained herein, wholly or in part at its absolute discretion and the participants agree to be expressly bound by such additions, modifications, change or variations which must be abided by all participants.

9. CERTIFICATIONS

- Participants will be given certificates of participation upon complete submission of the Innovation Project Proposal and video, and Grand Finals.
- Teachers and mentors shall also receive the same certifications as an acknowledgment of participation.

10. APPENDIX

APPENDIX 1: PROJECT PROPOSAL TEMPLATE

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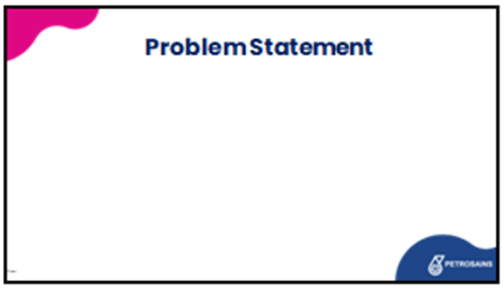

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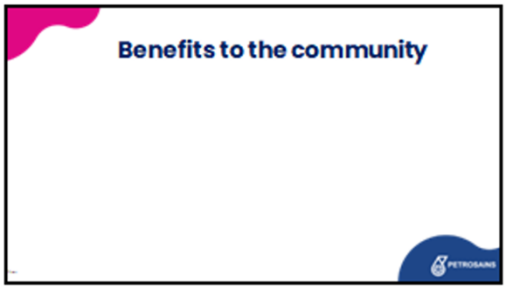

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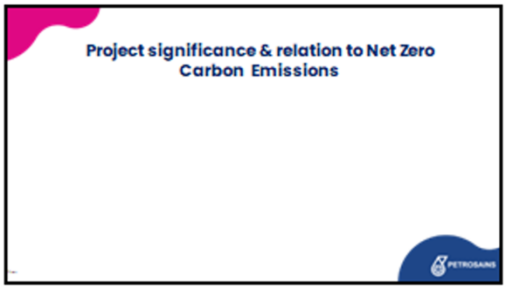

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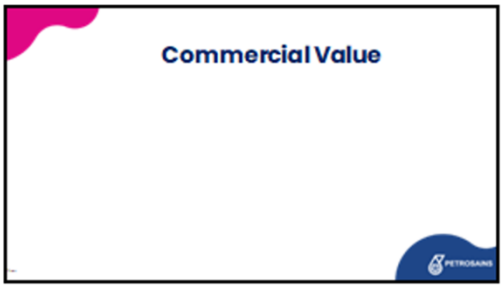

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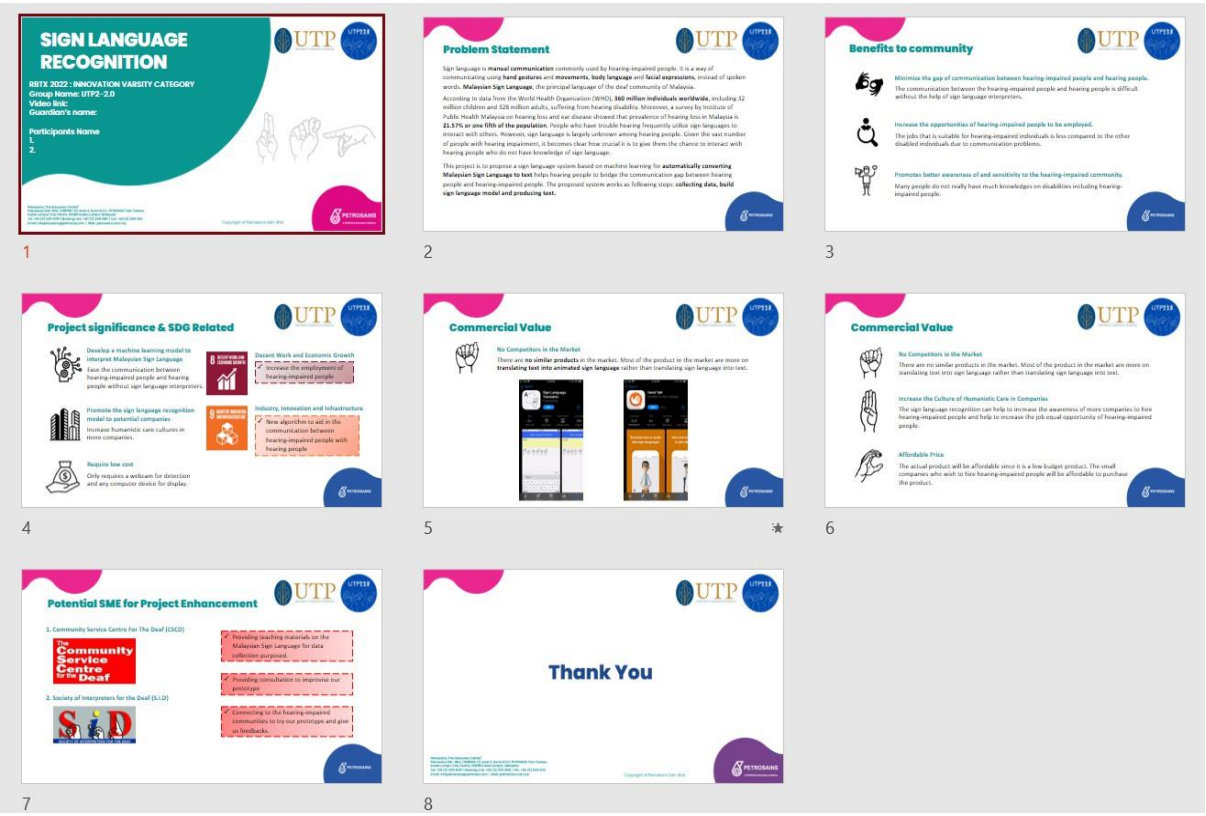
APPENDIX 2: SUBMISSION SAMPLE FOR REFERENCE



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