KPS BERHAD CELIK INITIATIVE 2025 FINAL REPORT

Prepared by: Paluan Sejati Sdn Bhd

INTRODUCTION

- The KPS Berhad Celik Initiative began in 2022 as a pilot in Selangor, focusing on digital access as the foundation to strengthen learning among lower-secondary students.

- In 2023, the Initiative expanded with a structured STEM framework, directly engaging 1,000 students across 191 teams from 20 schools, and indirectly reaching over 20,000 students in Selangor, Kuala Lumpur, Putrajaya, and Negeri Sembilan.

- In 2024, the Initiative sustained its momentum by broadening its reach to another four locations — Selangor, Kuala Lumpur, Negeri Sembilan, and Perak — continuing to nurture interest in STEM through interactive workshops and project-based learning.

- By 2025, the Initiative was elevated as the flagship under KPS Berhad's Educational Development Programme, scaling up to eight states — Selangor, Negeri Sembilan, Johor, Pahang, Terengganu, Kedah, Perak, and Pulau Pinang — with over 60 teams taking on the challenge.

- This year also marked the introduction of the Internet of Things (IoT) alongside the Engineering Design Process, aligning with the Ministry of Education's 60:40 STEM policy and preparing students with future-ready skills.

COMPETITION THEME

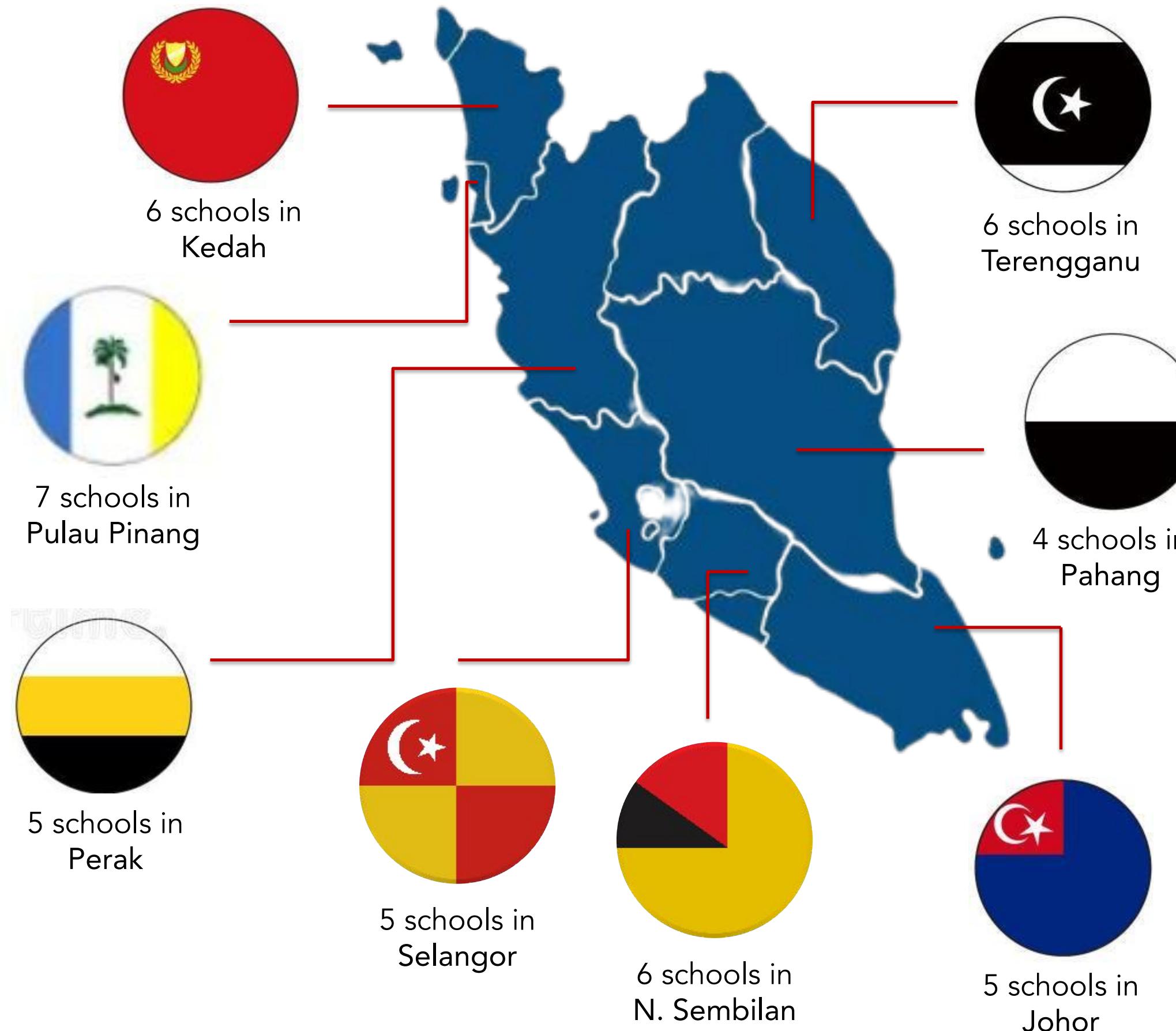The teams were required to develop STEM-based innovation projects that address one of the six United Nations Sustainable Development Goals (UNSDGs):

Good Health And Well-being; Quality Education; Decent Work and Economic Growth; Sustainable Cities and Communities; Responsible Consumption and Production; Or Climate Action.

They should incorporate technology solutions into their projects.

TARGET AUDIENCE & AREA COVERAGE | OVERVIEW

kps. | Celik Initiative
we invest in better

6 schools in Kedah

7 schools in Pulau Pinang

5 schools in Perak

5 schools in Selangor

6 schools in N. Sembilan

5 schools in Johor

6 schools in Terengganu

4 schools in Pahang

Total Entries

8 States	157 Preliminary Entries of Project Pitch
62 Shortlisted Prototypes	46 Lower-Secondary Schools
303 Lower-Secondary (248 Students, 55 Teachers)	
9 Final Prototypes & Innovations	

INITIATIVE ROADMAP 2025

Selection of PPDs in 8 States and Centralised Briefing to All Teachers
Johor *(PPD Pasir Gudang)*
Negeri Sembilan *(PPD Tampin & Port Dickson)*
Selangor *(PPD Klang)*
Perak *(PPD Kuala Kangsar)*
Pahang *(PPD Kuantan)*
Terengganu *(PPD Besut)*
Kedah *(PPD Kuala Muda & Yan)*
Pulau Pinang *(PPD Seberang Perai Selatan)*

Submission of Proposal Ideas from all secondary schools under the selected PPDs
Deadline 16th April 2025

Preliminary Assessment and Shortlisting of 62 Teams
21st April 2025

Teachers' Onboarding Session
29th April 2025

8 Centralised IoT and Engineering Design Process Workshop
Consisting of 4 students & 1 teacher
06th May to 15th May 2025

Mentoring Session
1st Session (Virtual) – 20th May to 12th June 2025
2nd Session (Physical) – 17th June to 8th July 2025

8-Week Project Implementation Phase
19th May to 20th July 2025

Start-Up Fund Disbursed

Semi-Final: State-Level Judging
Selangor - 22nd July 2025
Negeri Sembilan – 24th July 2025
Kedah – 27th July 2025
Pulau Pinang – 29th July 2025
Perak – 31st July 2025
Terengganu – 3rd August 2025
Pahang - 5th August 2025
Johor - 7th August 2025

Bootcamp/Presentation Clinic
Involving the Top 9 finalist teams from 8 states
10th September 2025

Grand Finale & Awards Ceremony
11th September 2025
Galaxy Hall, Petrosains , Kuala Lumpur

PRIZES:
Best Group Project
- Champion: RM5,000 cash prize
- 1st Runner-Up: RM3,000 cash prize
- 2nd Runner-Up: RM2,000 cash prize
- 4th Place: RM1,500 cash prize
- 5th Place: RM1,000 cash prize
- Consolation x4 teams: RM500 cash prize

OVERALL ACHIEVEMENTS

628
Students participated directly in this programme (Submitting Project Proposals)

248
Students participated directly in this programme (Implementing their projects)

107,549
Students involved indirectly in the programme

81
Total number of schools (Submitting Project Proposals)

46
Total number of schools (Implementing their projects)

20
Stakeholders participated in the programme both directly and indirectly

157
Total number of participated teams from 81 schools

62
Total number of participated teams from 46 schools

8
Media Coverages

2025 EXECUTIONAL DATES

NO	DETAILS	DATES
1.	Engagement and liaison with Ministry of Education (MoE), Bahagian Sukan, Kokurikulum dan Kesenian (BSKK), Pusat Sains Negara, and other relevant stakeholders	January – March 2025
2.	Obtaining approval from relevant stakeholders	
3.	Centralised Virtual Briefing for JPN Officers, PPDs, and Secondary Schools (according to the selected districts)	12 March 2025
4.	Project Proposal submission deadline	16 April 2025
5.	Preliminary Shortlisting for Top 100 teams (Paluan's filtration)	18 April 2025
6.	Preliminary Assessment to shortlist 62 Teams by KPS Berhad and Petrosains	21 April 2025
7.	Announcement of Top 62 teams	23 April 2025
8.	Teacher's Onboarding Session (Virtual Session)	29 April 2025

REMARKS
- School Holiday:
  - 7 January to 16 February 2025
- Public Holiday
  - 1 March – Awal Ramadhan
  - 31 March – Hari Raya Aidilfitri

2025 EXECUTIONAL DATES

NO	DETAILS	DATES
9.	Students' IoT and Engineering Design Process Workshop in 8 States • Selangor (PPD Klang) • Negeri Sembilan (PPD Tampin & PPD Port Dickson) • Kedah (PPD Kuala Muda/Yan) • Pulau Pinang (PPD Seberang Prai Selatan) • Perak (PPD Kuala Kangsar) • Terengganu (PPD Besut) • Pahang (PPD Kuantan) • Johor (PPD Pasir Gudang)	Week of 28 April to Week of 15 May 2025 6 May 2025 8 May 2025 11 May 2025 13 May 2025 15 May 2025 11 May 2025 13 May 2025 8 May 2025
10.	8-Week Implementation Phase and Mentoring Session (Online & Physical) • Selangor (PPD Klang) • Negeri Sembilan (PPD Tampin & PPD Port Dickson) • Kedah (PPD Kuala Muda/Yan) • Pulau Pinang (PPD Seberang Prai Selatan) • Perak (PPD Kuala Kangsar) • Terengganu (PPD Besut) • Pahang (PPD Kuantan) • Johor (PPD Pasir Gudang)	13 May – 24 July 2025 13 May - 15 July 2025 15 May - 17 July 2025 18 May - 20 July 2025 20 May - 22 July 2025 22 May - 24 July 2025 18 May - 20 July 2025 20 May - 22 July 2025 15 May - 17 July 2025

REMARKS
• School Holiday: 1
  🔲 29 May to 9 June 2024
• Public Holiday
  🔲 1 May – Labour Day
  🔲 12 May– Wesak Day
  🔲 7 Jun – Hari Raya Haji
  🔲 31 Aug – Hari Merdeka

2025 EXECUTIONAL DATES

NO	DETAILS	DATES
11.	STEM Carnival: Semi - Final Judging in 8 States • Selangor (PPD Klang) • Negeri Sembilan (PPD Tampin & PPD Port Dickson) • Kedah (PPD Kuala Muda/Yan) • Pulau Pinang (PPD Seberang Prai Selatan) • Perak (PPD Kuala Kangsar) • Terengganu (PPD Besut) • Pahang (PPD Kuantan) • Johor (PPD Pasir Gudang)	15 July – 5 August 2025 15 July 2025 (Tuesday) 17 July 2025 (Thursday) 20 July 2025 (Sunday) 22 July 2025 (Tuesday) 24 July 2025 (Thursday) 27 July 2025 (Sunday) 29 July 2025 (Tuesday) 5 Aug 2025 (Tuesday)
12.	Announcement of Top 9 teams	12 August 2025
13.	Bootcamp/Presentation Clinic & KPS Berhad Celik Initiative Grand Finale 2025 – Final Pitching and Awards Ceremony (Venue: Galaxy Hall, Petrosains, The Discovery Centre, Kuala Lumpur)	10 & 11 September 2025 (2 days/1 night)

REMARKS
• Public Holiday
  - 1 May – Labour Day
  - 12 May– Wesak Day
  - 7 Jun – Hari Raya Haji
  - 31 Aug – Hari Merdeka
  - 13 – 21 September 2025

LIST OF PARTICIPATING SCHOOLS

State/District	Team	School	Project
Selangor (PPD Klang)	Semekar 2	SMK (P) Kapar	Stesen Kitar Semula Pintar
	Ecostem Bu	SMK Batu Unjur	Aquasentinel
	Supernova	SMK Convent Klang	Digital Plant Watering System
	Technova	SMK Jalan Kebun	Bekas Makanan Pintar Anti Rosak
	Kemuning B	SMK Kota Kemuning	Smart Solar Optimisation System (Ssos)
	Green Guardians	SMK Kota Kemuning	Smart Automated Plant Watering System
	Aether Squad	SMK Sungai Kapar Indah	Udaranet
	Young Innovators	SMK Sungai Kapar Indah	Smart Agricultural Warning
	SS3	SMK Tinggi Klang	Stride Sense
	Fantastic Four	SMK Tinggi Klang	Smartshoe Tracker
	Mechafold Crew	SMK Tinggi Klang	Foldmatic
Negeri Sembilan (PPD Tampin & PPD Port Dickson)	Smart Innovator	SM Agama Repah	Smart Worm Bin
	Terraflora	SM Agama Telok Kemang	Smart Agro Guard
	Ioterra	SMK Bukit Jalor	Smart Fertilifizz Bin
	Brainiacs	SMK Jelai (F)	Steering Wheel Micro-Sleep Detector
	Arduinerds	SMK Jelai (F)	Smart Guard Kids
	Tech Titan	SMK Jelai (F)	Smart Glasses
	PB Innovators	SMK Pasir Besar	Smart Monitoring System
	Slam Dunk Basket Team	SMK Tuanku Abdul Rahman	Ibakulpro
Pahang (PPD Kuantan)	Brains Bess	SMK Beserah	Bess Smart Gate
	Brilliant Bess	SMK Beserah	Laundry Sense
	Shacleanovate	SMK Sultanah Hajjah Kalsom	Zerotouch Bin
	Chempaka	SMK Sungai Baging	Aiaq
	Dusung	SMK Sungai Baging	Dusung
	Elite Quadro	SMK Sungai Isap Murni	Sistem Kehadiran Pintar
	Powerpuff Girls	SMK Sungai Isap Murni	Almari Pintar
Terengganu (PPD Besut)	Fantastic 4	SM Agama Maarif	Alat Pengesan Gas Monoksida
	Ingat	SM Imtiaz Yt Besut	Ingat
	Sensair	SMK Kuala Besut	Sensair
	Smartpresence Pioneers	SMK Seri Nering	Auto-Sst
	TMS Humidifier	SMK Tengku Mahmud	P.G.-Humidifier (P.G.-Hufi)
	Eureka Syndicate	SMK Tengku Mahmud 2	Puregrowth
	Neurox	SMK Tengku Mahmud 2	Aeropure

State/District	Team	School	Project
Pulau Pinang (PPD Seberang Perai Selatan)	BB Car	SMK Jawi	Bb Car
	Edugeng	SMK Methodist Nibong Tebal	Go Board
	Serinite Rnd	SMK Nibong Tebal	Istick
	Sehebat	SMK Simpang Empat	Smart Iot-Based Gas Leak Detection And Emergency Response System For Underground Pipelines
	We Are The Best	SMK Sungai Acheh	Sistem Kawalan Kualiti Air
	Taseknova	SMK Tasek	Smart Green Classroom (Sgc)
	Starnite Team	SMK Tunku Abdul Rahman	Vigi Lane
Kedah (PPD Kuala Muda & PPD Yan)	Firefrontiers	SMA Saadah Al Diniah Al Islamiah	Firefarm Alert
	Gen-Z Geniuses	SMA Saadah Al Diniah Al Islamiah	Smartplate
	Eximious	SMA Yan	Irrichgation
	Phoenix	SMK Gurun	Stesen Kitar Semula Pintar
	Firetech	SMK Seri Badong	House Gas Detector
	Neurospark	SMK Sungai Layar	Model Jantung Adruino
	Atomic Group	SMK Tunku Ismail	Water Trigger Sensor
Perak (PPD Kuala Kangsar)	Maya Innovators	SABK Maahad Al-Yahyawiah	Sistem Kawalan Fertigasi Pintar
	Tech-Neuro	SMA Maahad Almizan	Guardvilla Smart Monitoring System
	An Najihah	SMA Maahad Almizan	Fire Guard Smart Monitoring System
	Wahab Excellent	SMK Datuk Haji Abdul Wahab	Drone Pengesan Bahan Kimia
	Dhawgreen-Nova	SMK Datuk Haji Abdul Wahab	Pasu Penanaman Pintar
	Smartgrow Simbel	SMK Berluru	Smartgrow
	The Crew	SMK Clifford	Smartguard
	The Genz4	SMK Clifford	Pengesan Halangan Dan Sistem Amaran Automatik
Johor (PPD Pasir Gudang)	Outkast	SMK Agama Johor Bahru	Aquaguard
	Tech4Lyfe	SMK Agama Johor Bahru	Geckoshine
	Robotechies	SMK Dato' Penggawa Timur	Extinguo
	The Shellers	SMK Taman Johor Jaya 2	Envirobot Ai
	CMI Group	SMK Taman Rinting 2	Smart Health Companion Pill Box
	STEX 3	SMK Taman Scientex	Twin Turbo Shoes Dryer 2.0
	STEX 1	SMK Taman Scientex	Smart Pms (Plant Moisturising System)

PRELIMINARY SELECTION

- Schools within the identified districts were invited to submit project proposals, with participation open to Form 1–3 students.

- From the 157 project proposals received, 62 teams from 46 schools were selected to advance to the next stage based on the strength of their project ideas, as well as their alignment with Internet of Things (IoT) principles, STEM innovation, and the (6) six predetermined SDG themes.

- These selected teams then progressed to the Workshop Phase, where they received technical exposure and mentoring necessary to further refine their project concepts.

IOT & ENGINEERING DESIGN PROCESS WORKSHOP

- The Workshop Phase introduced participants to the fundamentals of the Internet of Things (IoT) and the Engineering Design Process (EDP), giving them the tools to transform initial ideas into practical prototypes.

- Guided by Petrosains' technical advisors and dedicated STEM mentors, students explored coding, sensors, and IoT applications while strengthening skills in teamwork and problem-solving.

- This hands-on exposure prepared all 62 teams from 46 schools to refine their concepts and move forward into the Implementation Phase.
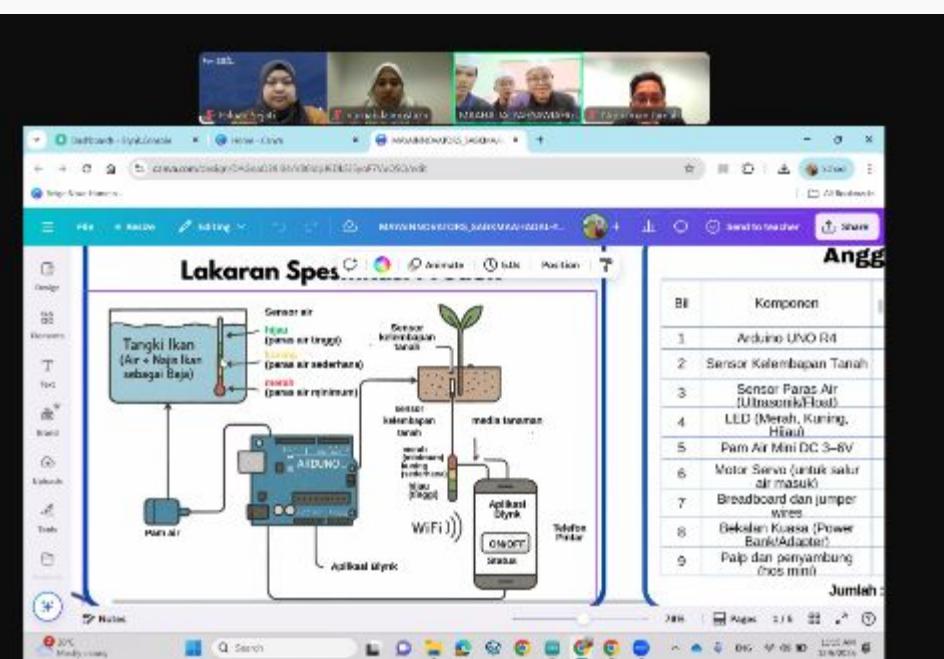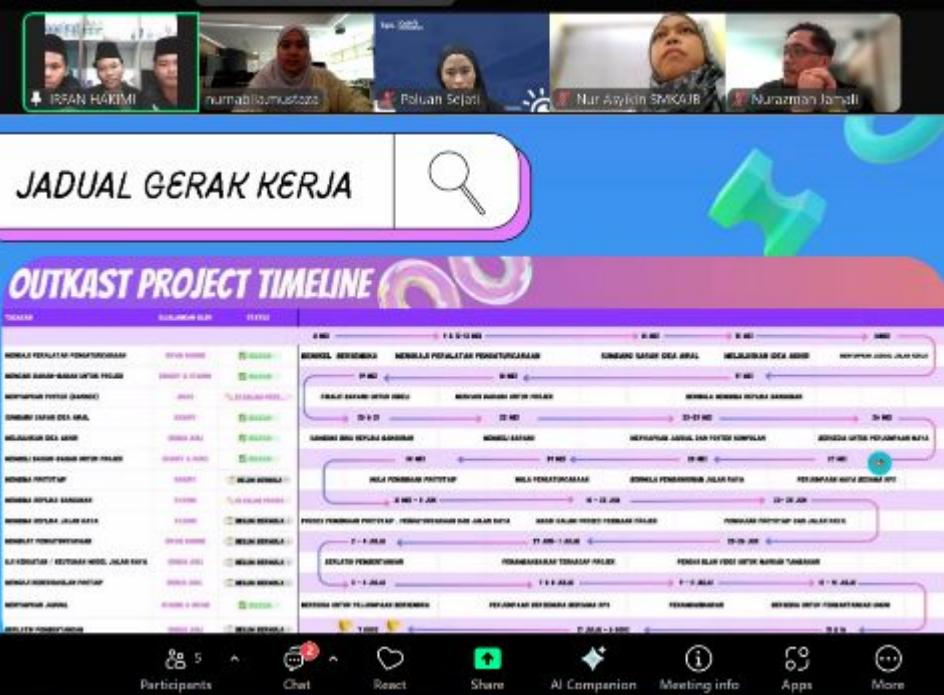
PROJECT IMPLEMENTATION PHASE: VIRTUAL AND PHYSICAL COACHING

- Following the Workshop, teams entered an Eight (8) Week Implementation Phase to develop their projects. Students applied the Engineering Design Process (EDP) and integrated IoT applications to turn their concepts into working prototypes.

- Each team was supported by both online and physical mentoring sessions, ensuring consistent guidance from STEM trainers and technical advisors throughout the development journey.

- This phase provided students with practical experience in problem-solving, prototyping, and presenting their ideas in preparation for the Semi-Final evaluation.

STEM CARNIVAL:
SEMI-FINAL JUDGING

- Semi-Finals Judging were held at the state level, involving 62 projects from 46 schools, with all team gathering at a designated location within their respective states for the judging sessions.

- Projects were evaluated by judges based on key criteria: Ideation & Innovation (10%), Functionality & Execution (30%), Impact & Feasibility (30%), and Presentation & Communication (15%).

- An additional 15% of the score was derived from public voting and student engagement, ensuring projects that captured public interest were also recognised.

- From this round, the best-performing teams were identified, and the top nine (9) teams overall, regardless of state, were selected to advance to the Grand Finale.

GRAND FINALE & AWARDS CEREMONY

- The Grand Finale of the KPS Berhad Celik Initiative 2025 was held at Petrosains, Kuala Lumpur, bringing together the top nine (9) finalist teams for the culmination of months of learning, innovation, and project development.

- Finalists went through a Bootcamp to refine their presentations before facing the judging panel during the Final Evaluation, where they showcased their prototypes and solutions.

- The programme concluded with the Awards Ceremony, celebrating the creativity, problem-solving, and resilience demonstrated by all participants, and crowning the overall Champion of the Initiative.

THE TOP 9 FINALISTS

FINALISTS

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JOHOR
SMK TAMAN SCIENTEX
STEX 3
TWIN TURBO SHOES DRYER 2.0
UNSDG: 3

SUMMARY OF PROJECT
Wet shoes can lead to odour, mould, and material damage.

TWIN TURBO SHOES DRYER 2.0 uses heating elements and fans with three drying modes to suit different shoe types and moisture levels. It ensures fast, safe, and efficient drying, prolonging shoe life and comfort.

JOHOR
SMK TAMAN JOHOR JAYA 2
THE SHELLERS
ENVIROBOT AI
UNSDG: 3, 4, 11, 13

SUMMARY OF PROJECT
Littering in public spaces harms cleanliness and the environment.

ENVIROBOT AI is a mobile smart bin with motorised wheels and a mini sweeper, using AI to sort recyclables like plastic, paper, and glass. It can be monitored and controlled remotely via a mobile app for smarter waste management.

NEGERI SEMBILAN
SM AGAMA REPAH
SMART INNOVATOR
SMART WORM BIN
UNSDG: 11

SUMMARY OF PROJECT
School canteens generate large amounts of organic waste that often go unused.

The SMART WORM BIN uses African Night Crawlers and Arduino-based monitoring to recycle this waste into high-quality compost for school gardens. This promotes sustainability, reduces landfill waste, and supports STEM learning.

NEGERI SEMBILAN
SMK JELAI (F)
BRAINIACS
STEERING WHEEL MICRO-SLEEP DETECTOR
UNSDG: 3, 11

SUMMARY OF PROJECT
Micro-sleep is one of the leading cause of road accidents.

This STEERING WHEEL MICRO-SLEEP DETECTOR embedded system monitors eye closure and environmental conditions in real time to detect driver drowsiness. It features alerts, emergency safety functions, and feedback mechanisms in a compact, cost-effective design to help keep drivers awake and safe.

PAHANG
SMK BESERAH
BRAINS BESS
BESS SMART GATE
UNSDG: 8

SUMMARY OF PROJECT
Keeping schools safe from prohibited items can be challenging.

BESS SMART GATE is installed at school entrances and uses advanced sensors to automatically detect items such as vapes and sharp objects. It provides a proactive, non-intrusive alternative to manual inspections, ensuring a safer school environment.

TERENGGANU
SMK KUALA BESUT
SENSAIR
SENSAIR
UNSDG: 11

SUMMARY OF PROJECT
Hidden water leaks can drive up bills, cause property damage, and waste precious resources.

SENSAIR utilises a flow sensor located near the water meter to monitor water usage and detect any irregularities. When a leak is detected, the system sends instant alerts via mobile app or notification, enabling quick action to stop the problem before it becomes costly.

PERAK
SABK MAAHAD AL-YAHYAWIYAH
MAYA INNOVATORS
SISTEM KAWALAN FERTIGASI PINTAR
UNSDG: 3, 4, 11, 12, 13

SUMMARY OF PROJECT
Many fertigation systems waste water and fertiliser due to poor control, especially in rural areas with unstable internet and electricity.

This Arduino-based SISTEM KAWALAN FERTIGASI PINTAR monitors soil and weather conditions to automatically manage irrigation and fertiliser use. Farmers can also control it remotely through an app or website – reducing waste, lowering labour needs, and supporting sustainable agriculture.

PULAU PINANG
SMK JAWI
BB CAR
BB CAR
UNSDG: 11, 12

SUMMARY OF PROJECT
Every year, children die from heatstroke after being left in closed vehicles – a tragedy often caused by fatigue, negligence or distractions.

BB CAR is an Arduino and IoT-powered safety system that detects a baby's cry or movement, sends alerts to a mobile app, activates a fan, opens windows, and even provides live video streaming with GPS tracking. It's designed to give parents peace of mind and protect lives before it's too late.

KEDAH
SMA SAADAH AL DINIAH AL ISLAMIAH
FIREFRONTIERS
FIREFARM ALERT
UNSDG: 3, 11

SUMMARY OF PROJECT
Community gardens and parks face risks from fire, extreme heat, and water wastage, yet monitoring tools are often costly and complex.

FIREFARM ALERT is a low-cost IoT system that tracks temperature, humidity, and soil moisture while detecting fire. Alerts are sent instantly via buzzer and WiFi, with remote monitoring through an app or dashboard.

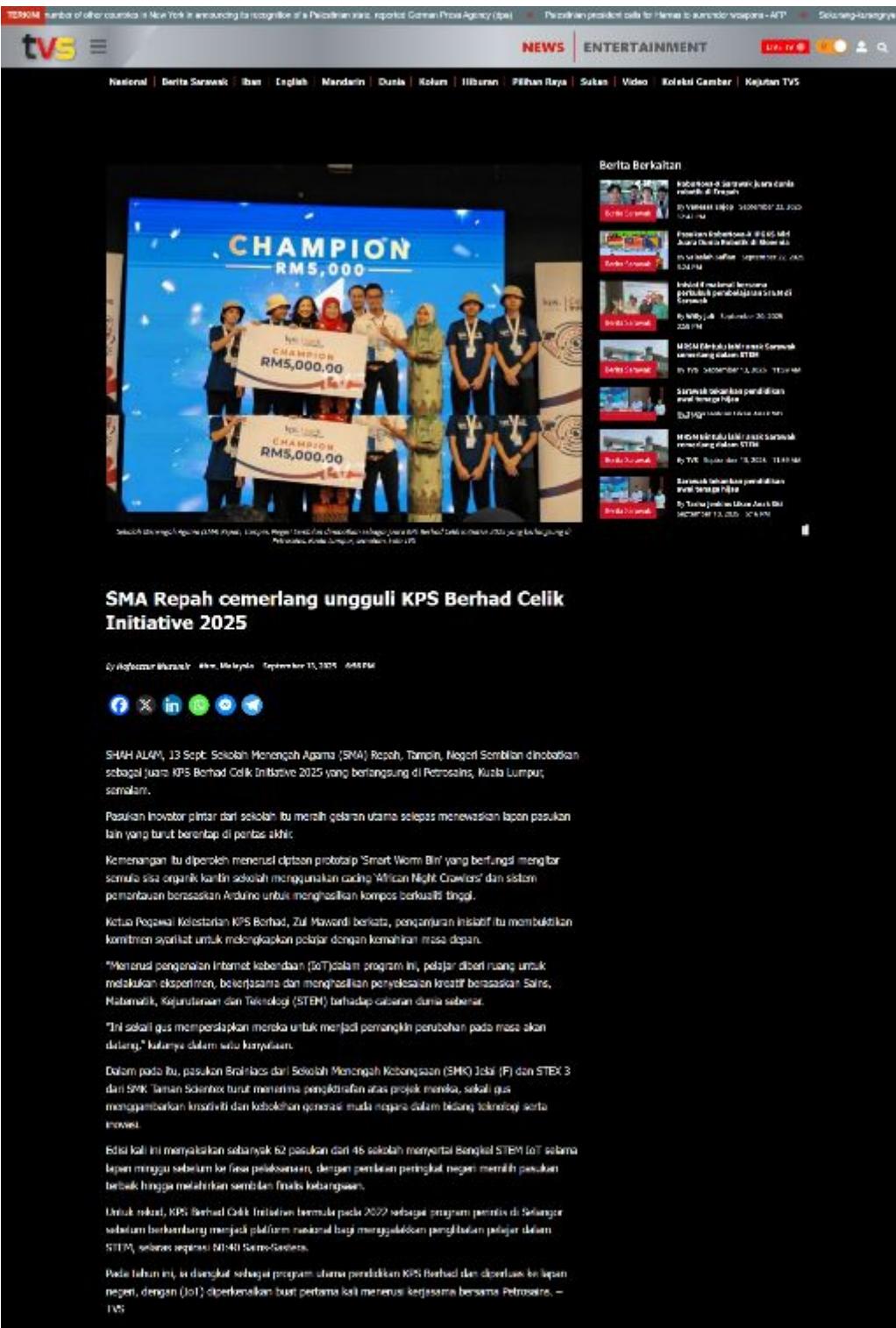# WINNERS OF KPS BERHAD CELIK INITIATIVE 2025

SMART INNOVATOR
SM AGAMA REPAH

BRAINIACS
SMK JELAI (F)

STEX 3
SMK TAMAN SCIENTEX

MEDIA
COVERAGES

KPI MEASUREMENT

NO	DETAILS	TARGET KPI	ACHIEVED
1	Number of stakeholders' engagement: Ministry of Education (MoE) & Petrosains	2	20
2	Total Number of Secondary Schools	80	81
3	Targeted States for KPS Berhad Celik Initiative 2025	8	8
4	Total Number of Teams	80	157
5	Total number of students participating in KPS Berhad Celik Initiative 2025	320	628 (directly) 107,549 (indirectly)
6	Total number of teachers participating in KPS Berhad Celik Initiative 2025	160	157 (1 teacher handles more than 1 team)
7	The percentage increase of students' acceptance to STEM education	25%	Will be provided via a separate report by 6 October 2025

KPI MEASUREMENT

NO	DETAILS	TARGET KPI	ACHIEVED
8	Total Number of Media Coverages	2	8 TV Coverage: • Buletin Didik (TV3) • ASTRO AWANI Radio Coverage • BERNAMA Radio Online News Coverage: • Berita Harian Online • Utusan Malaysia • TV Sarawak • Isentia • CSR Malaysia
9	Total Number of Social Media Postings	5	7 • Official Kick-Off & Shortlist Announcement • IoT and Engineering Design Process Workshops • 8-Week Implementation Phase • Semi-Final: State-Level Judging • Announcement of Top 9 Finalists • Radio Interview • Grand Finale and Awards Ceremony

KEY LEARNINGS

- **In-Person Coaching Proved More Effective**

Face-to-face sessions significantly enhanced interaction and engagement between mentors and students. This approach fostered stronger relationships, enabled real-time feedback, and improved the overall quality of learning outcomes.

- **Prototyping and Presentation Encouraged Innovation**

Teams successfully produced prototypes that reflected creativity and problem-solving skills. The integration of IoT elements enabled the practical application of concepts, while the presentation format allowed judges to observe and evaluate projects comprehensively.

- **Real-World Applications Reinforced STEM Concepts**

Students were able to apply theoretical STEM knowledge to real-world scenarios. Through IoT integration, they explored the use of sensors, data, automation, and connectivity to solve everyday challenges, reinforcing the relevance of STEM in education and future careers.

- **Broader Access for Students in Low-STEM Districts**

The Initiative successfully engaged students from districts identified for low STEM participation, including those from B40 backgrounds. This ensured that the Initiative reached students who benefited most from additional exposure, creating more equitable opportunities across the eight participating states.

AREAS OF IMPROVEMENT

▪ Enhancing Technical Support on IoT

Future editions could benefit from extended workshop time dedicated to IoT, coding, and electronics. A full-day format, combined with sustained mentoring, would strengthen students' technical understanding and support the development of more robust prototypes.

▪ Allowing More Time for Implementation

Providing a longer implementation period would give teams greater flexibility to develop, test, and refine their prototypes. This adjustment would enable students to fully explore IoT features and strengthen the overall quality of their projects.

▪ Adjusting Programme Timeline

Starting the Initiative earlier in the year would help align activities with the MoE STEM Carnival and ease scheduling pressures on schools, ensuring smoother participation for both students and teachers.

▪ Presentation Clinic as a Key Enabler

The presentation clinic proved highly valuable in preparing students for their final pitching. Conducting it at least 2–3 weeks before the Grand Finale would give finalists more time to practise and refine their delivery, resulting in stronger presentations, increased confidence, and more impactful storytelling.