

# STEMROBO

## IGNITING INNOVATION



**S**  
SCIENCE



**T**  
TECHNOLOGY



**E**  
ENGINEERING



**A**  
ARTS



**M**  
MATHEMATICS







# STEMROBO TECHNOLOGIES

— Innovation, Creativity & Learning —

STEMROBO provides 'End-To-End Solution to K-12 Schools' for 'Nurturing Innovation & 21<sup>st</sup> Century Skills' among young students of age 6-18 years across the globe. We offer young students an opportunity to explore, experience and bring innovation through a world class STEAM, Artificial Intelligence, Robotics & Coding curriculum integrated with our unique & affordable 'Technology Products and Solutions' delivered in an online or hybrid model; thereby enabling and empowering students to be able to become **Creative - Thinkers and Problem - Solvers**.

Together, let's unlock the potential within each student, ignite a passion for Innovation, Creativity & Learning, and pave the way for a brighter tomorrow.

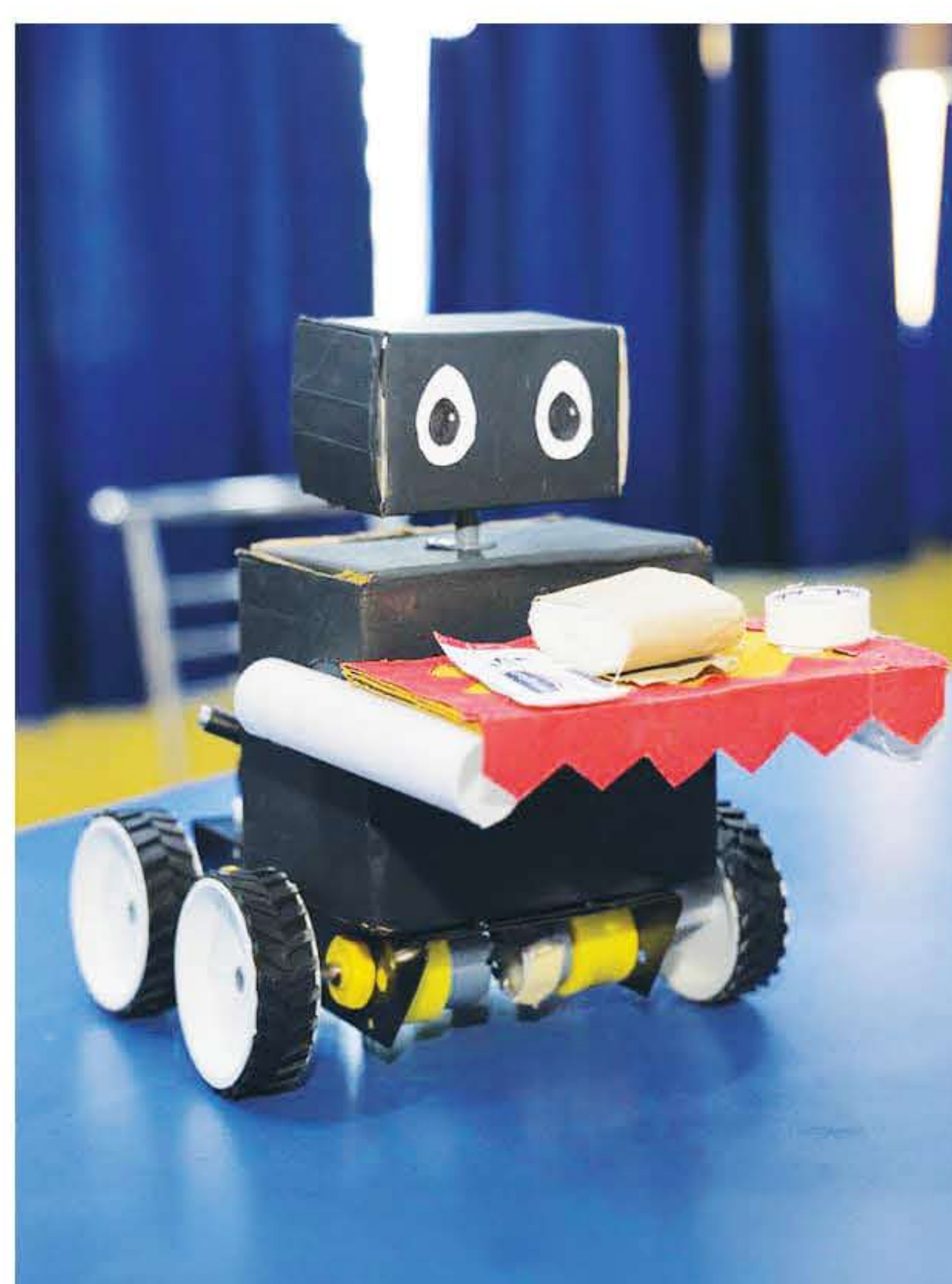
[www.stemrobo.com](http://www.stemrobo.com)

## Mission

Our mission is to build an ecosystem focused on leveraging technology in education where **STEAM, Robotics, Coding, Artificial Intelligence & AR/VR** are utilized as crucial tools for kids to become smart in their academics and be able to solve modern world problems.

## Vision

The company's vision is to nurture innovation and 21<sup>st</sup> century skills in K-12 students across the globe and prepare them for the future technological world. We are on a journey which will help every student to elevate core skills like **Logical Thinking, Creativity, Computational Thinking and Problem - Solving**.





# OUR OFFERINGS FOR K-12 SCHOOLS



STEAM



Robotics



Coding



Artificial Intelligence  
& IOT



Machine Learning



AR & VR



## PARTNER WITH INDIA'S LEADING BRAND

TRUSTED BY

3000+  
SCHOOLS

1 MN+  
STUDENTS

30+  
COUNTRIES

30K+  
TEACHERS

## 2000+ RECOGNIZED INNOVATIVE PROJECTS

IMPACT SO FAR

35+ Patents Filed

40+ Copyright Ideas

1000+ ATL Marathon

100+ Inspire Awards-MANAK

100+ CBSE National

1000+ CBSE Regional

50+ Global Level

200+ National Level



DIPP  
CERTIFIED





# NEED OF STEMROBO'S INTEGRATED EDUCATIONAL PROGRAMS TO BUILD 21<sup>ST</sup> CENTURY READY SCHOOLS AND STUDENTS

## Why STEAM ?

- › Nurture future problem solvers.
- › Unlock logical and creative mindset from young age.
- › Develop innovation culture among young students across the globe.

## Why Experiential Learning ?

- › Engaging and reflecting on the experience
- › Trying out and testing new skills and abilities
- › Gaining knowledge from the experience

## Why Design Thinking Approach ?

- › Teaches students to question.
- › Makes students open minded and flexible.
- › Students can give effective reasoning for each problem.

Careers of the future will not just be limited to those with a specific set of skills or knowledge, they will also involve creativity and critical thinking.

### FORBES

130 Mn jobs will be created in AI itself by 2025.

### WORLD ECONOMIC FORUM

By 2030, 65% of children entering primary schools today will ultimately end up working in completely new jobs that don't yet exist.

### MCKINSEY REPORT

Around 300 Mn people may need to switch occupational categories and learn new skills like technological, social and higher cognitive skills by 2030.

### U.S. DEPARTMENT OF EDUCATION

"In an ever-changing, increasingly complex world, it's more important than ever that our nation's youth is prepared to bring knowledge and skills to solve problems, make sense of information, and know how to gather and evaluate evidence to make decisions." Enhancing such skills lies at the heart of STEM and STEAM education.

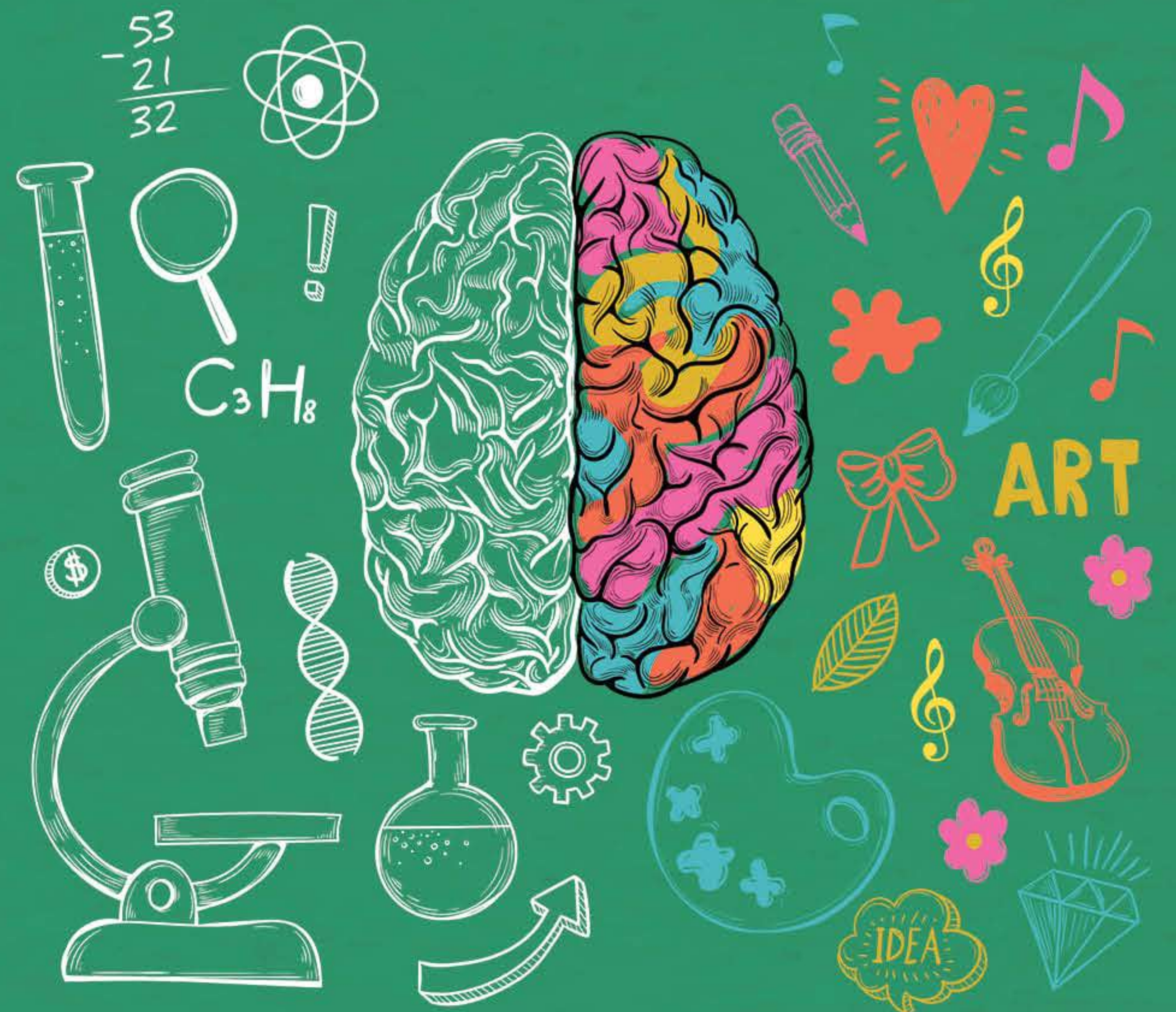
As the studies suggest that the inclusion of STEAM curriculum at an early age demonstrates higher level of 21<sup>st</sup> century skills set in students which is very necessary for our coming generation to compete in the global job market.







- ✓ Critical Thinking
- ✓ Communication Skills
- ✓ Creativity
- ✓ Problem Solving
- ✓ Perseverance
- ✓ Collaboration
- ✓ Innovation Skills
- ✓ Social Skills



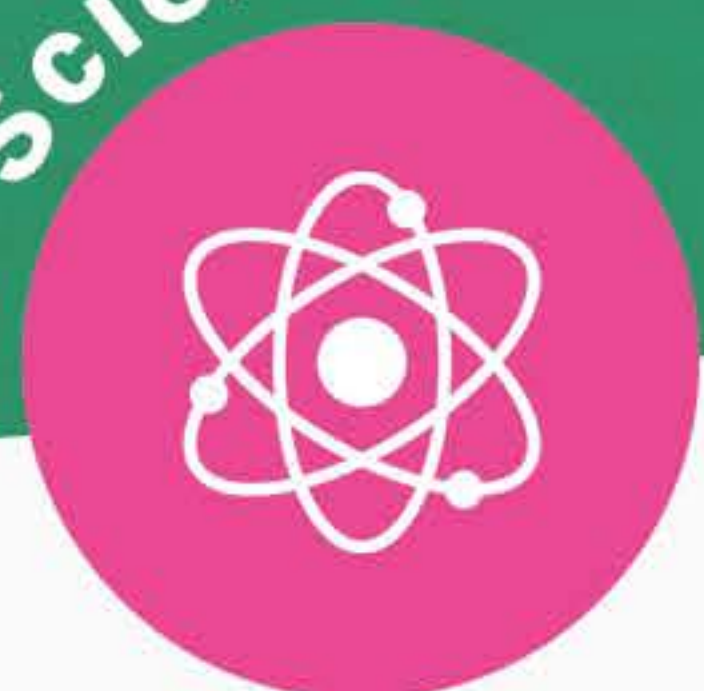
# STEMROBO AN OVERVIEW



## WHAT WE DO

-  Preparing students for rapidly changing technological world.
-  Innovation & 21<sup>st</sup> Century Skills.
-  Empowering kids to become Creative Thinkers & Problem Solvers.
-  Integrated End-To-End Solution for schools aligned with NEP 2020.

Science



Technology



Engineering



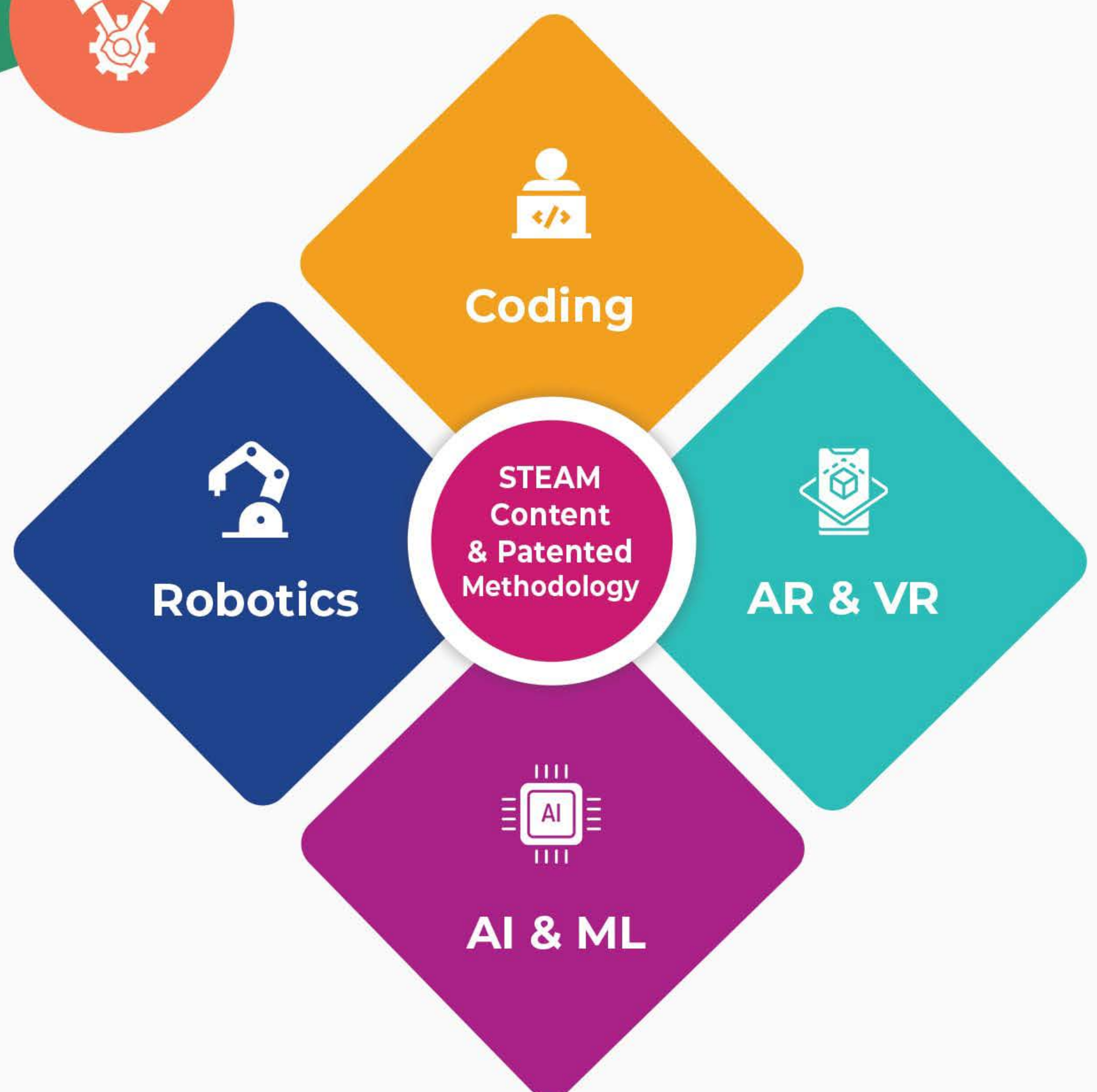
Arts



Mathematics



## HOW WE DO IT





# OUR OFFERINGS FOR K-12 SCHOOLS



## STEAM & ROBOTICS

STEAM and Robotics is an educational program that aims to prepare students for the 21<sup>st</sup> century workforce by equipping them with the skills necessary to solve complex problems and innovate in a rapidly changing world. Robotics allows students to learn STEM concepts through hands-on activities. They learn how to program, design, and make their own robotics projects/models. STEAM-Robotics typically focuses on project-based learning, where students work in teams to design and build solutions of real-world challenges.



## CODING & ARTIFICIAL INTELLIGENCE

Coding and AI is a fun and engaging way to introduce young learners to the world of technology and programming. Kids start with block-based coding that use visual, colorful blocks to represent code. Through coding, kids have the ability to create their own interactive games, stories, animations. AI needs to become part of the school curriculum as basic technology literacy. Through hands-on activities and projects, students can gain a practical understanding of AI and explore its potential for creating innovative and real-life projects.



## AUGMENTED REALITY & VIRTUAL REALITY

AR/VR provides a smart learning environment that brings students to the center of the learning environment. AR/VR based immersive and experiential learning has the potential to create a deeper level of engagement with target topics, in a distraction free environment. Moreover, it empowers teachers to better understand a student's connection with the material being taught, to identify possible gaps in knowledge and to attend to those issues in a timely manner. This would make the experience much more relevant and meaningful, for both students and teachers.



## ATAL TINKERING LAB

ATL is a dedicated innovation and experimentation space within Indian schools, established as part of the Atal Innovation Mission (AIM) by NITI Aayog, Govt. of India. ATL aim to inspire and nurture innovation, problem-solving abilities, and technological interest among students. STEMROBO is leading edtech company to setup more than 2000+ ATLs nationwide. Our objective is aligned with this program to create an environment of innovation, creativity amongst Indian students.



# OUR OFFERINGS FOR EDUCATORS & PARTNERS



## EDUCATORS TRAINING PROGRAM

Our online Teachers Training Program offers educators the chance to upskill and elevate their careers through transformative education. We provide professional development courses specifically designed for teachers, ensuring they stay at the forefront of 21<sup>st</sup> century teaching and learning. As part of our commitment to empowering educators, we offer specialized training for schools through our Educators Training Program.



## FRANCHISE/PARTNERS/ACTIVITY CENTER

Embark on a transformative journey in the world of education technology by joining hands with STEMROBO, a globally acclaimed leader in STEM education. Our franchise opportunity empowers aspiring entrepreneur to establish a thriving edtech business. With a proven track record of success, & 50+ partners working across the globe, STEMROBO offers comprehensive package that includes innovative curriculum, and experiential learning kits with expert guidance.



## CORPORATE SOCIAL RESPONSIBILITY (CSR)

Our program is designed to offer relevant education to underprivileged children, engaging them in subjects where they can discover their true potential through new learning methodologies, including fun-filled, interactive, and DIY activities. We're committed to providing equal opportunities ensuring no child is left behind because of their location or financial status. Be a part of our CSR partnerships to contribute to the educational evolution of every child, regardless of their background, and help prepare India for the new technological world.



## WORKSHOPS / WEBINARS

STEMROBO conducts webinars and workshops aimed at introducing new advancements in K-12 education. Our goal is to provide support for advanced-level projects and innovations. Through these sessions, we strive to keep educators and students updated of the latest developments in the field, fostering a dynamic learning environment that encourages creativity and exploration. Join us in these interactive webinars as we delve into cutting-edge educational techniques, empowering the K-12 community to embrace and excel in the ever-evolving educational landscape.



# OUR METHODOLOGIES

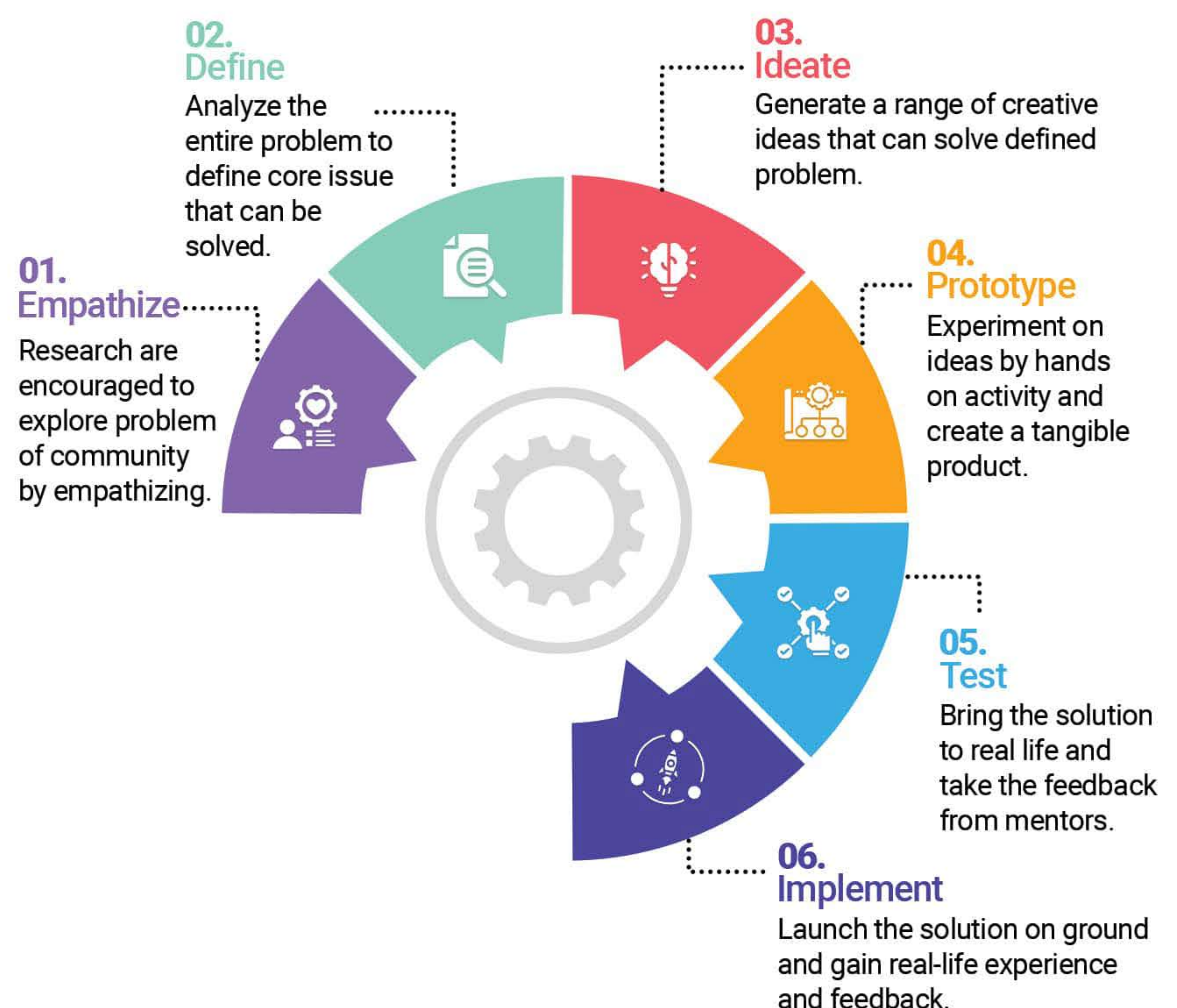
CIC Methodology and Design Thinking Approach serve as the foundational framework of all our STEMROBO programs and curriculums.



The proprietary CIC (Consumer→Innovator→Creator) methodology is meticulously designed to guide students through a progressive journey, commencing as consumers and advancing into innovators and ultimately creators. Students embark on their journey by engaging as consumers, working with various DIY Kits and coding platforms to perform activities crafted around real-world scenarios. This **Activity-based Learning (ABL)** assist students in ideation and growth as innovators, encouraging them to think outside the box. Ultimately, students transform into **creators**, gaining the capability to innovate and drive change in the world by addressing real-life problems aligned with **UNSDGs** through **Project-based Learning (PBL)**.

## Design Thinking Approach

We foster real-world problem solvers through 'Design Thinking' integrated into STEAM education. Our curriculum encourages hands-on projects where students identify issues, empathize, brainstorm, prototype, and iterate solutions. This process nurtures creativity, empathy, critical thinking, and problem-solving skills, promoting collaboration and innovation. Students apply STEAM knowledge to solve genuine challenges, preparing for impactful roles. We prioritize interdisciplinary learning, project-based tasks, and a supportive, diverse environment.





# OUR SOFTWARE PLATFORMS

## AI Connect

World's first unified AI & ML Coding Platform.

- Easy and User Friendly Interface
- Diverse Python Activities
- Block-Based Python Programming
- Seamless Integration with Python IDLE
- Block to Text Conversion
- Graphical Python Activities
- Textual to Block-Based Programming
- AI and ML Based 200+ Interactive Activities

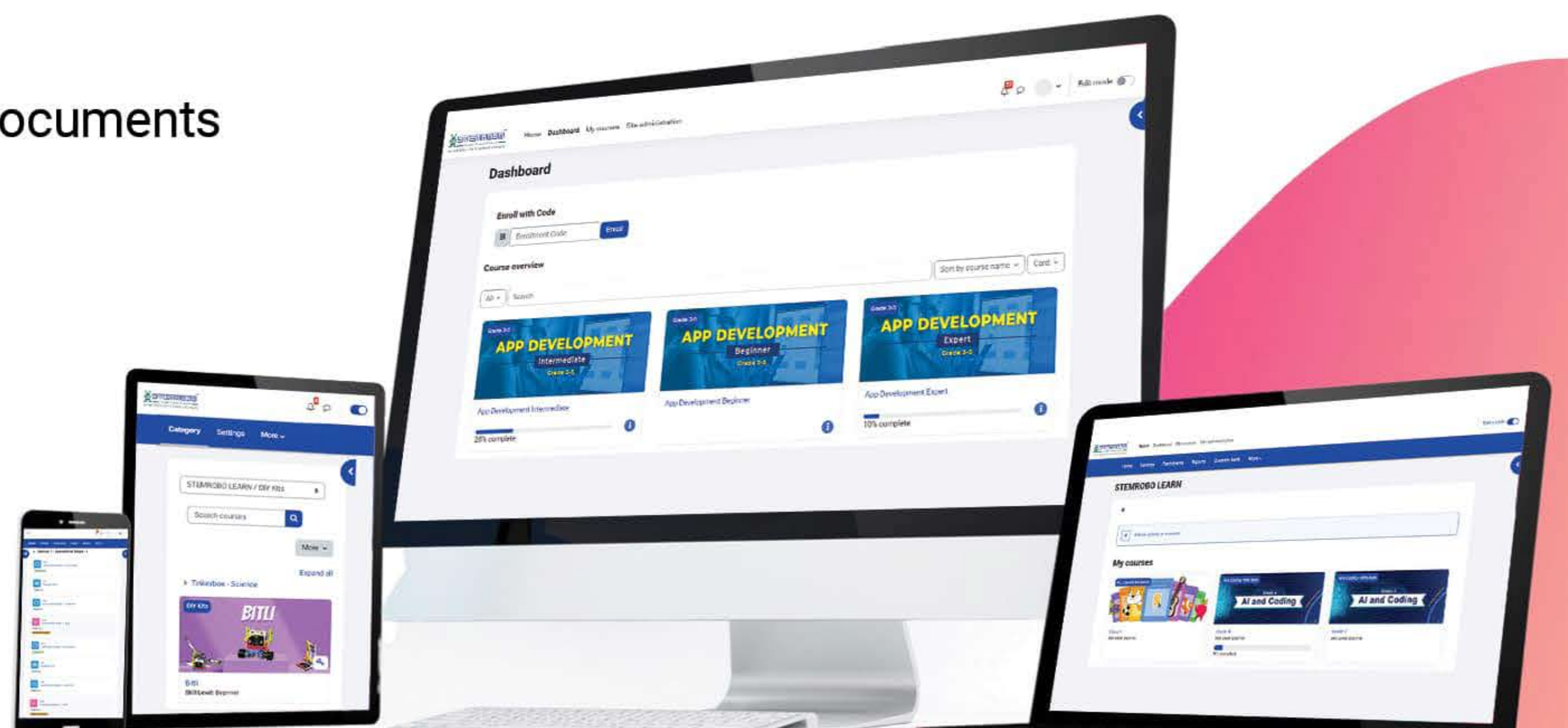


## STEMROBO LEARN / LMS

Discover the world's first Learning Management System (LMS) dedicated to STEM education. Our revolutionary LMS is designed to work seamlessly both Web and through a Mobile App, providing students with 24x7 access to interactive content. Students can engage in online live sessions, attempt quizzes and assignments, while teachers can effortlessly teach, conduct exams, and monitor students' progress. With our cutting-edge LMS, management can accurately measure the impact of the program.

On STEMROBO Learn Platform, access our online courses to guide you in the exploration of STEAM.

- Certification for Students & Teachers on completion of course
- 24 x 7 Access to Platform
- Live Session feature
- Access to Interactive Videos and Documents
- Quarterly Progress Reports
- Compatible with PC/Mobile
- Assessment at Regular Intervals





# OUR IN-HOUSE DIY KITS



## Tinker Orbits

- Robotics and IoT 2-in-1 Kit which teaches electronics, AI and IoT.
- Color-coded input and output plug and play modules.
- Programmable kit that encourages creative projects.

## Tinker Orbits Project Based Learning

- 13+ easy to assemble multifunctional models.
- Engaging projects around IoT and sensors.
- Develop the creative mindset in students.



## BitLi

- Engages K-12 students in hands-on Robotics, and AI/ML projects.
- Block-based coding, curriculum-aligned, Project-based learning.
- Block-based assembly and programmable kit develops problem solving skills.

## STEMBOT

- Empowers students with AI and ML concepts via hands-on experiments.
- Easy to program, in-built with multiple sensors and actuators.
- Easy to program via GUI based Block Coding for multiple AI projects.



## STEAM Paper Circuit

- Teaches the basics of electronics with art and creativity.
- Encourages the exploration of electronics concepts among primary students.
- Safe, user friendly kit for crafting wonderful ideas around electronics.



# OUR IN-HOUSE DIY KITS



## Tinker 'N' Design

- Augmented Reality enabled 3D pen based prototyping kit.
- Ideal for primary students for 3D visualization.
- Ideal for training 2D to 3D modeling in math concepts.

## Mechatron

- Mechanical Construction kit suitable for children aged 6+.
- Teaches application of concepts like - force, friction, gear, motor, etc.
- 150+ parts, 20+ robotics projects, easy to assemble with guided manual.

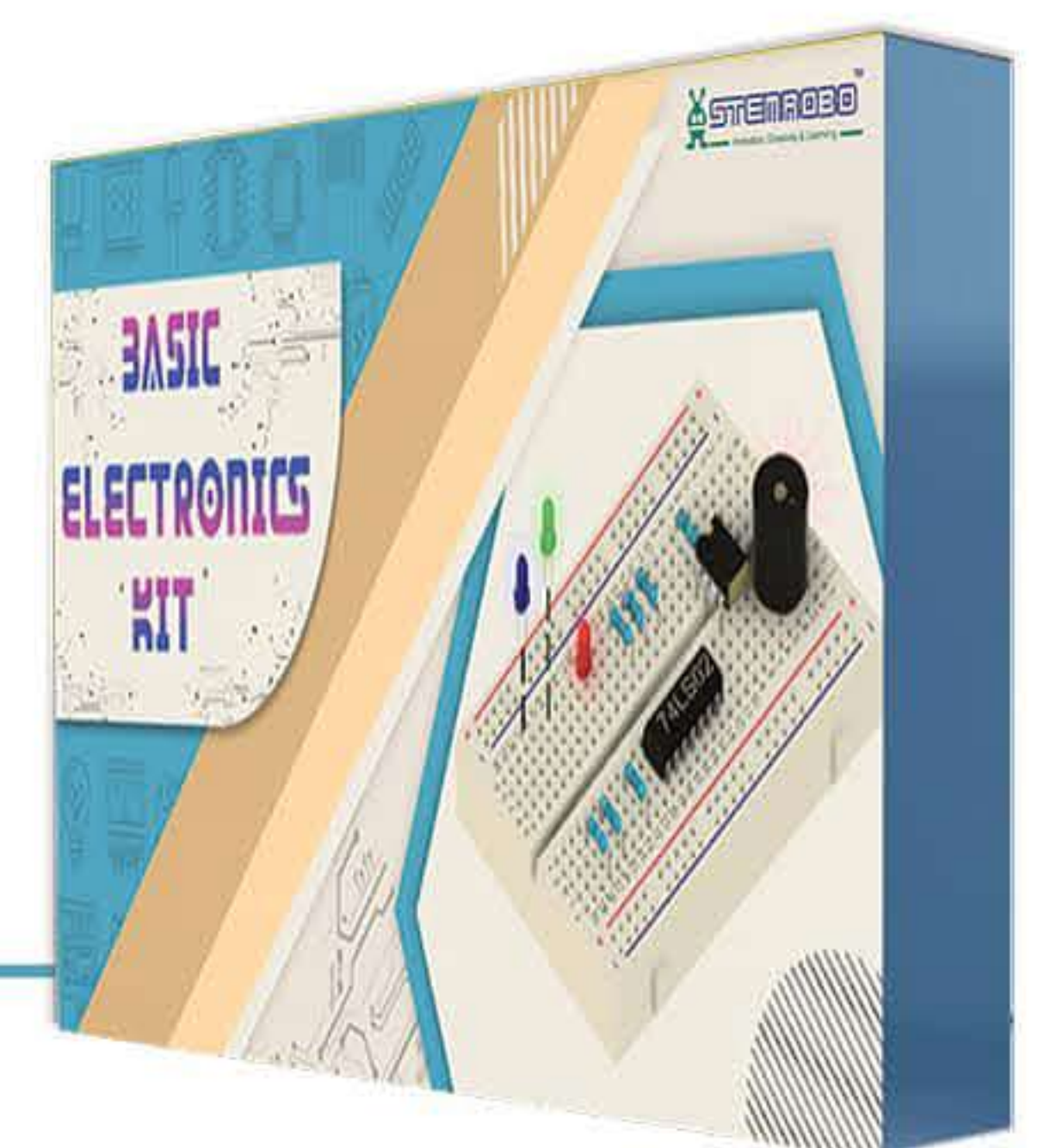


## Arduino Robotics Kit

- Prototyping kit suitable for exploration of electronics and programming.
- Encourages students for DIY projects and product development.
- Robust, reusable institutional kit supported by gamified coding platform.

## Basic Electronics Kit

- 50+ fun filled circuit combinations with reusable electronics components.
- STEM expert-curated content for fun and practical learning of electronics circuits.
- Enables solderless circuits, simulation and realtime prototyping.



## Smart Circuit

- Boundless creativity through 60+ DIY electronics projects.
- Specially designed magnetic modules for making learning fun.
- Easy-to-follow instruction manual for activity and project-based learning.



# OUR IN-HOUSE DIY KITS



## Pick & Place Tank

- Durable design with built-in gripper for hands-on learning.
- Used for pick & place activities and multiple competitions like Robo War.
- Visualize industrial automation through wireless programming.

## Arctic 3D Printer

- Enjoy hands-on learning with our DIY IoT ready Arctic 3D Printer.
- Unleash your creativity & imagination with enormous design possibilities.
- Transform student projects with professional 3D printed prototypes.



## Drone

- Easy to code, modular, open source drone for young learners.
- With DIY, experience the fun of building and learning the drone technology.
- Program your drone using GUI based IDE with sample projects.

## Fun Linker

- Enhances creativity for young learners with 240+ sticks & building blocks.
- Promotes hand-eye coordination, imagination, and logical thinking skills.
- Endless creative combinations teach spatial thinking & stimulate basic building techniques.



## Humanoid

- Pre-built commands for movement, dance, and storytelling.
- Easily programmable via remote control.
- A versatile educational humanoid robot.



# WHY STEMROBO ?

*First Company to Provide End-To-End Implementation Support for the K-12 Schools & Students.*

## Intuitive Methodologies

Content delivery using intuitive methodologies to maximize student's grasp over concepts.



## In-house R&D Team

Designs, develops and upgrades the innovative DIY kits and platforms.



## 200+ Engineers

Strong team of Innovation engineers and educators for on ground implementation support present across the country.



## Domain Expert

Engineers for conducting webinars, workshops and providing support for advanced - level projects and innovations.



## STEMROBO Learn

24x7 LMS support present with graded progressive curriculum for self paced learning to meet the need of every student.



## PAN India Presence

More than 3000+ schools are associated with us across India.



## Experiential Learning

Aim to nurture computational thinking with creative hands-on activities.



## Feedback Oriented

Our programs, curriculum and execution evolve with time and customer feedback.



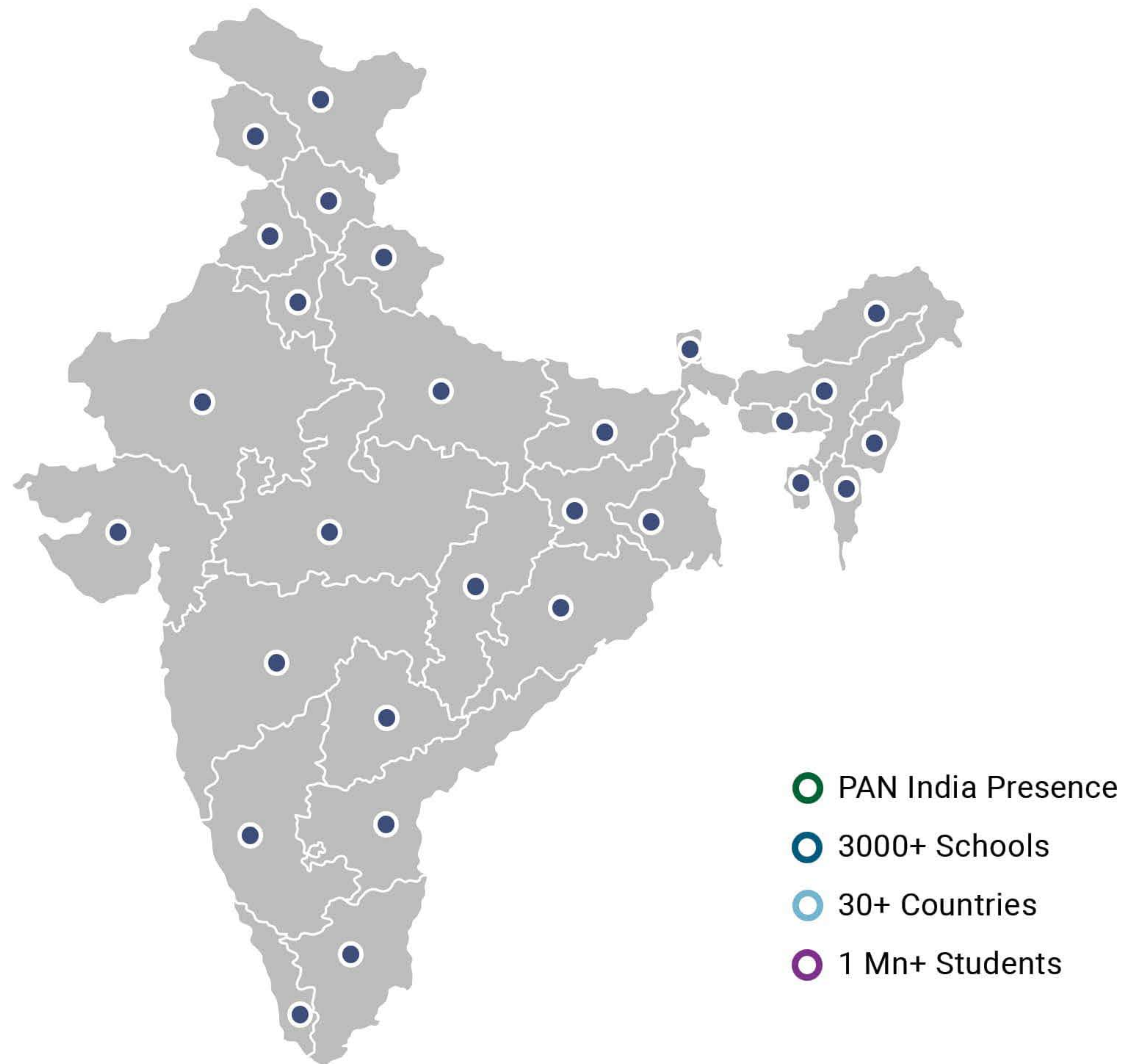
## Quality Tested

Deliver quality in lab equipment and services that is unmatched.





## Nationwide Presence



## Global Presence





## Our Associated Schools



& many more...

## Strategic Alliances & CSR Partnerships



& many more...



# HEAR FROM OUR ASSOCIATED SCHOOLS

## T E S T I M O N I A L S



**MRS. GEETA GANGWANI**

Principal

Bal Bharti Public School, Rohini

We have collaborated with STEMROBO to provide tinkering and innovation platforms to our students. AI Program has been running successfully in the school and students have been greatly benefitted by the best in class services provided by STEMROBO.

★★★★★



**MRS. JYOTI ARORA**

Principal

Mount Abu Public School, Delhi

STEMROBO team of experts have provided us with excellent technical support and their trainers assigned to our school were dedicated, energetic and committed. We would definitely recommend the team to other schools.

★★★★★



**MRS. SWARNIMA LUTHRA**

Principal

ASN Sr. Sec. School, Delhi

STEMROBO has an innovative, enthusiastic team that delivers what they promise by inculcating the same mindset in our students. I highly recommend them to everyone looking for STEM Education in their schools.

★★★★★



**MRS. ROOMA PATHAK**

Principal

M.M. Public School, Delhi

The dedication and expertise of Innovation Engineers from STEMROBO can be seen in their work as they never hesitate to walk the extra mile to deliver on their promise.

★★★★★



**DR. RICHA VERMA**

Headmistress

KIIT World School, Delhi

In the 4 years duration of our association with STEMROBO, we really want to appreciate their services and products. We want this association to be a long one.

★★★★★



**MR. KAUSTUBH OMAR**

Convener

ISSTF & Vibha Brahamavart

Thank you STEMROBO for joining and supporting us. Best wishes to your company, I believe your company will achieve more and more. You are the real meaning of STEM education.

★★★★★



# HEAR FROM OUR ASSOCIATED SCHOOLS

## T E S T I M O N I A L S



**SWAMI VIDYAMRITANANDA**

Principal

Ramakrishna Mission Vidyalaya, Tripura

STEMROBO training triggers inquisitiveness among students to innovate and solve real world problems. We highly recommend their services.

★★★★★



**MR. RAJEEV SHRIVASTAVA**

Coordinator

Sarasvati Vidya Mandir, Rambagh

STEMROBO is taking initiatives to help the kids to be innovative. Every effort is being done by this young energetic and enthusiastic team for the welfare of the young generation. They have provided excellent services to their beneficiaries.

★★★★★



**MRS. MINAKSHI KUSHWAHA**

Principal

Birla Vidya Niketan, Delhi

I highly admire the cooperation and program organizational skills of STEMROBO. They are doing a wonderful job.

★★★★★



**MR. ARUN GUPTA**

Principal

Doaba Public School, Hoshiarpur

"STEMROBO" Highly qualified team, we have got excellent service from the company. I am impressed with their teaching methodology to students & Teachers. I highly recommend to those schools who are looking for STEM Education or to introduce new technologies.

★★★★★



**MR. DANISH**

Coordinator

Ryan International School, Gujarat

STEMROBO is a highly motivated and enthusiastic brand. You can never make a mistake having business with them. A big thanks to team STEMROBO to setup the Innovation Lab In our school.

★★★★★



**KUNAL SHARMA**

Student

Innovation Lab has helped a lot in polishing my skills and giving me a platform to showcase my talent. All mentors were very helpful and supportive. I am thankful to them for helping me so much.

★★★★★



# OUR CORE TEAM



**ANURAG GUPTA**  
CEO & Founder



**RAJEEV TIWARI**  
CFO & Founder



**Anoop Gautam**  
Chief Business Officer



**Abhinav Gupta**  
Chief Operating Officer



**Saket Saurabh**  
IT-Director



**Divyajyoti Mishra**  
Subject Matter Expert



**Sandeep Gupta**  
School Partnerships



**Atul Mishra**  
Operations and Execution



**Kriti Sharma**  
School Partnerships



**Abdul Rashid**  
Accounts and Finance



**Anwar Warsi**  
Human Resources



**Avinash Mahato**  
Product Development



**Shivaang Sangal**  
Corporate Partnerships



**Rohit Kathuria**  
Partnerships & Alliances



**Suwan Kumar Ram**  
Partnerships & Alliances



**Akshit Jain**  
Curriculum and Methodology



**Shweta Gupta**  
Operations and Execution





**Jayesh Upadhyay**  
Operations and Execution



**Mohit Vyas**  
Operations and Execution



**Nikesh Sharma**  
Operations and Execution



**Vivek Kumar**  
Operations and Execution



**Shubham Rana**  
Operations and Execution



**Nitin Sharma**  
Operations and Execution



**Ashish Gupta**  
Operations and Execution



**Sourav Sarkar**  
Operations and Execution



**Subhash Kumar**  
Operations and Execution



**Sarvesh Naik**  
Operations and Execution



**Sourab K Shetty**  
School Partnerships



**Amarpreet Singh**  
School Partnerships



**RahulDev Sana**  
School Partnerships



**Akanksha Chaturvedi**  
School Partnerships



**Nidhi Yadav**  
School Partnerships



**Rajat Gupta**  
School Partnerships



**Salil Dalela**  
School Partnerships



**Supan Paul**  
School Partnerships



**Sagar Sharma**  
School Partnerships



**Alka Kumari**  
School Partnerships



**Dharmendra Kumar**  
School Partnerships



**Ankit Kumar**  
School Partnerships



**Srishti Sehgal**  
School Partnerships



**Saurabh Kumar**  
Software Development



**Malay Joshi**  
Innovation & Design



**Akanksha Rajput**  
Product Innovation



**Roopali Bhargudev**  
LMS Support



**Vipul Gupta**  
Procurement and Inventory



**Abhay Prasad**  
3D Printer Team



**Neha Jaiswal**  
B2C - Tinker Coders



**Shubham Gupta**  
Operations and Execution



**Apoorv Maheshwari**  
B2C - Tinker Coders



**Aala Subhani**  
B2C - Tinker Coders



**Divya Tewari**  
Branding & Marketing



**Sugandha Saxena**  
Creative Designer



**Shah Nawaz Warsi**  
Video Editor



# EVENTS



The Game Changers Coalition Workshop held at Indian International Centre, Delhi organised by UNICEF, wherein STEMROBO as Technical Partner.



Indian CSR Awards - 2022



Representing India at CeBit, Germany



Recognition by SIS founder & M.P.



Featured in "STARTUP NATION" on CNBC Awaaz



With industry Leaders at TIE Global Summit



Awarded at ELDROK India Summit 2019



STEMROBO Director Mr. Anurag Gupta has been invited to #IIT Kanpur as a guest speaker on #Robotics and #AI!



Education Excellence Conclave, held in Ahmedabad, India.



Indian ASEAN Startup Summit 2023 Malaysia



# MEDIA COVERAGE

**BW EDUCATION**

HOME NEWS K-12 HIGHER EDUCATION PARENT STUDENT VIDEOS EVENTS COMMUNITIES SUBSCRIBE TO PRINT

# StartUp-&Entrepreneur # Hospitality-Industry # Smartcities # Technology-Leaders # Advertising-&-Event-Industry

# Students scholarship India

## Stemrobo Expands Operations To Ghana, Establishes Tinkering Labs

The Company will be providing training in robotics, experiential learning, Stem education, IoT, and artificial intelligence to more than 3000+ students





14 April, 2022  
by BW Online Bureau

Print this article  
Font size 16

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**YOUR STORY** Your Story



This bootstrapped edtech startup has teamed up with schools to teach STEM-Robotics and nurture innovation

601d · 2 shares


Edtech startup STEMROBO aims to help students to learn, program, and experiment in the field of STEM-Robotics. It has tied up with 1,500 schools. Read all the latest updates on COVID-19 here.

Anurag Gupta and Rajeev Tiwari have been in the semiconductor and embedded industry for over 15 years. However, both felt the need for a venture that could come up with an India-centric solution for learning outcomes in the K-12 segment with innovative products, hardware, and software. In 2016, this led the duo to start Delhi-NCR-based STEMROBO.

**FINANCIAL EXPRESS**  
Read To Lead

INDIA NEWS INDUSTRY MARKET STOCK STATS HEALTHCARE MONEY AUTO TRANSFORMX SME BRANDWAGON WEB STORIES PODCAST



## STEMROBO expands operations to Ghana, establishes Tinkering Labs in over 50 schools



STEMROBO's engineers from India will be providing training to the local engineers and teachers.

STEMROBO Technologies, an Ed-Tech startup has expanded its footprint in Ghana with the establishment of Tinkering or Innovation labs in over 50 schools. The labs aim to provide training in robotics, experiential learning, STEM education, IoT, and artificial intelligence to more than 3000 students.

In its new venture in Ghana, STEMROBO's engineers from India will be providing training to the local engineers and teachers, both physically and virtually. According to the company, the establishment of innovative labs would provide the students the opportunities to develop computational and design thinking abilities, and a space to experiment, learn, develop and conceptualise different scientific ideas.

**Analytics Insight** INSIGHTS LATEST NEWS MAGAZINES INDUSTRY GEOGRAPHIES CRYPTO PRICES

## Exclusive Interview with Anurag Gupta, Co-Founder of STEMROBO Technologies

Market Trends  
February 24, 2022 · 6 mins read



EXCLUSIVE INTERVIEW WITH

**ANURAG GUPTA**  
CO-FOUNDER  
STEMROBO TECHNOLOGIES






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**Hans India** LATEST NEWS HYDERABAD CRICKET ENTERTAINMENT PHOTO STORIES

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## Education Technology Company Aimed To Instil Coding In Urban And Rural Sector

Susmita Modak  
Hans News Service | 17 May 2022 12:00 PM IST



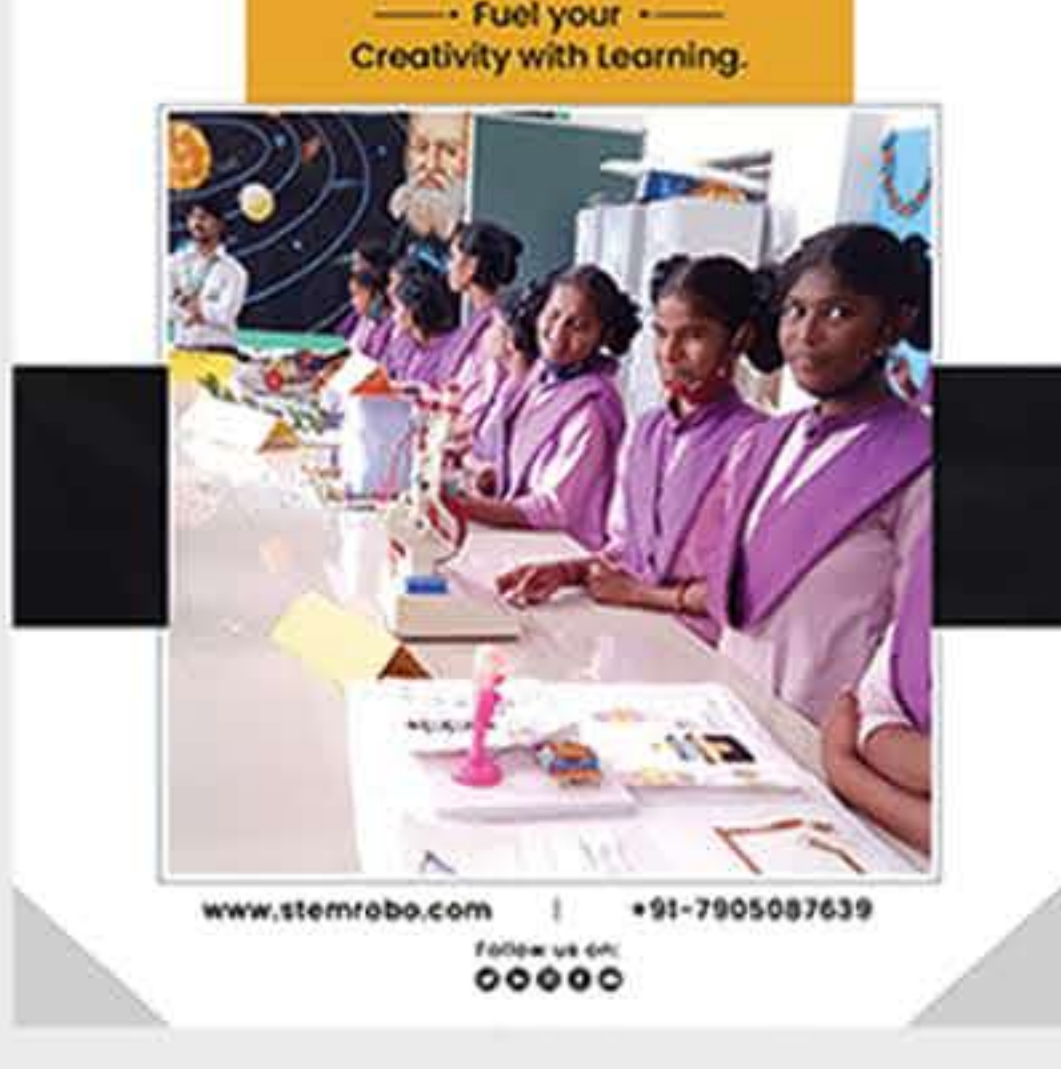
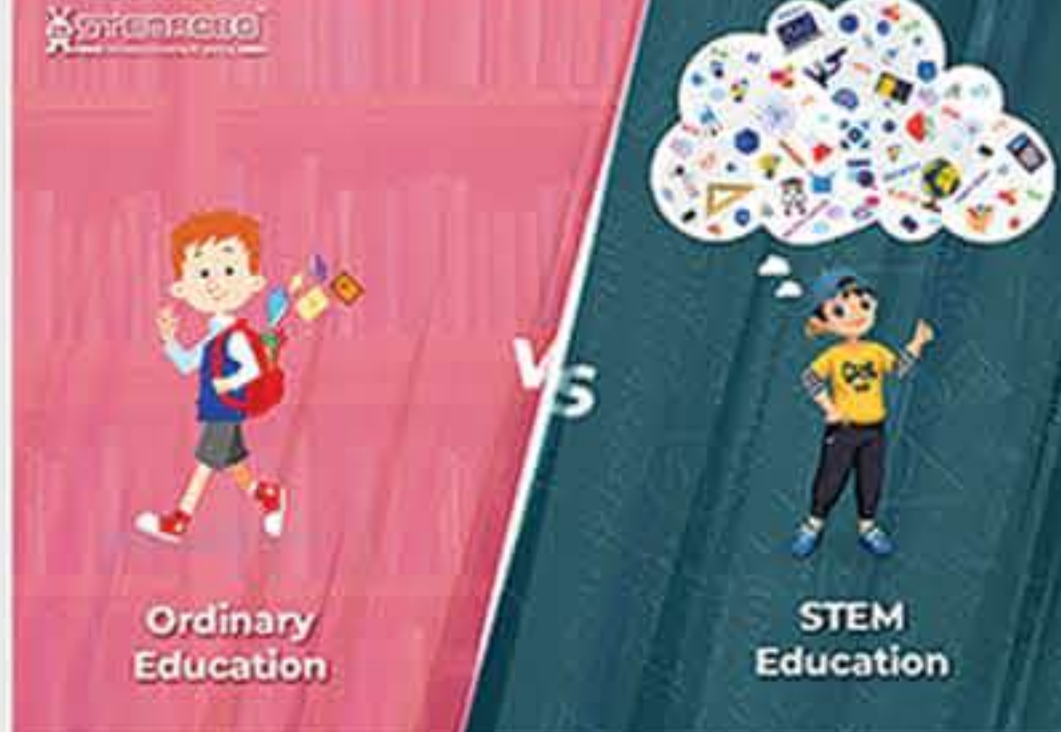
**HIGHLIGHTS**

- STEMROBO is an educational technology company that has been aiming to promote and instil coding in both urban and rural areas of the country.
- STEMROBO, founded in 2015 by Anurag Gupta and Rajeev Tiwari, has established innovation laboratories in over 1800 schools across India.

Education Technology Company Aimed To Instil Coding In Urban And Rural Sector

STEMROBO is an educational technology company that has been aiming to promote and instil coding in both urban and rural areas of the country.

STEMROBO, founded in 2015 by Anurag Gupta and Rajeev Tiwari, has established innovation laboratories in over 1800 schools across India. Furthermore, they have established over ten robotics laboratories in India and work with over ten lakh kids and teachers to foster and promote innovation and creativity in students from kindergarten to grade twelve.

## How remote proctoring is working for institutes

Colleges and platforms offering remote proctoring services are working towards developing fail-safe systems for online exams

Sonal Srivastava  
@timesgroup.com

Remote proctored exams have helped students take tests without compromising their health during the pandemic. However, given the technical limitations in several parts of the country, it has given rise to several challenges that include poor internet connectivity, limited smartphones and laptops, heightened anxiety on being monitored continuously and AI-related bias in identifying students. Remote proctoring is still at a nascent stage in India; institutes and proctored exam platforms are working towards evolving fail-safe systems for effective remote proctoring in the country.

"Some of the most common challenges are: Internet bandwidth and connectivity, lack of accessibility of devices (mobiles, computers, webcams), inability to understand the use of devices and technology, and the reluctance of stakeholders (students, college administrators)," says Siddhartha Gupta, CEO, Mercer Mettl.

According to Mercer Mettl State online Examinations Report 2021, 49% of respondents say that familiarity with processes is a challenge, while 45% say that access to devices is difficult, and 34% opine that stakeholders are reluctant in adopting the online exams.

Institutions including IIM-B, IIM-L, IIM-C, The Washington Center, Cambridge Assessments, Christ University, AIMA, IIT-M, Concord college, XJUEI, and

Sanjay Pater, director of examinations, SP Jain School of Global Management, says, "To circumvent problems faced during online exams, our students are advised to have adequate backup measures such as mobile hotspots and power backup to deal with electricity and internet failures."

Abhay Chebbi, pro-chancellor, Alliance University, Bengaluru, points out that one of the biggest challenges during remote proctoring is AI-related bias in facial recognition often based on ethnicity, and skin colour.

Since remote proctoring is evolving in India, the government has initiated various schemes to boost internet connectivity. "National Broadband Mission plans to provide broadband access to all villages by 2022. This will help students to undertake online examinations seamlessly by easing out the roadblocks during proctoring. In addition, the National Institute of Open Schooling (NIOS) is set to become India's first education board to offer board examinations online and will assess students through remote proctoring," says Milind Dahiya, dean, MBA programs, Times Professional Learning, emphasising on greater usage of human and Artificial Intelligence to mitigate privacy concerns during proctoring.

Privacy concerns  
Proctoring requires the audio and video feed of the candidate giving examina-

tion to be recorded and investigated by AI as well as human proctors. "The sanctity, credibility and integrity of the examination process are effectively maintained. All such metrics are used to generate the credibility index of a candidate. Additionally, professors and teachers can check the recordings post the examinations or check the generated detailed credibility reports and dashboards," says Gupta, explaining that the available remote proctoring tools in the market are hosted on secure cloud computing environments. "Data flowing through the systems are encrypted in transit. From time to time, system vulnerability and penetration tests are conducted to enhance the security and safety of client and stakeholder data," he adds.

**Exam Integrity**  
Integrity issue is the biggest challenge as authorities are coming across instances where a different candidate takes the exam or someone might sit in front of examinees, away from the camera, to help them cheat. "There is no fixed standard for proctoring available yet. Some proctoring tools use face recognition at the start of the exam and take a few random shots during the exam; some add screenshots of the window, and only some go for video proctoring with live screenshots. Students need to be educated prior to the exams about various systems," says Saket Saurabh, head, Software and Cloud Solutions, STEMROBO Technologies.



# STEMROBO IN ACTION





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