



OPG World School Dwarka Sec - 19

NEWSLETTER

ROBOT & ROBOTICS

JULY 2026

SUMMARY



About
Robotics



First
Robot



Utilities &
Application of Robot



Some
Advance Robot

WHAT IS ROBOT ?

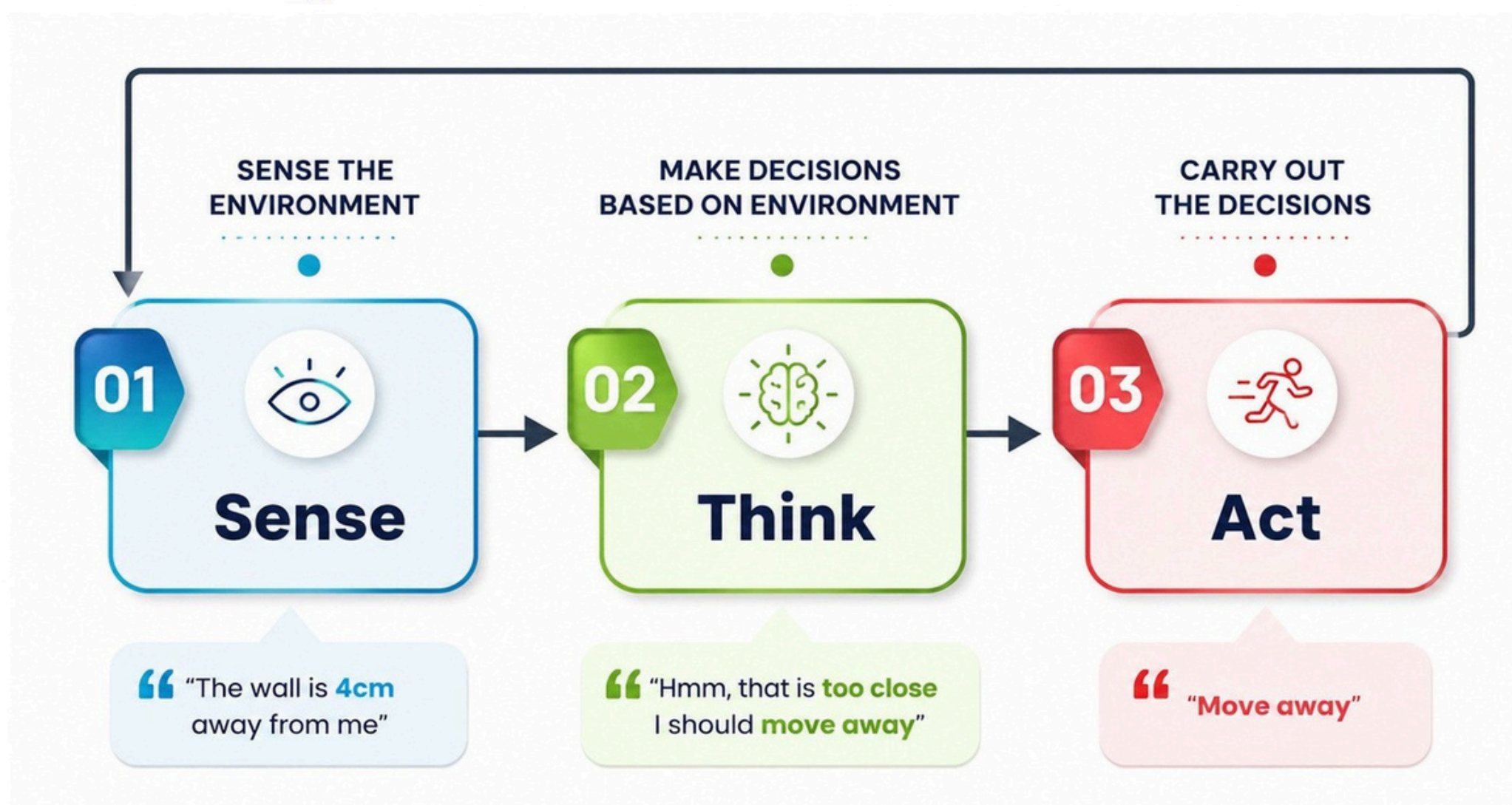
A robot is a mechanical or virtual artificial agent designed to perform tasks autonomously or semi autonomously, typically with programmable actions. It can be a physical machine composed of various components, such as sensors, actuators, processors, and power sources, or it can exist purely as software running on a computer system. Robots are built to interact with their environment and carry out specific tasks, often with greater precision, speed, and efficiency than humans.



Robots can be found in a wide range of applications and industries, including manufacturing, healthcare, space exploration, transportation, agriculture, and entertainment. They can take on various forms, from humanoid robots that resemble humans in appearance and movement to specialized machines designed for specific tasks, such as robotic arms in assembly lines or autonomous drones for aerial surveillance.

Advancements in robotics have led to the development of more sophisticated and intelligent robots capable of adapting to changing circumstances, learning from their experiences, and interacting with humans in more natural ways. These robots often incorporate AI (Artificial Intelligence) techniques, including machine learning and computer vision, to enhance their capabilities and decision-making.

ROBOT OPERATION (SENSE › THINK › ACT)



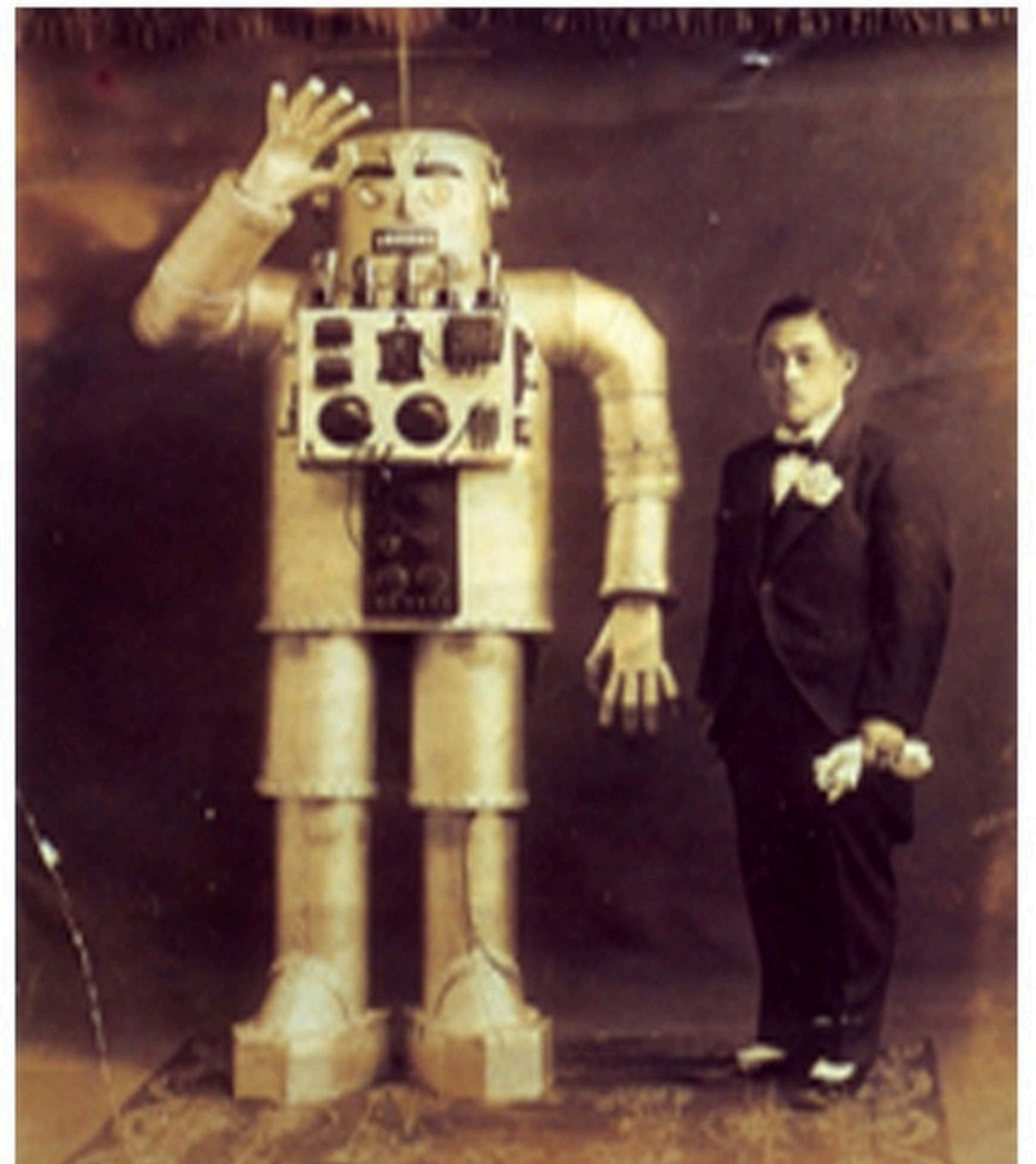
ABOUT ROBOTICS

Robotics is the interdisciplinary field that encompasses the design, development, operation and study of robots. It combines principles from various disciplines such as computer science, engineering (mechanical, electrical and software), mathematics and physics to create intelligent machines capable of performing tasks autonomously or with human guidance.



FIRST ROBOT

Unimate was an industrial robot designed to perform repetitive tasks on an assembly line. It consisted of a mechanical arm that could be programmed to perform various actions, such as welding, lifting, and stacking objects. Unimate was first installed at the General Motors plant in New Jersey, United States, in 1961. Its introduction revolutionized the manufacturing industry and paved the way for the widespread use of industrial robots.



Another early example often cited as one of the first robots is "Shakey the Robot," developed at the Stanford Research Institute (now SRI International) in the late 1960s. Shakey was a mobile robot equipped with a camera, sensors and a computer. It was capable of perceiving its environment, planning its actions and navigating through a room with obstacles.

These early robots set the foundation for further advancements in robotics. Since then, the field has grown exponentially with numerous robots being developed for a wide range of applications and industries.

UTILITIES & APPLICATION OF ROBOT

Robots have a wide range of utilities and applications across various industries and domains. Some of the common utilities of robots include:

- **Manufacturing and Industrial Automation:** Robots are extensively used in manufacturing industries for tasks such as assembly, welding, painting, packaging, and quality control. They can work with precision, speed, and consistency, leading to increased productivity and efficiency.
- **Healthcare and Medical Assistance:** Robots are employed in healthcare settings for tasks like surgery, rehabilitation, patient assistance and drug dispensing. Surgical robots can offer greater precision, minimally invasive procedures and improved outcomes. Assistive robots help individuals with disabilities or the elderly with daily tasks and mobility.
- **Exploration and Space:** Robots are utilized in space exploration to conduct research, gather data, and perform tasks that are challenging or dangerous for humans. Robotic rovers such as Mars rovers have been deployed to explore and analyse the surface of other planets.
- **Agriculture and Farming:** Agricultural robots are also known as agree-bots or farm-bots. These used for tasks such as planting, harvesting, monitoring crops, and applying fertilizers and pesticides. They can improve efficiency, reduce labour costs, and optimize crop yield.
- **Logistics and Warehousing:** Robots play a vital role in logistics and warehousing operations. Autonomous robots can navigate warehouses, pick and pack products, and transport goods, enhancing speed and accuracy in supply chain management.



ADVANCE ROBOT

HONDA ASIMO

Honda Motor Corporation's Asimo, with its humanoid appearance and ability to walk and climb stairs, has been dubbed the world's most advanced robot. Yet during the crisis at the Fukushima nuclear power plant, there was surprise that this triumph of Japanese robotic engineering wasn't deployed in the reconnaissance and clean-up operation.



NAO ROBOT

Nao is available as a research robot for schools, colleges and universities to teach programming and conduct research into human-robot interactions.

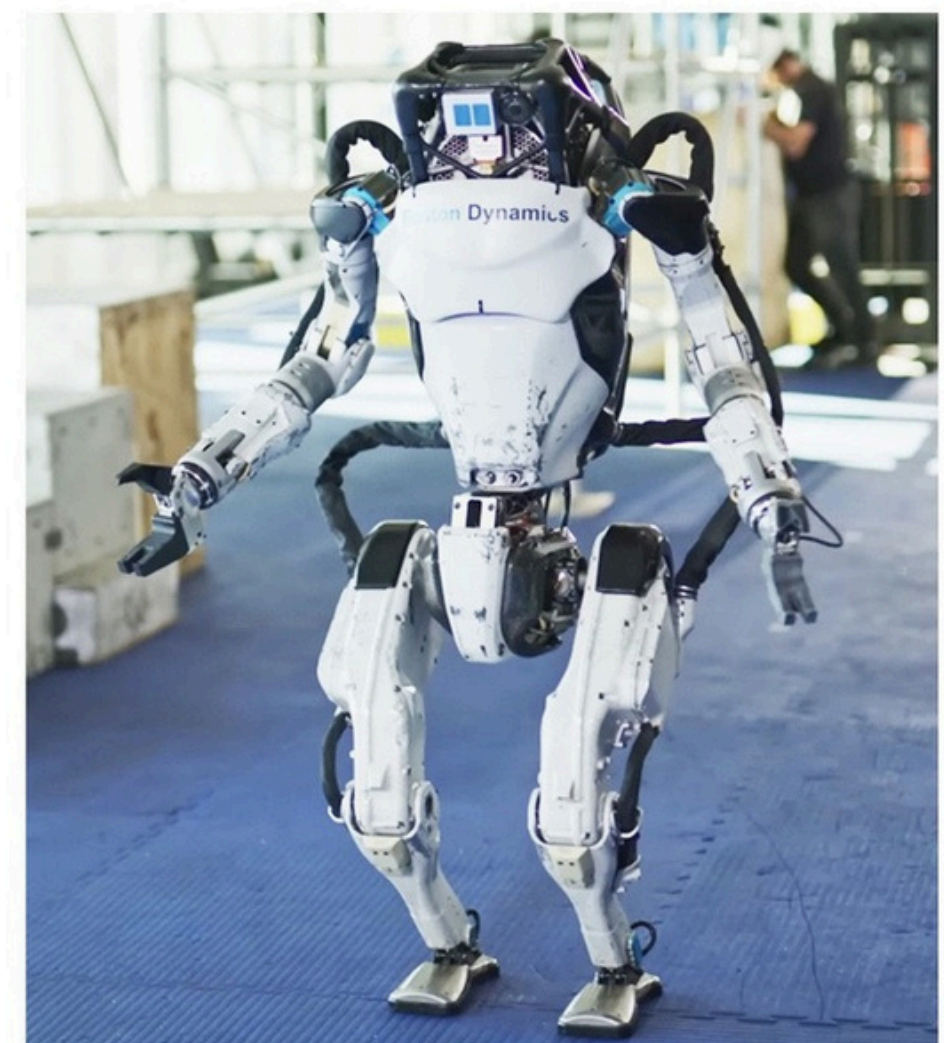
In August 2018, Robot-LAB released an online learning platform for schools that enhance the use of NAO for STEM, Coding and Engineering.



ATLAS ROBOT

Atlas is a bipedal humanoid robot primarily developed by the American robotics company Boston Dynamics with funding and oversight from the U.S. Defense Advanced Research Projects Agency (DARPA).

The robot was initially designed for a variety of search and rescue tasks and was unveiled to the public on July 11, 2013.



ABOUT

STEMROBO TECHNOLOGIES



STEMROBO Technologies Pvt Ltd is an Indian company that provides education and training services in the field of STEM (Science, Technology, Engineering, and Mathematics) and robotics. The company's aim is to promote hands-on learning and innovation among young students by providing them with educational kits, training programs, and workshops.

Stemrobo Technologies Pvt Ltd offers a range of products and services, including robotics kits, coding kits, and educational software. The company's products are designed to be user-friendly and provide a fun and engaging way for students to learn about STEM subjects. In addition to its educational products, Stemrobo Technologies Pvt Ltd also conducts workshops and training programs for students, teachers, and educational institutions. These programs are designed to help participants learn the basics of robotics and coding, and develop their skills in these areas.

Importance of STEM Education for Kids

The term "STEM" typically refers to a group of academic disciplines that are focused on science, technology, engineering, and mathematics. It prepares them for the future by building problem-solving skills, encouraging curiosity and exploration, fostering collaboration and communication skills, and addressing global challenges that require STEM principles for their solution.



STEMROBO TECHNOLOGIES

Innovation, Creativity & Learning

STEMROBO provides 'End-To-End Solution to K-12 Schools' for 'Nurturing Innovation & 21st 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.

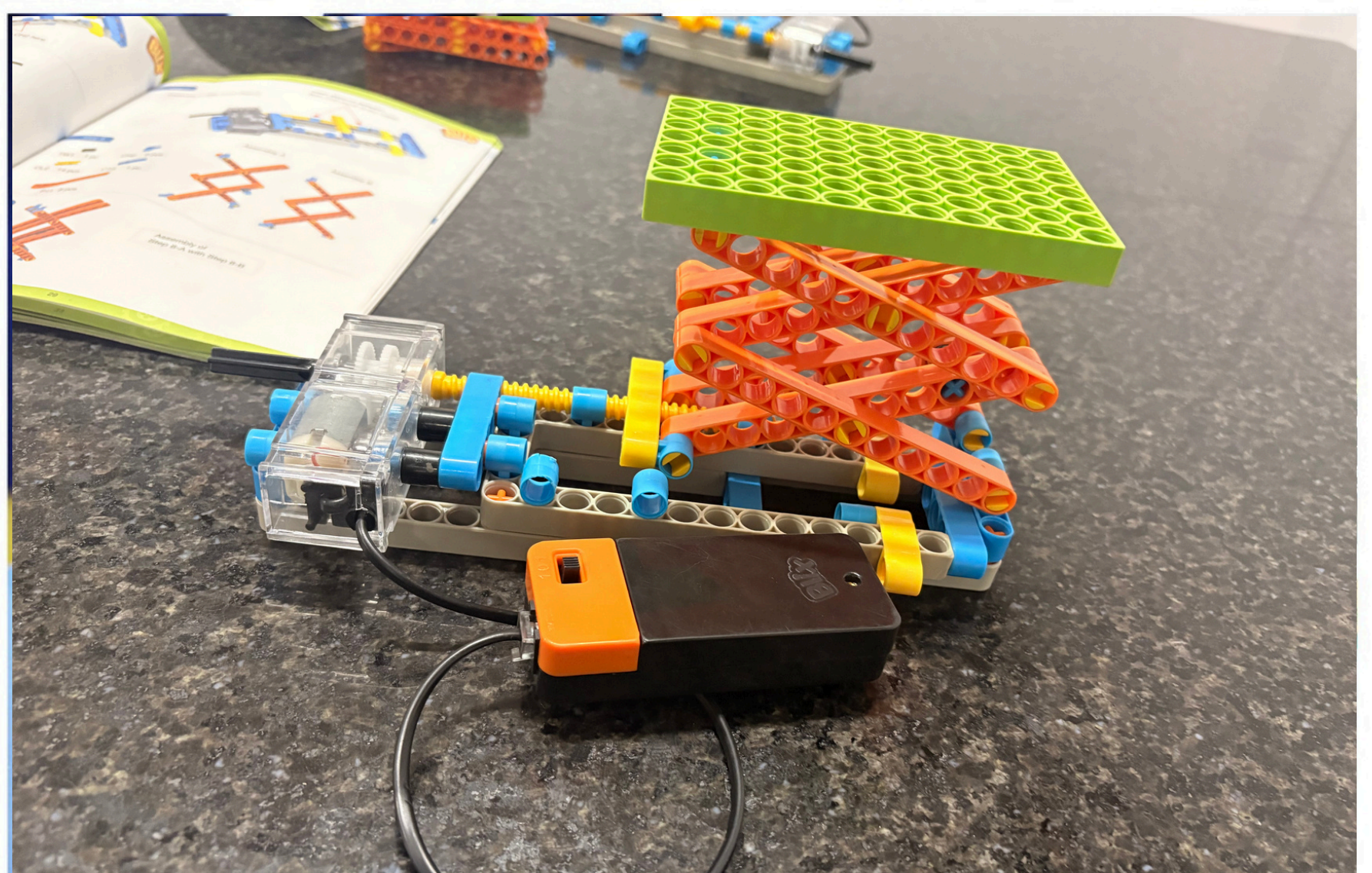
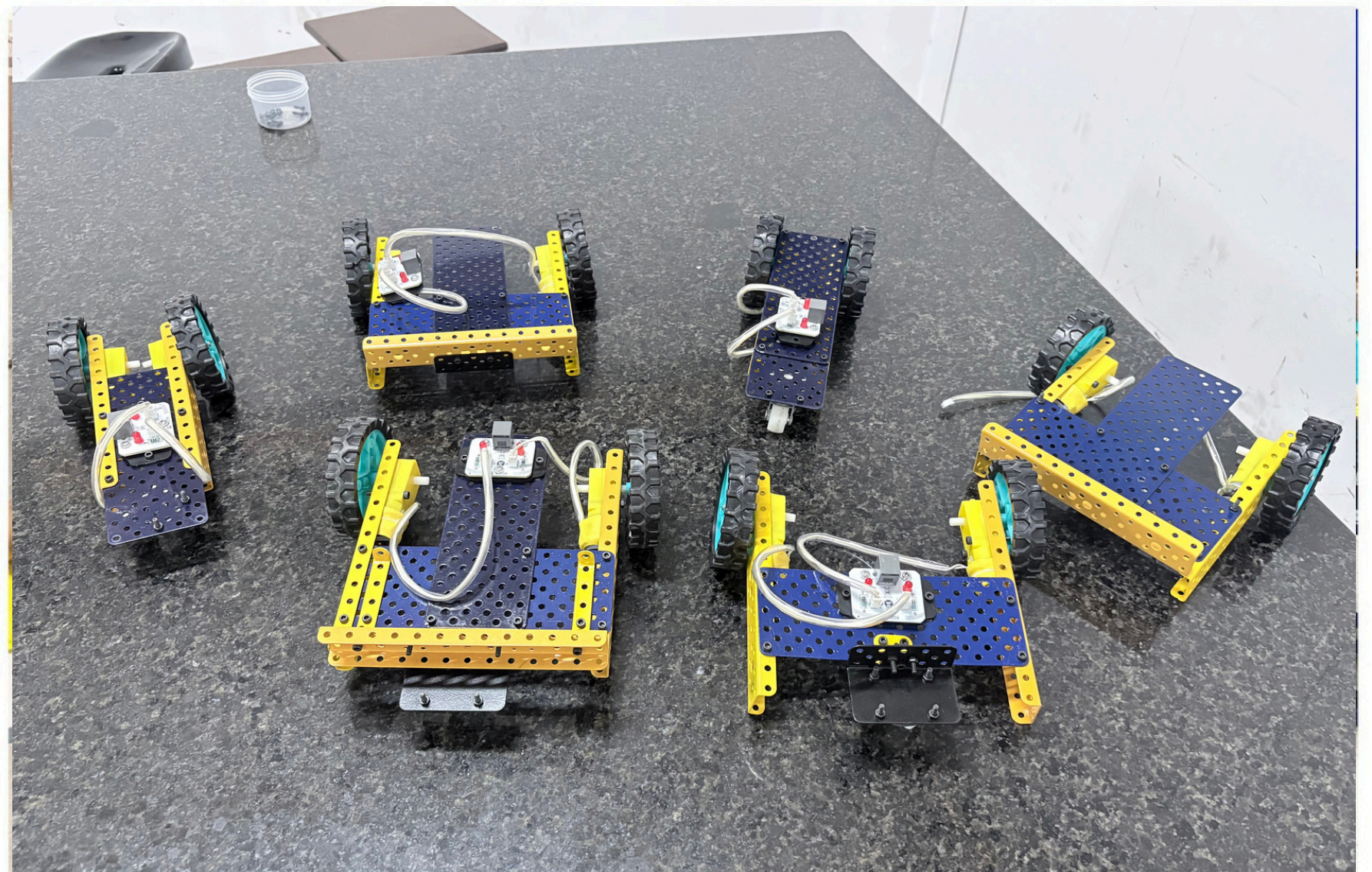
www.stemrobo.com

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 21st 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**.



About Robotics Lab



The Robotics Lab is a special workspace where students can learn, try new things, and turn their ideas into real working models. It is built to spark creativity and go beyond just memorizing lessons - encouraging students to explore modern skills like designing, thinking logically, learning through experience, and understanding artificial intelligence.

The lab is packed with advanced tools and equipment such as 3D printers, robotics kits, and electronic parts, giving students a practical, hands-on way to learn science, technology, engineering, and math (STEM). The main aim is to help students develop strong problem-solving and critical thinking skills from a young age. By supporting experimentation and new ideas, the lab hopes to inspire the next generation of creators and entrepreneurs, getting them ready for future opportunities and helping push India's technology and innovation forward.



E-Waste Recycling: Less than 20% of the world's e-waste is formally recycled.

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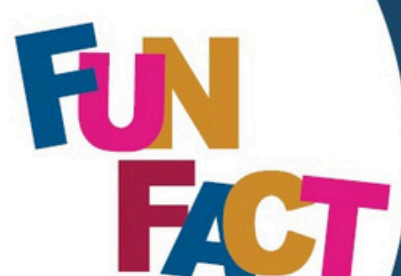
GLIMPSE OF ACTIVITIES

Class 3rd

- Students did an practical activity on basic construction kit & build a power pressing machine.
- By doing this activity students learn about how pressing machine works.
- Students learn about how to glow led in basic electronics kit.
- They further learn about the concept by watching a vedio on how to build a Led Glow machine.

Activity

- Led Glow Activity by using basic construction kit.
- fan moving using basic construction kit.



Food Waste: If food waste were a country, it would be the third-largest greenhouse gas emitter.

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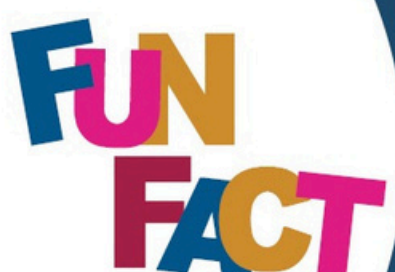
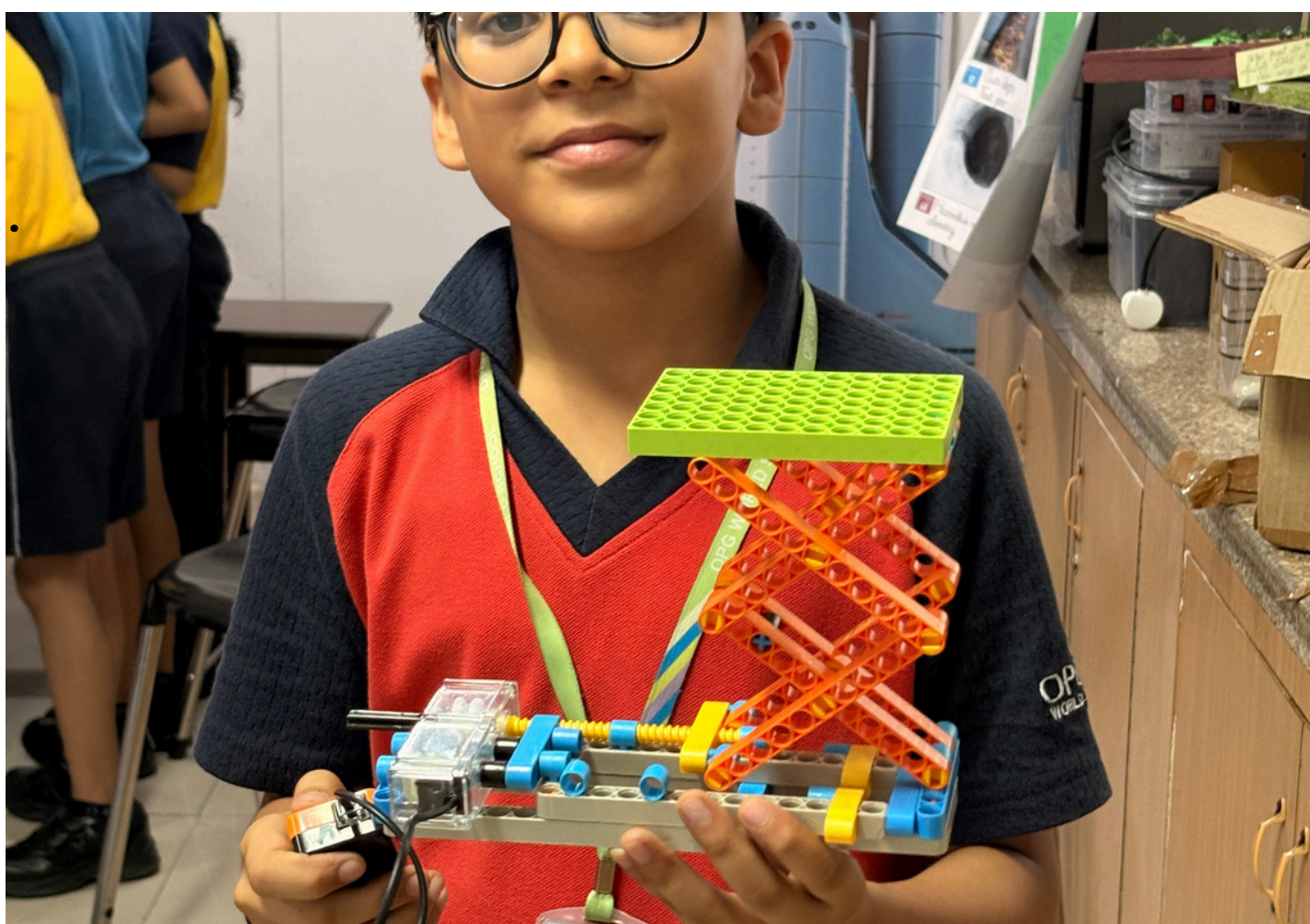
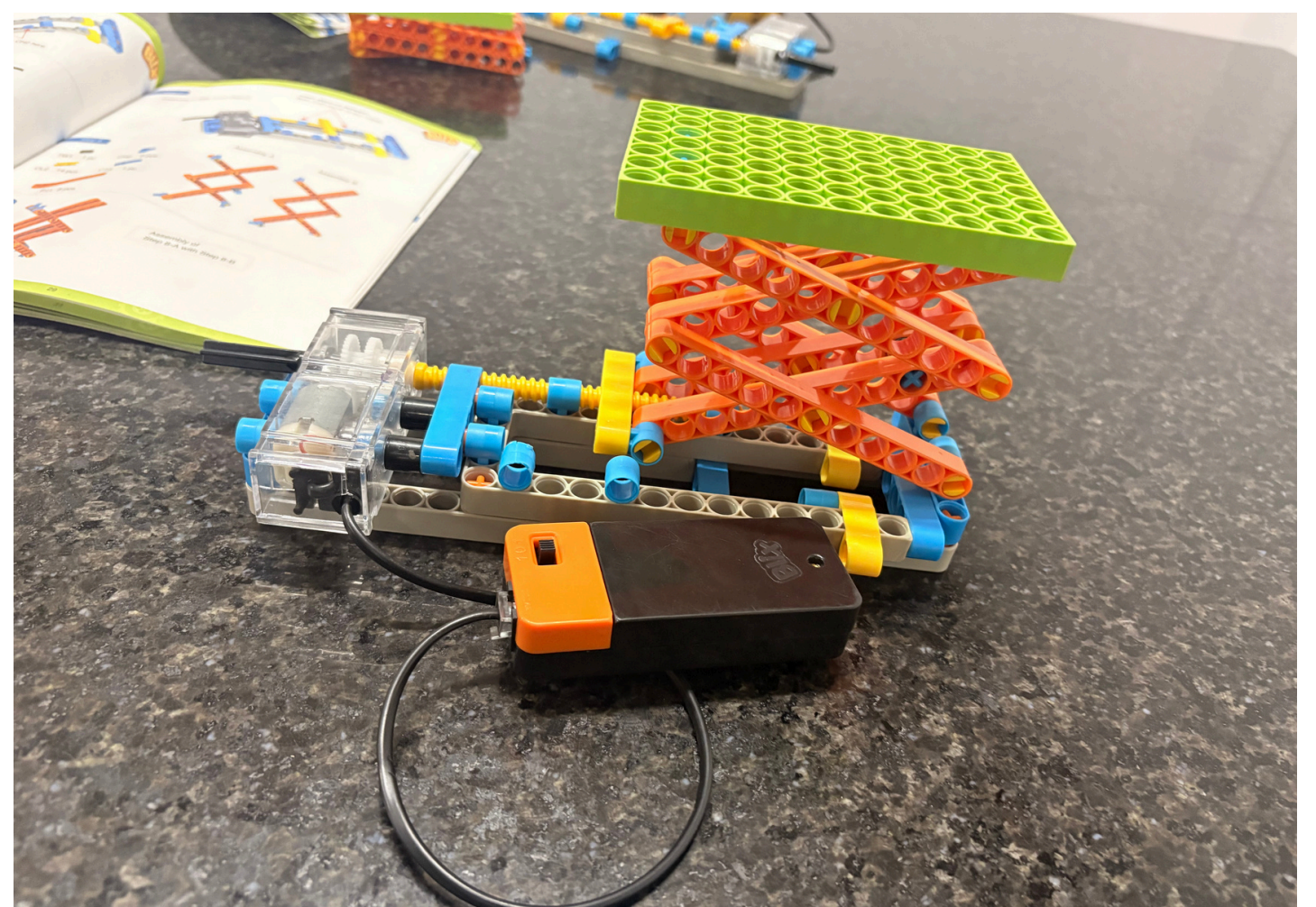
GLIMPSE OF ACTIVITIES

Class 4th

- Students did an practical activity on basic construction kit & build a power pressing machine.
- By doing this activity students learn about how pressing machine works.
- Students did an practical activity on basic construction kit & build a power pressing machine.
- They further learn about the concept by watching a vedio on how to build a machine.

Activity

- Power Pressing Machine by using basic construction kit.
- Scissor Lift Machine by using basic construction kit.



Fashion Industry Impact: The fashion industry is responsible for 10% of global carbon emissions.

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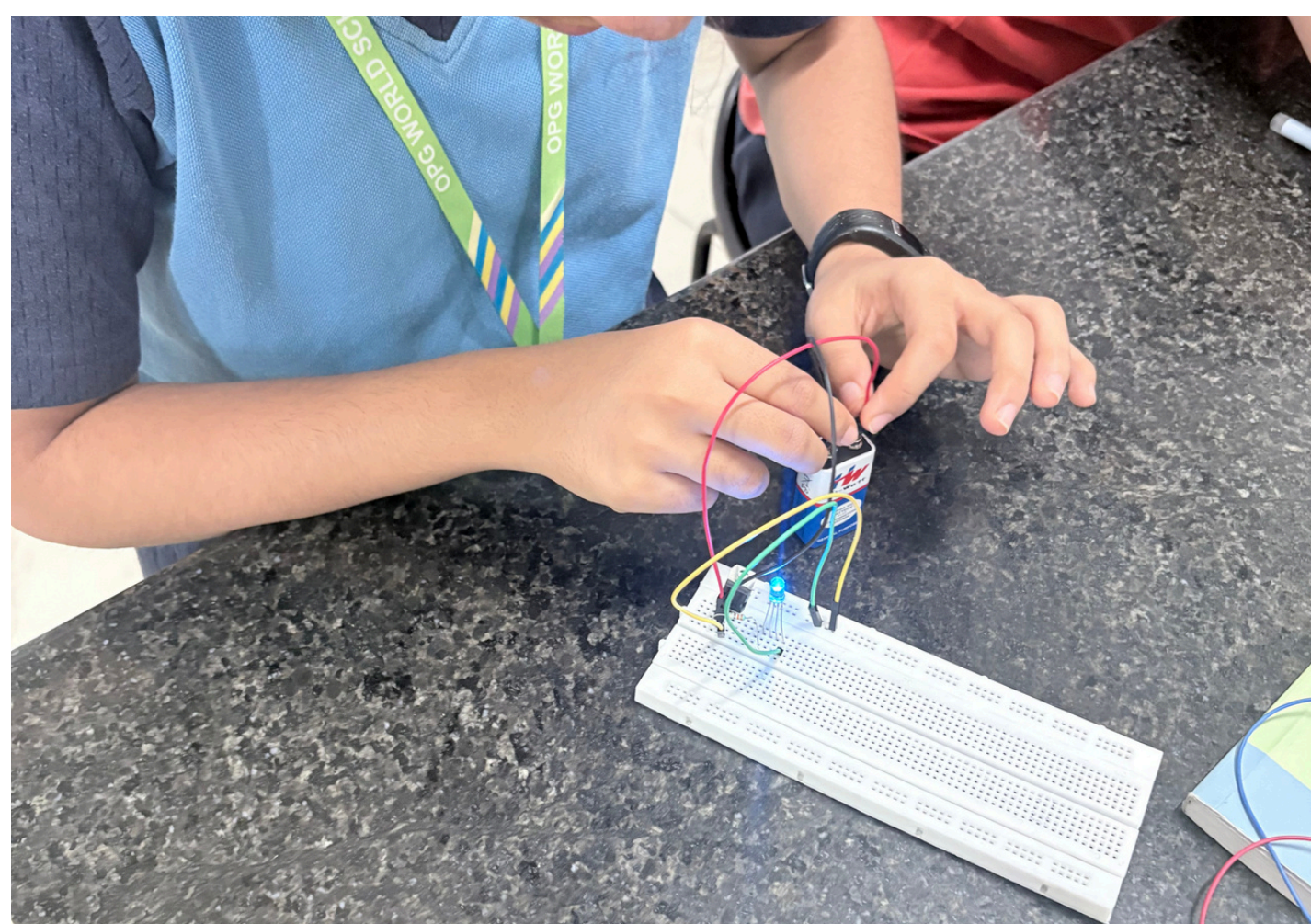
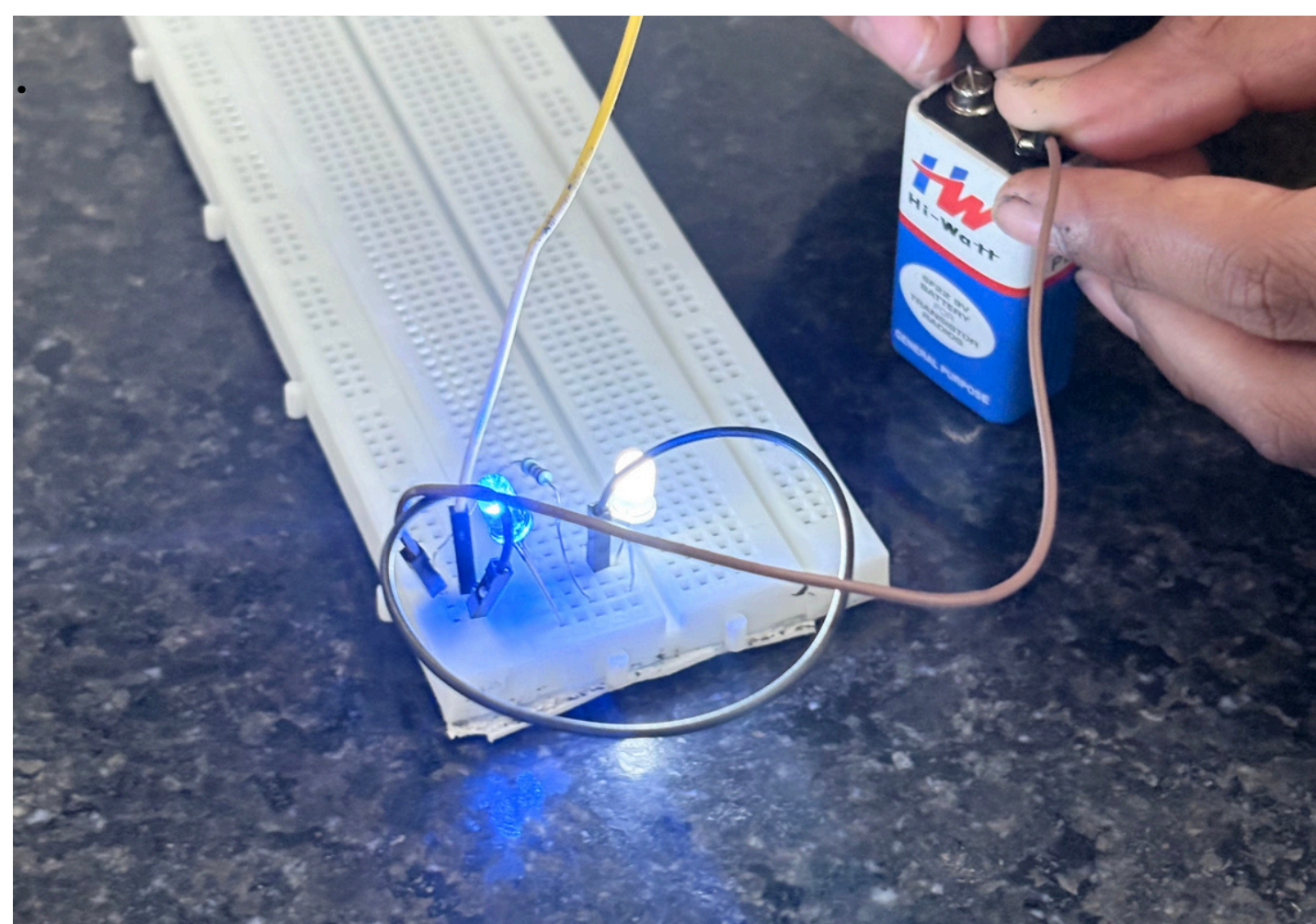
GLIMPSE OF ACTIVITIES

Class 5th & 6th

- Students learn about breadboard, & how to connect components in a bread board.
- By doing this activity students learn about how electricity flow in different component.
- Students did an practical activity on basic electronic kit & build a circuit.
- They further learn about the concept by watching a video on how to work on electronics.

Activity

- led glow using basic electronics kit.
- RGB led glow using basic electronics kit.



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Renewable Energy Potential: Solar energy can power the entire world's electricity needs with just 0.3% of the Earth's land.

**FUN
FACT**

JULY 2026

GLIMPSE OF ACTIVITIES

Class 7th & 8th

- Students worked on building projects like smart parking system.
- By doing this activity students learn about how to connect different electrical components together.
- Students did an hands on activity on soldering Iron kit, & after learning it they did an hands on soldering.
- They further learn about the concept by watching a video on how to work on electronics.

Activity

- Hands on activity on Soldering kit.
- Smart Parking system building.



Plastic Bags: A single plastic bag can take up to 1,000 years to degrade.

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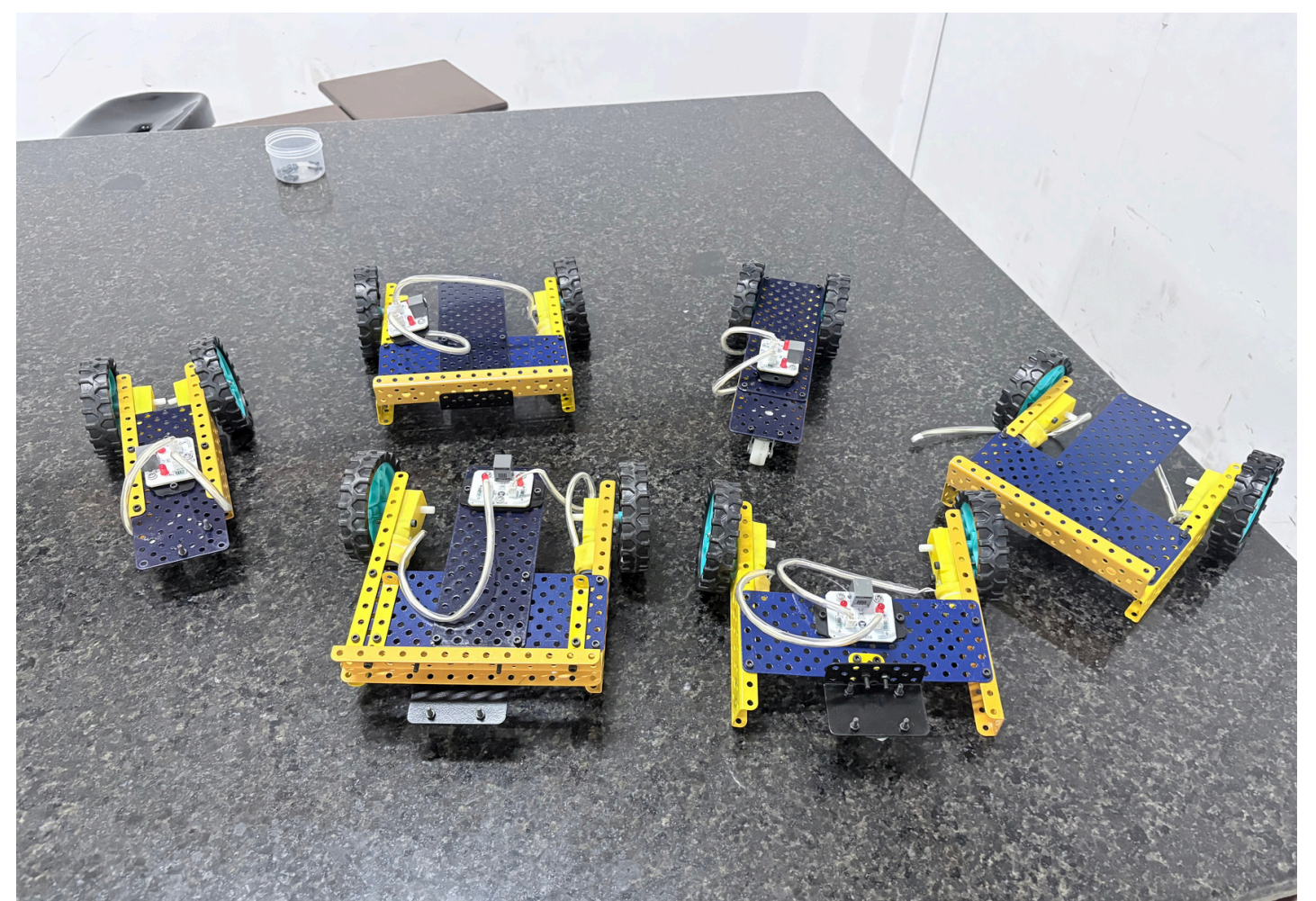
GLIMPSE OF ACTIVITIES

Class 9th & 10th

- Students worked on building robo car using Mechatronic Kit.
- By doing this activity students learn about how to construct car for competitions.
- Students did an hands on activity on mechatronic kit by building robo car for robo race & robo soccer.
- They further learn about the concept by watching a video on how to work on electronics.

Activity

- Building of car using mechatronic kit.
- Building of robo soccer car using mechatronic kit.



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GLIMPSE OF ACTIVITIES

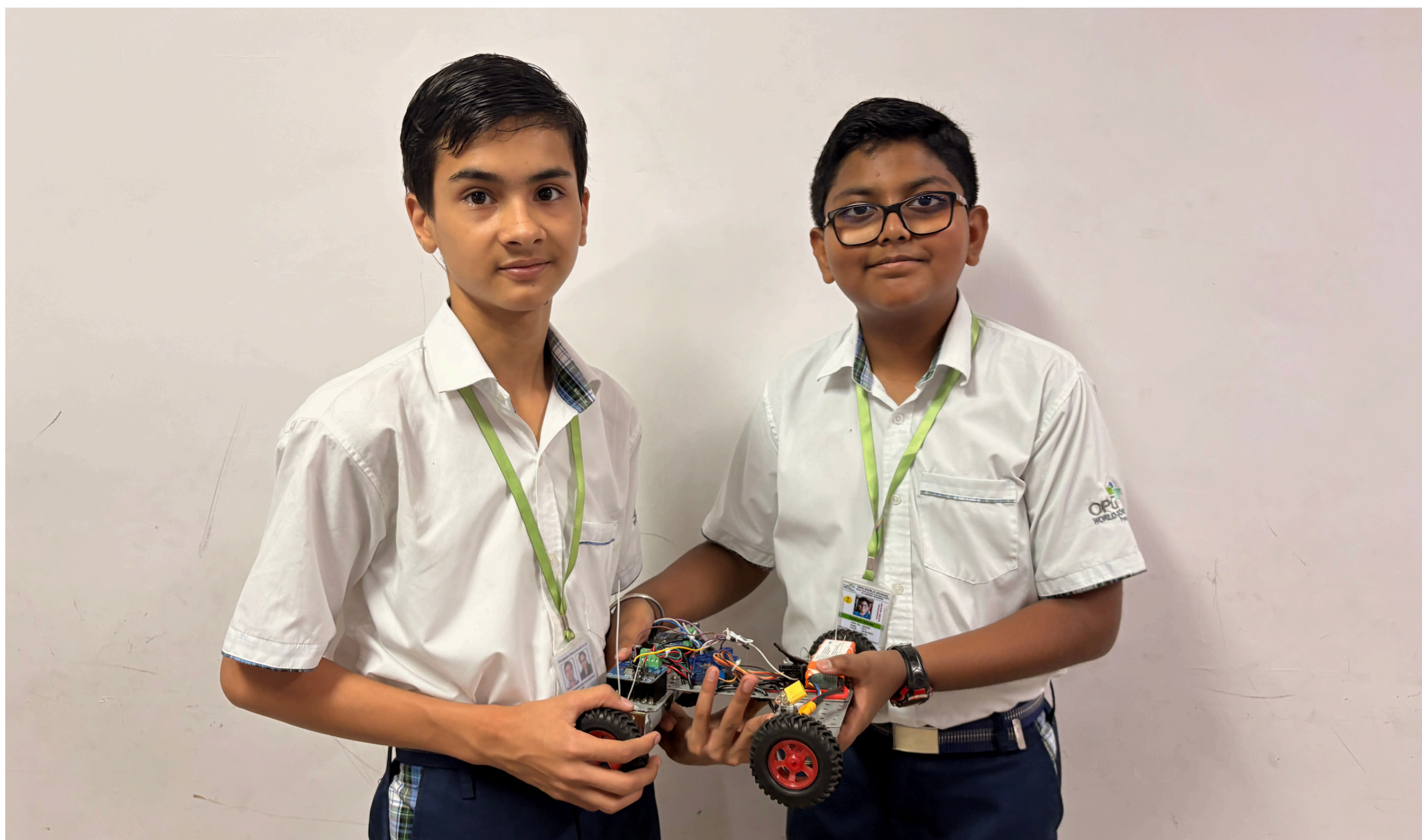
Class 10th robo Soccer competition among students



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GLIMPSE OF ACTIVITIES

Students Participated in Math Bot (2nd position)



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Circular Economies: These systems focus on reusing and recycling materials, aiming to eliminate waste.

**FUN
FACT**



THANK YOU



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