

JM International School Dwarka

NEWSLETTER

ROBOT & ROBOTICS

JULY
2026

SUMMARY

- About Robotics
- First Robot
- Utilities & Application of Robot
- Some Advance Robot

STEMROBO™
Innovation, Creativity & Learning

WHAT IS

ROBOT ?

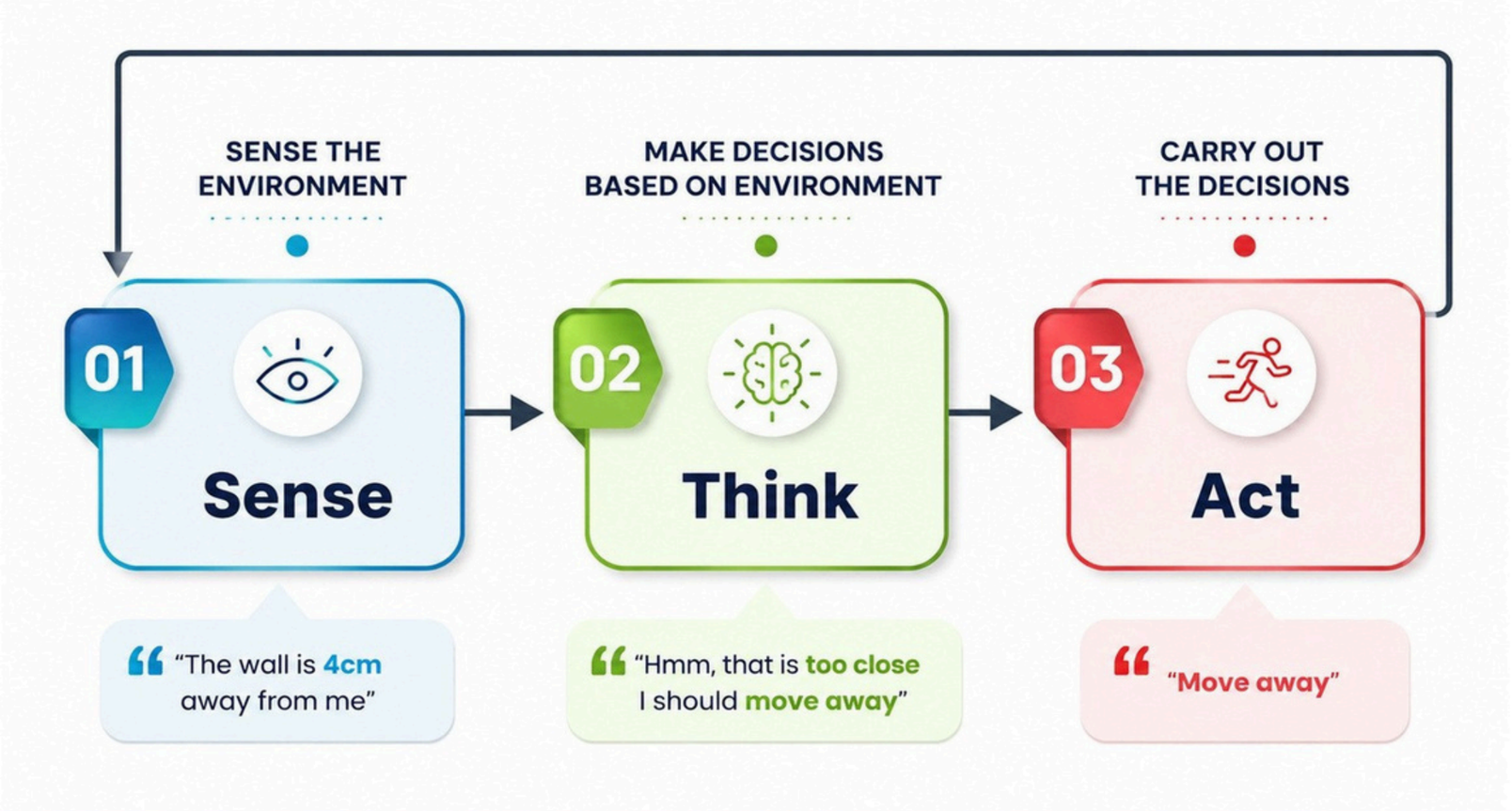


A robot is a mechanical or virtual artificial agent designed to perform tasks autonomously or semi autonomously, typically with programmable actions. It can be a physical machine composed of various components, such as sensors, actuators, processors, and power sources, or it can exist purely as software 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)



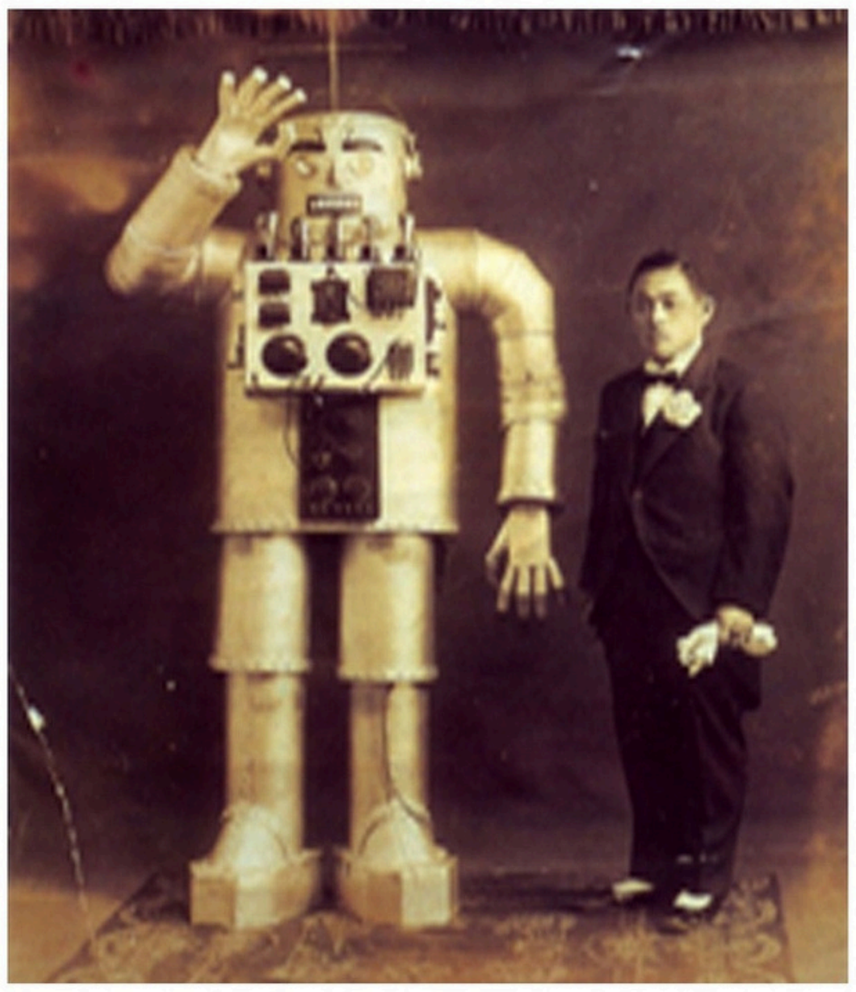
ABOUT

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.

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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

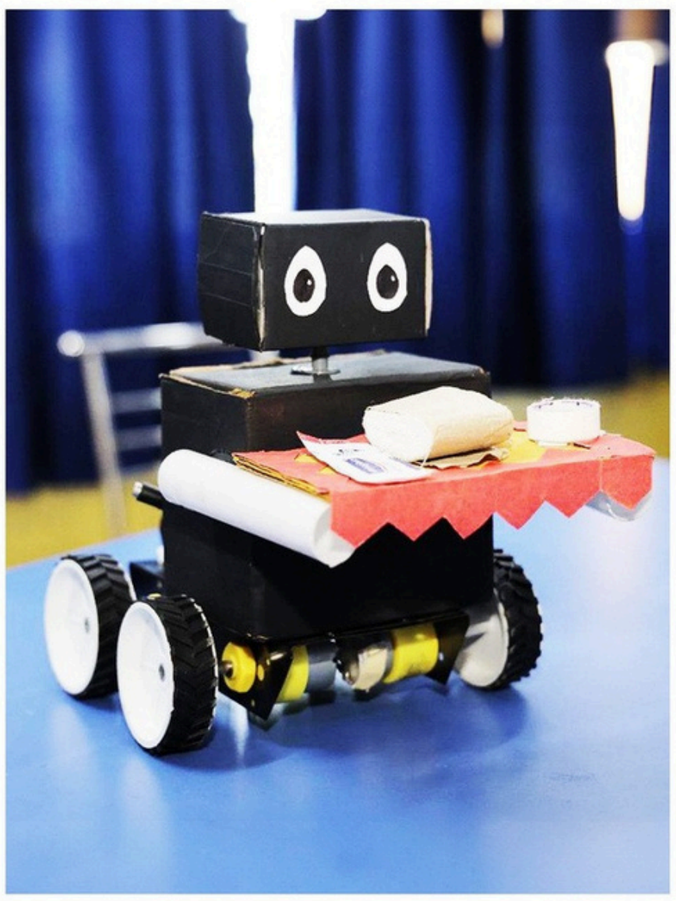
Mission

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.

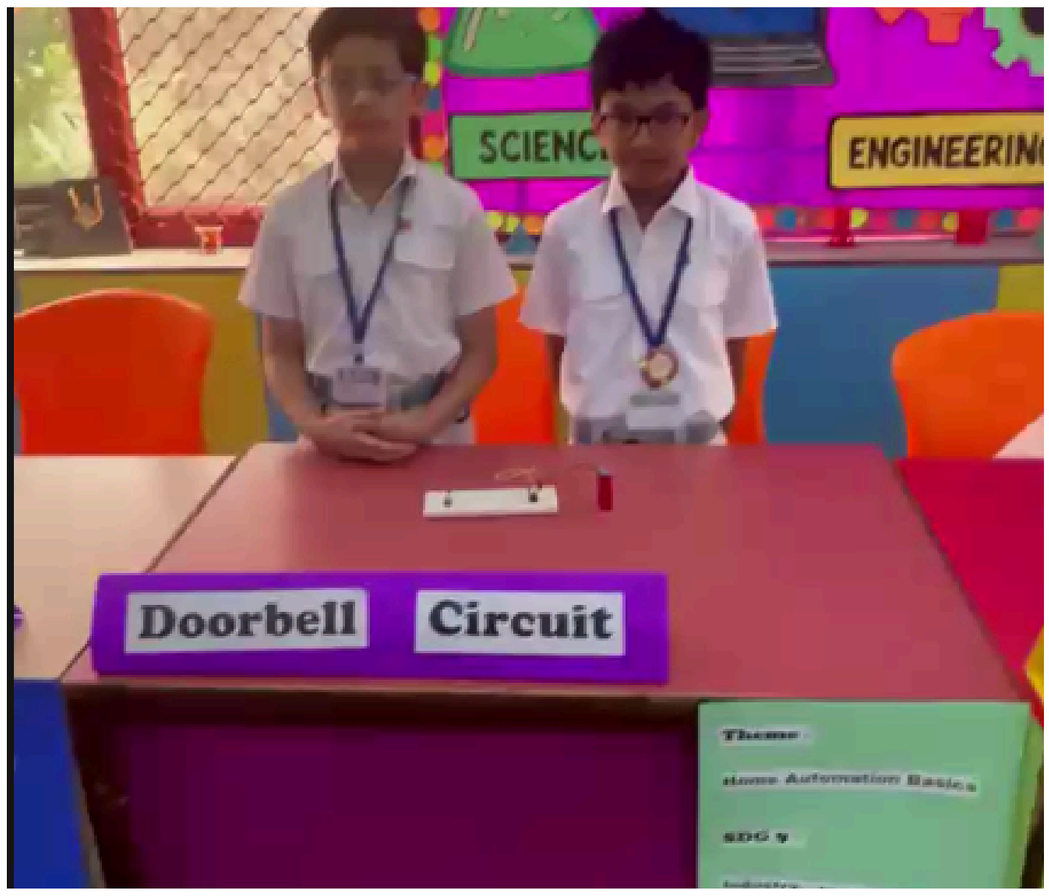
ROBOTIC FUN FACT

Sophia, a famous humanoid robot, became the first robot to be granted citizenship in Saudi Arabia in 2017.

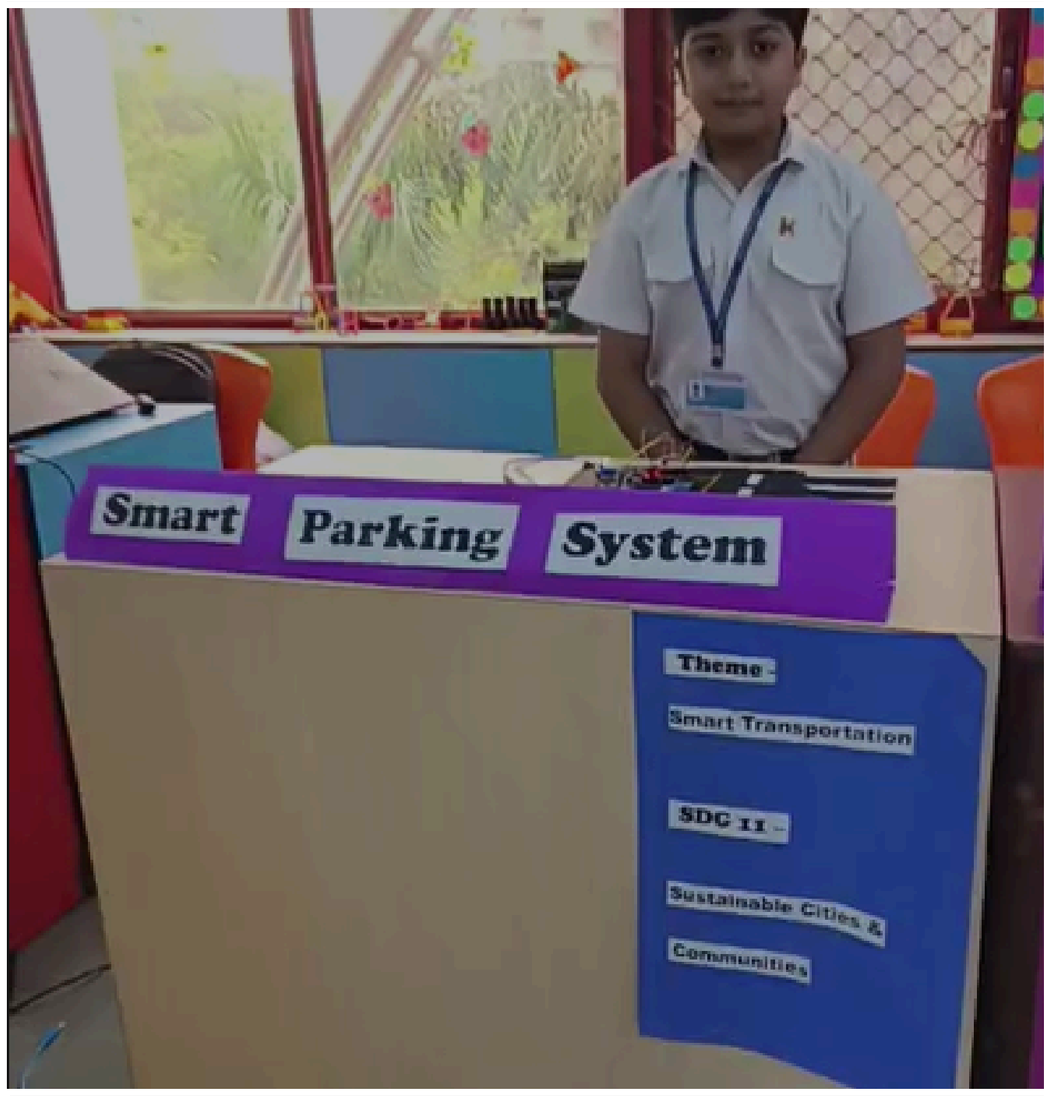
GLIMPSE OF PROJECTS

Classes (IV - VIII)

- Conducted a hands-on Electronic Doorbell Circuit activity, helping students understand basic electrical circuits and the working of a push-button and buzzer.



- Guided students in designing and presenting a Smart Parking System model to demonstrate automation and efficient parking management.



- Demonstrated a Traffic Light Model to explain traffic signal operation, road safety, and basic electronics.

- Encouraged students to present their projects confidently, enhancing their communication, teamwork, and problem-solving skills.

- Organized an interactive STEM exhibition where students showcased innovative working models and applied their classroom learning to real-life situations.





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GLIMPSE OF ACTIVITIES

Class 1

Students were introduced to the basics of robotics through hands-on activities using the Fun Linker and Smart Circuit Kits. The sessions focused on understanding simple structures, electronic components, and movement through engaging activities.



Activities Included:

Supermarket Model: Students created a supermarket model and explored basic construction, arrangement, and creativity.

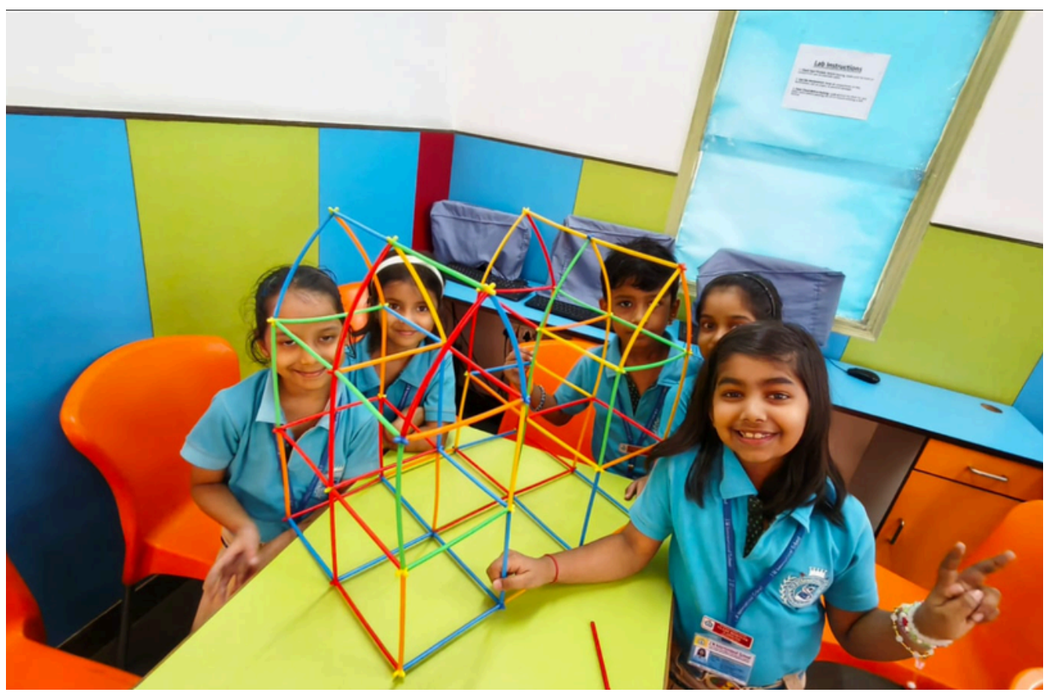
Lantern Model: Students built a lantern model and developed their understanding of simple structures through hands-on learning.

LED Glowing Activity: They explored basic electrical connections and learned how an LED glows through a simple circuit.

Spin a Motor: Learned about motor movement by making the required connections and observing the motor in action.







ROBOTIC FACT

In 2020, a humanoid robot named Promobot was hired to work at a train station in Russia, providing information and assistance to passengers.

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GLIMPSE OF ACTIVITIES

Class 2

Students explored basic robotics and STEM concepts through hands-on activities using the Fun Linker and Smart Circuit Kits. The sessions focused on understanding simple structures, electrical connections, and practical applications through engaging activities.

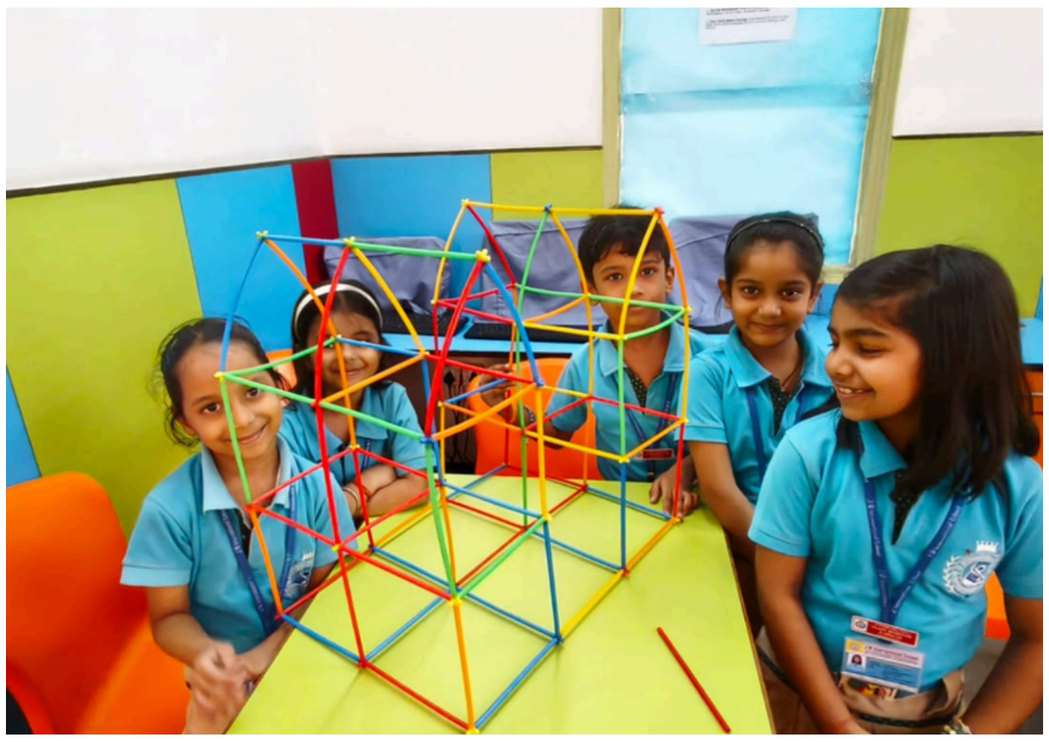
Activities Included:

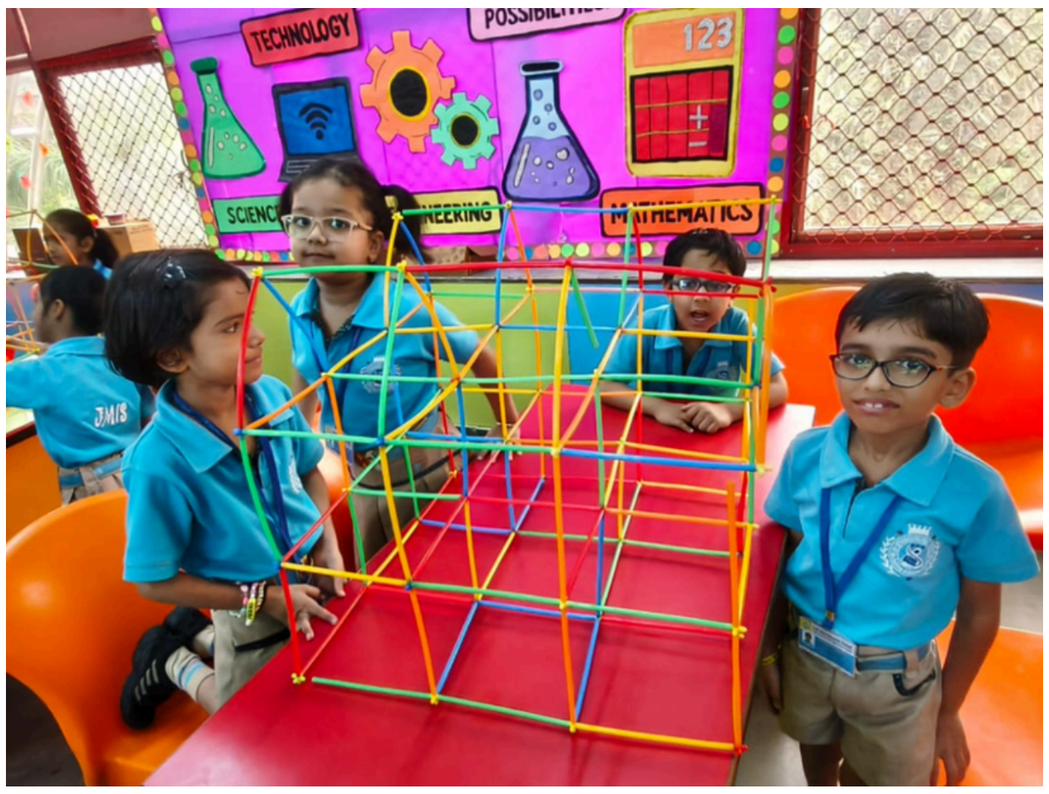
Light Up a Bulb: Students learned about basic electrical connections and created a simple circuit to light up a bulb.

TV Remote: They explored the basic working and application of a TV remote through a hands-on activity.

Hospital: Students built a hospital model using the Fun Linker Kit and developed their creativity and construction skills.

Apartment: Students created an apartment model using the Fun Linker Kit and explored basic construction and arrangement skills.









ROBOTIC FUN FACT

Japan has a hotel staffed entirely by robots, including the receptionists and room attendants

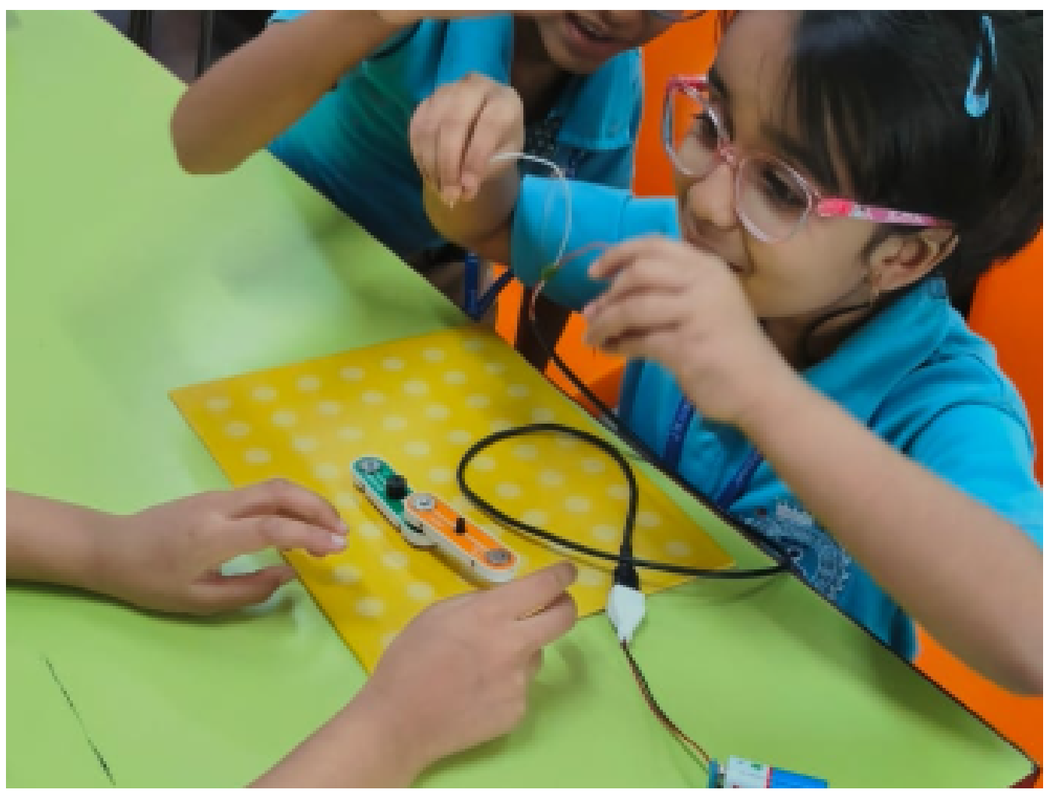
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GLIMPSE OF ACTIVITIES

Class 3

They actively participated in Smart Circuit and LEGO Construction activities during the month of July. Through hands-on learning, they explored the fundamentals of electrical circuits and developed an understanding of how simple electronic systems work. They also designed and built different structures using construction kits, enhancing their creativity, teamwork, problem-solving, critical thinking, and fine motor skills.





Activities Included:

Dark Room Safety Alarm: Students created a safety alarm circuit and learned how it can be used for safety applications.

Torch Light: They explored basic electrical connections and created a simple torch light through hands-on learning.

Electric Doorbell: Students learned about the working of an electric doorbell by making the required circuit connections.





ROBOTIC FACT

The term "android" refers to a humanoid robot, resembling a human in appearance and behavior.

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GLIMPSE OF ACTIVITIES

Class 4

Students explored mechanical concepts through hands-on activities using the Block Based Construction Kit. The sessions focused on understanding motion, gears, mechanical linkages, and practical engineering through engaging activities.

Activities Included:

Basic Car: Students built a gear car using the Block Based Construction Kit and learned how gears transfer motion and control movement.

Waving Robot: They created a waving robot and explored the role of links and joints in producing robotic movement.

Powder Pounding Machine: Students constructed a powder pounding machine using a crank-slider mechanism and learned about mechanical motion and precision.









ROBOTIC FACT

The term "android" refers to a humanoid robot, resembling a human in appearance and behavior.

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GLIMPSE OF ACTIVITIES

Class 5

Students explored mechanical concepts through hands-on activities using the Discovery Motion Kit. The sessions focused on understanding engine mechanisms, gears, and robotic movement through engaging activities.

Activities Included:

IC Engine Valve: They explored the working of an IC engine valve and learned about its movement and function in an engine mechanism.

Gear Car: They built a gear car and learned how gears transfer motion and help control the movement of the car.

Waving Robot: Students created a waving robot and explored how mechanical linkages and joints can produce movement.









ROBOTIC FACT

The term "android" refers to a humanoid robot, resembling a human in appearance and behavior.

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GLIMPSE OF ACTIVITIES

Class 6

Students were introduced to basic electronic components and circuit connections using the electronic circuit kit. The sessions focused on understanding the breadboard, electronic components, and basic circuit operation through hands-on activities.

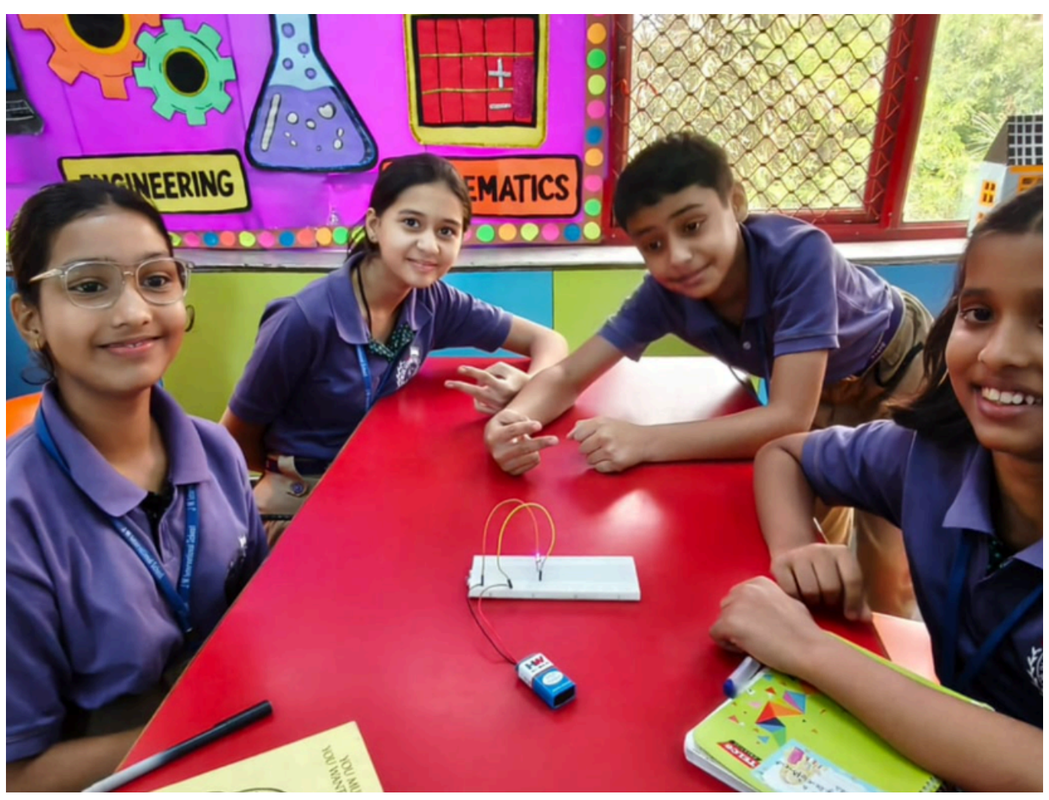
Activities Included:

Introduction to Breadboard: Students learned about the breadboard, LEDs, resistors, jumper wires, batteries, and other electronic components.

LED Glowing Activity: They assembled a simple LED circuit and learned about the correct connections required to make the LED glow.

Working of Switch: Students explored how a switch controls the flow of electricity and used it to operate a simple circuit.









ROBOTIC FACT

The term "android" refers to a humanoid robot, resembling a human in appearance and behavior.

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GLIMPSE OF ACTIVITIES

Class 7

Students were introduced to Arduino and explored basic programming and electronic concepts through hands-on activities. The sessions focused on controlling LEDs, understanding the 7-segment display, and working with switches.

Activities Included:

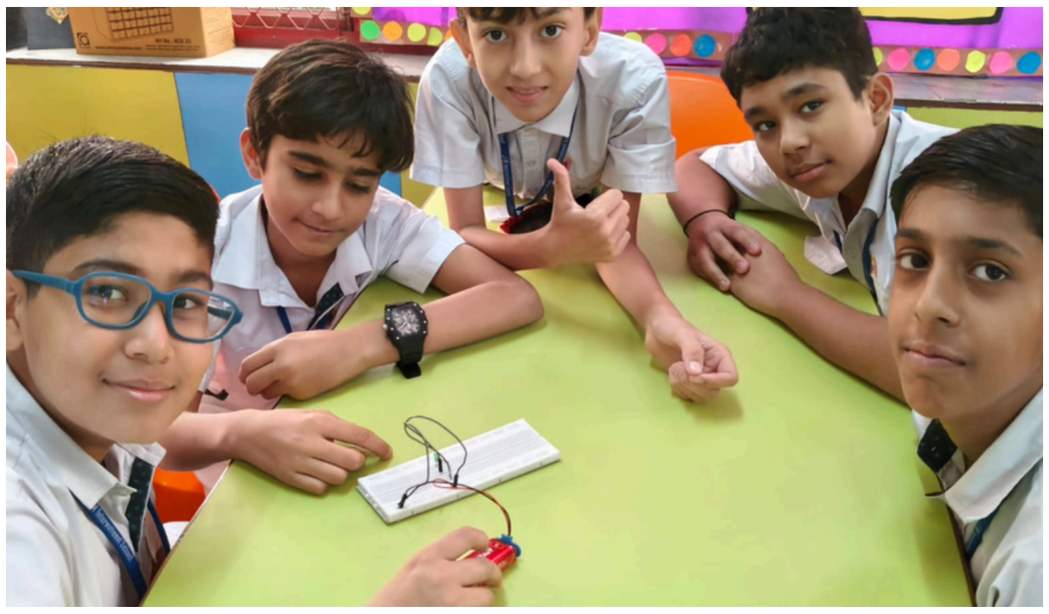
Introduction to Arduino: Students learned about the Arduino board, its basic components, and its applications.

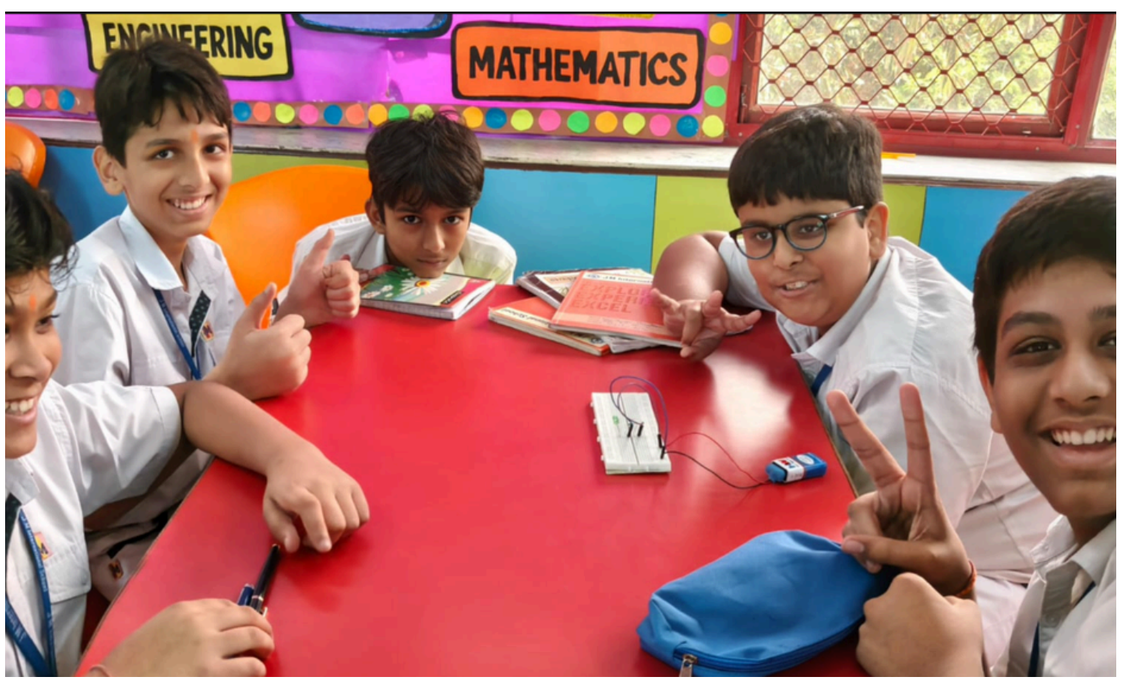
Brightness-Controlled LED: They learned to control the brightness of an LED through Arduino-based connections and programming.

Introduction to 7-Segment Display: Students explored the structure, connections, and working of a 7-segment display.

LED Control Using Switch: Students learned how to control an LED using a switch and understood the basic concept of input and output.









ROBOTIC FACT

The term "android" refers to a humanoid robot, resembling a human in appearance and behavior.

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GLIMPSE OF ACTIVITIES

Class 8

Students explored Arduino, a microcontroller, and the Arduino IDE used for coding and controlling electronic components. The sessions focused on programming, display systems, and automation through practical activities.

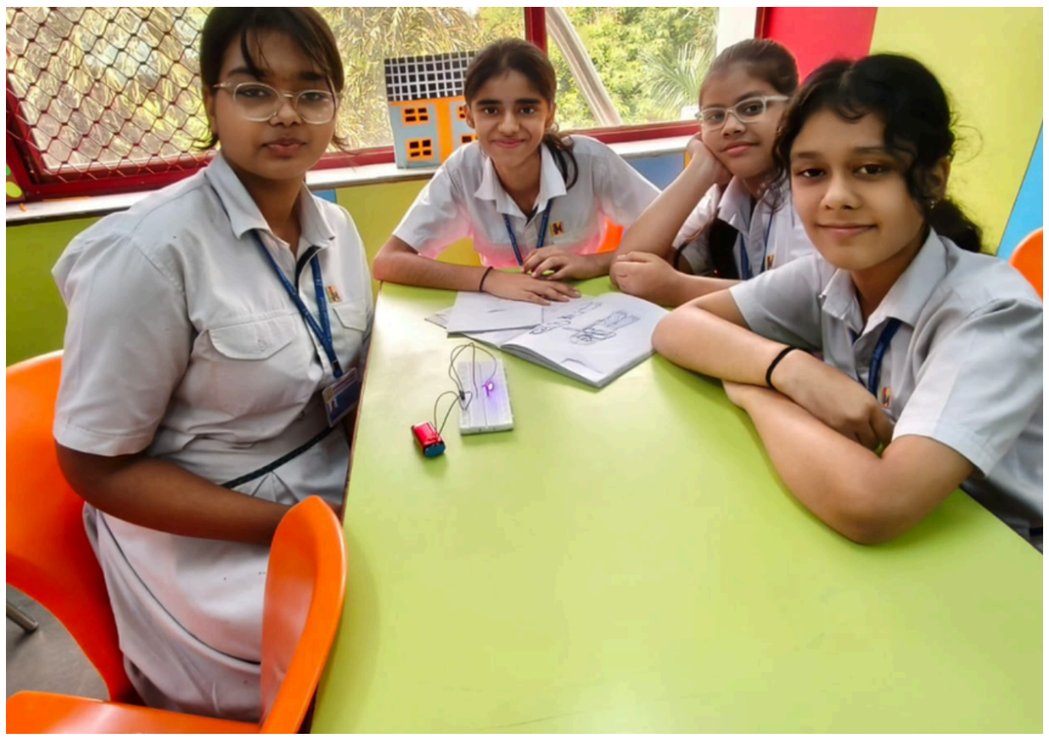
Activities Included:

Introduction to Arduino: Students learned about Arduino as a microcontroller and were introduced to the Arduino IDE for writing and uploading code.

7-Segment Display: They explored the connections and working of a 7-segment display and learned how it can be controlled using Arduino.

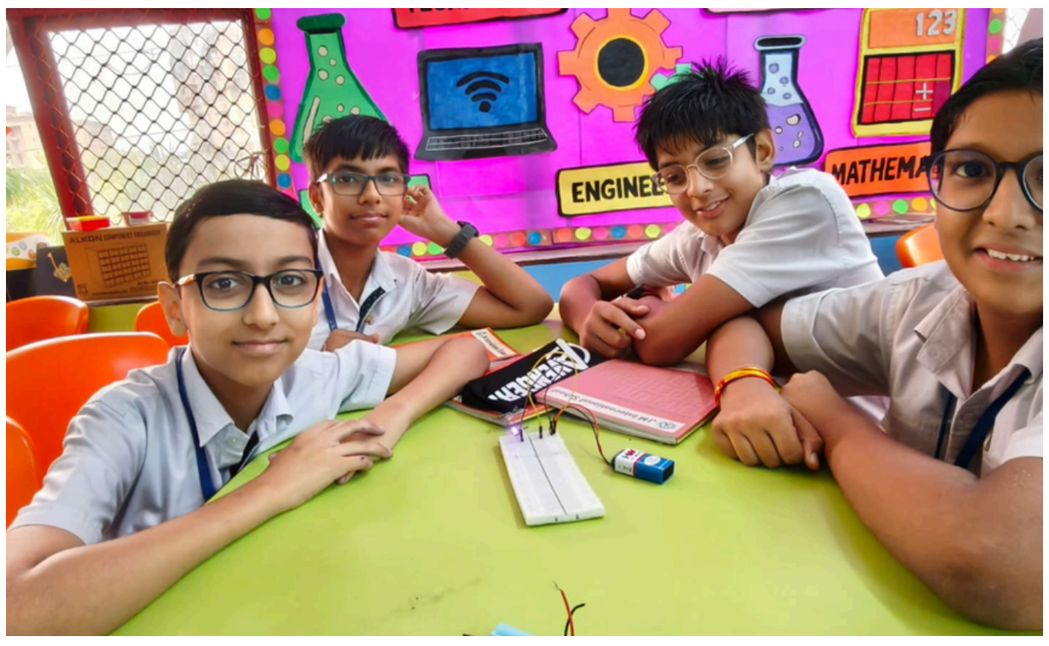
Mood Light: Students created a mood light and explored how LEDs can be controlled to produce different lighting effects.

Automatic Street Light: Students learned about automatic lighting by creating a street light system that responds to changes in surrounding light.









> **ROBOTIC FACT**
>
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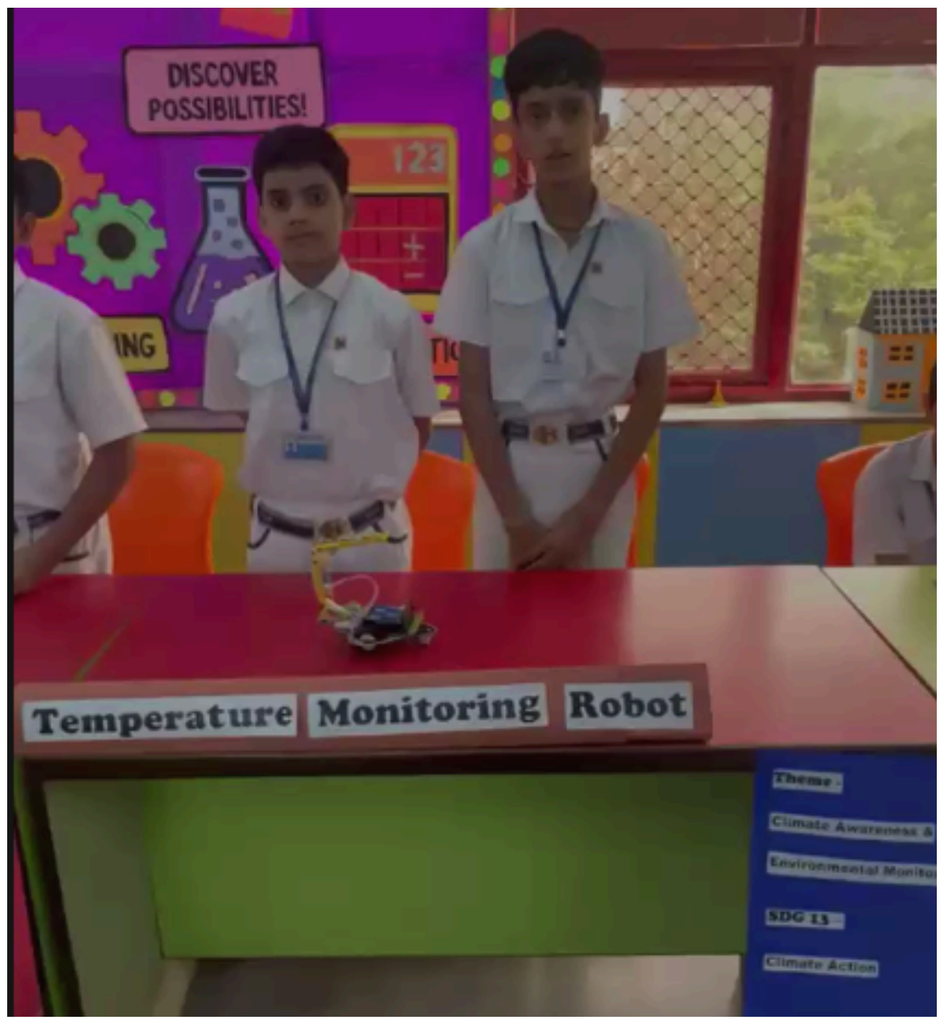
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GLIMPSE OF ACTIVITIES

List of Projects

- Vehicle Parking Management System
- DHT11-based Temp and Humidity Monitoring System
- Bluetooth controlled car
- Traffic light system
- Electronic Doorbell







ROBOTIC FUN FACT

A robotic vehicle dived into Ross Ice Shelf in Antarctica to view the unexplored depths of Antarctica.



THANK YOU

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