



# JM INTERNATIONAL SCHOOL, DWARKA, DELHI



# NEWSLETTER

**VIRTUAL REALITY (VR)**

**APRIL 2025**



## WHAT IS VIRTUAL REALITY?

Virtual Reality (VR) is a computer-generated environment with scenes and objects that appear to be real, making the user feel they are immersed in their surroundings. This environment is perceived through a device known as a Virtual Reality headset or helmet. VR allows us to immerse ourselves in video games as if we were one of the characters, learn how to perform heart surgery or improve the quality of sports training to maximize performance.



Although this may seem extremely futuristic, its origins are not as recent as we might think. In fact, many people consider that one of the first Virtual Reality devices was called Sensorama, a machine with a built-in seat that played 3D movies, gave off odors and generated vibrations to make the experience as vivid as possible. The invention dates back as far as the mid-1950s. Subsequent technological and software developments over the following years brought with them a progressive evolution both in devices and in interface design.





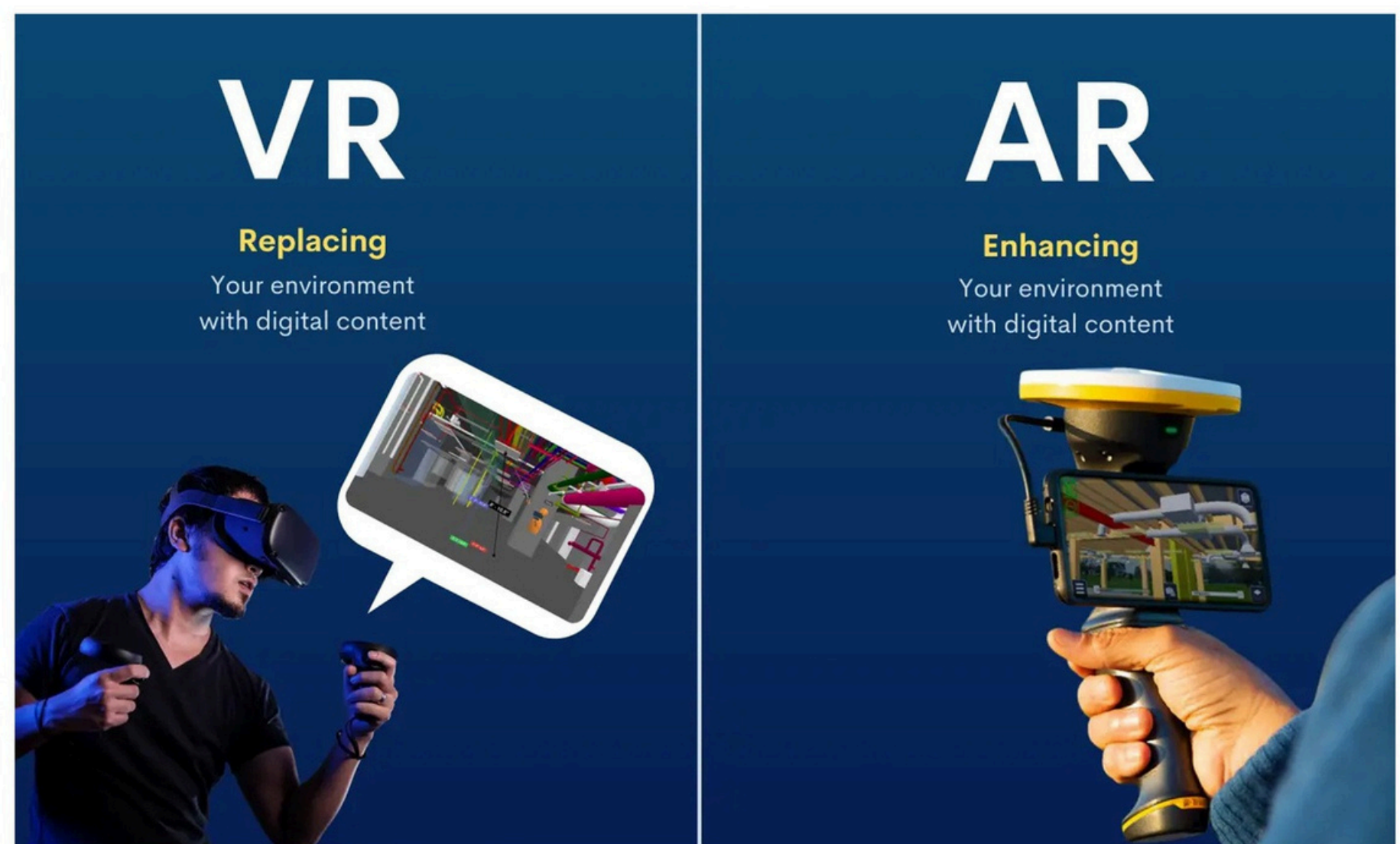
## HOW DOES VIRTUAL REALITY DIFFER FROM AUGMENTED REALITY

Despite being a technology that originated decades ago, many people are still unfamiliar with the concept of Virtual Reality. It is also quite common to confuse the term Virtual Reality with augmented reality.

The main difference between the two is that VR builds the world in which we immerse ourselves through a specific headset. It is fully immersive and everything we see is part of an environment artificially constructed through images, sounds, etc. On the other hand, in augmented reality (AR), our own world becomes the framework within which objects, images or similar are placed.

Everything we see is in a real environment and it may not be strictly necessary to wear a headset. The clearest and most mainstream example of this concept is Pokémon Go.

However, there is also a combination of both realities called mixed reality. This hybrid technology makes it possible, for example, to see virtual objects in the real world and build an experience in which the physical and the digital are practically indistinguishable.





# INNOVATIVE USES FOR VIRTUAL REALITY IN EVERYDAY WORK

## Dining

Now we can travel virtually to different places and immerse ourselves in certain environments while tasting the dishes from these locations.



## Medicine

The Spanish National Research Council has succeeded in reducing the effects of Parkinson's in several patients by applying a treatment that uses VR.



## The media

Immersive journalism takes the user to the places where events have occurred with live streaming of 360° videos.



## Education

In classrooms, the use of VR allows students to better retain knowledge and helps students with learning difficulties.



## Entertainment

Users can enter a scene in a video game or practice extreme sports without moving from their sofa.



## Architecture

RV helps architects to better envisage a space and present the project to their clients.



## Industry

Digital Twins are exact digital copies of physical objects that factory workers can practice on and test in a virtual world.



## Culture / Art

Some museums and galleries offer virtual visits or immersive experiences to help understand the history and culture associated with each work.



## Military

The UK Ministry of Defence uses VR for training in simulated combat environments.



## WHAT IS THE FUTURE OF VIRTUAL REALITY?

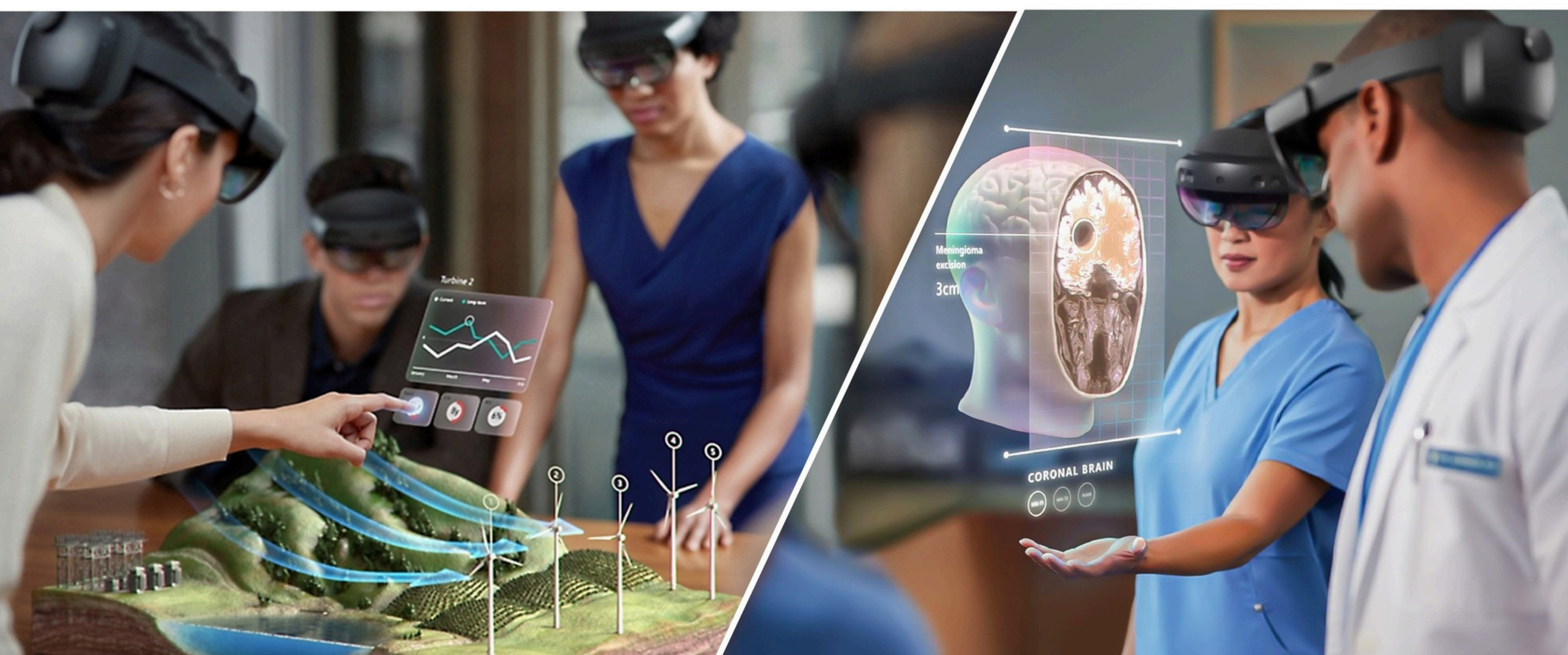
The future of virtual reality is increasingly leaning towards multisensory experiences. It's not just about what users can see; it's about what they can touch, smell, and even taste.

The more realistic the virtual world, the more immersive and captivating the experience for the user. These hyper-realistic experiences could set you apart from the competition and create a loyal user base.



Some of the applications of Virtual Reality are –

- Virtual Reality for historical reconstruction
- Virtual Reality for training in Dangerous jobs
- Shopping in Virtual Reality
- Virtual Reality in Healthcare
- Manufacturing and designing of Automotives





# 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.



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# About Robotic Lab



The Robotics Lab is a dedicated workspace where students can learn, experiment, and transform their ideas into prototypes. Designed to foster creativity beyond rote learning, the lab encourages students to explore futuristic skills such as design and computational thinking, adaptive learning, and artificial intelligence. Equipped with state-of-the-art tools and equipment like 3D printers, robotics kits, and electronic components, the Robotics Lab provides a hands-on learning experience in science, technology, engineering, and mathematics (STEM) fields. The primary goal is to cultivate problem-solving and critical thinking skills from an early age. By promoting experimentation and innovation, the lab aims to nurture the next generation of innovators and entrepreneurs, preparing them for future challenges and contributing to the overall development of India's technological landscape.

## FUN FACT

The global VR market size is expected to reach \$22.9 billion by the end of 2020!





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# GLIMPSE OF ACTIVITIES

### Grade I,II

**Magic Straw Kit:** The Magic Straw Kit encourages creativity and hands-on learning by allowing students to construct various 3D models using simple, flexible straws. It helps develop spatial awareness, problem-solving skills, and an understanding of structural design.

#### Activities:

- **Lantern:** Shape and design.
- **Box:** Structure and stability.
- **Rocket:** Briefing of space and space science.



In the future, VR will change how we learn, work, and play by creating lifelike virtual experiences that connect people everywhere.





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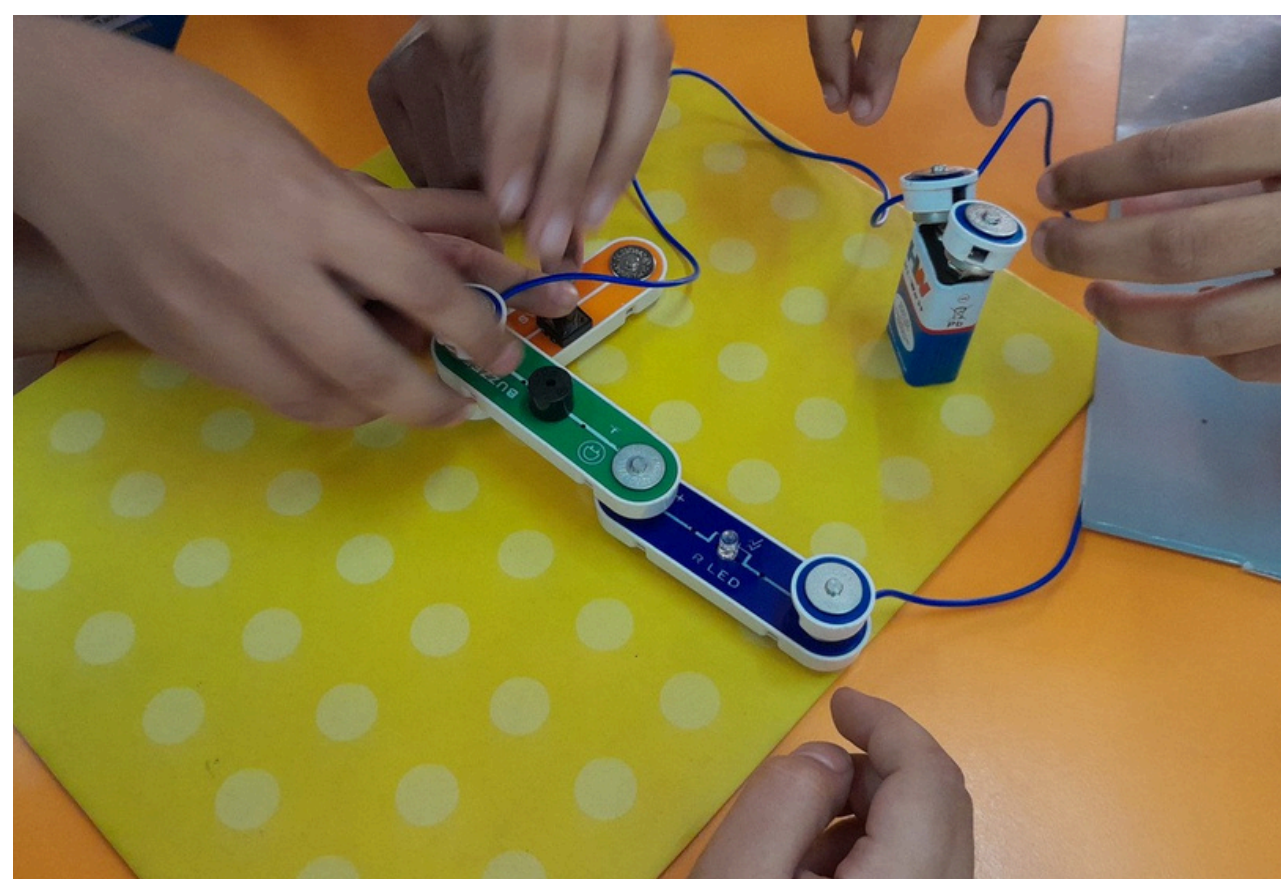
# GLIMPSE OF ACTIVITIES

### Grade III

The Smart Circuit Kit and Paper Circuit Kit introduced students to basic electronics through interactive, hands-on learning. While the Smart Circuit Kit helped them understand how circuits work using snap-fit components, the Paper Circuit Kit encouraged creativity by building circuits on paper using LEDs and copper tape.

#### Activities Included:

- **Torch Light** – Assembled a working torch using basic circuit components.
- **Study Time Lamp** – Created a paper-based lamp for focused study time.
- **Light Bulb** – Designed a simple glowing paper bulb to learn current flow.



### FIIN FACT

Virtual Reality helps people learn and train safely by letting them practice surgeries, explore space, or travel the world—all without leaving home.



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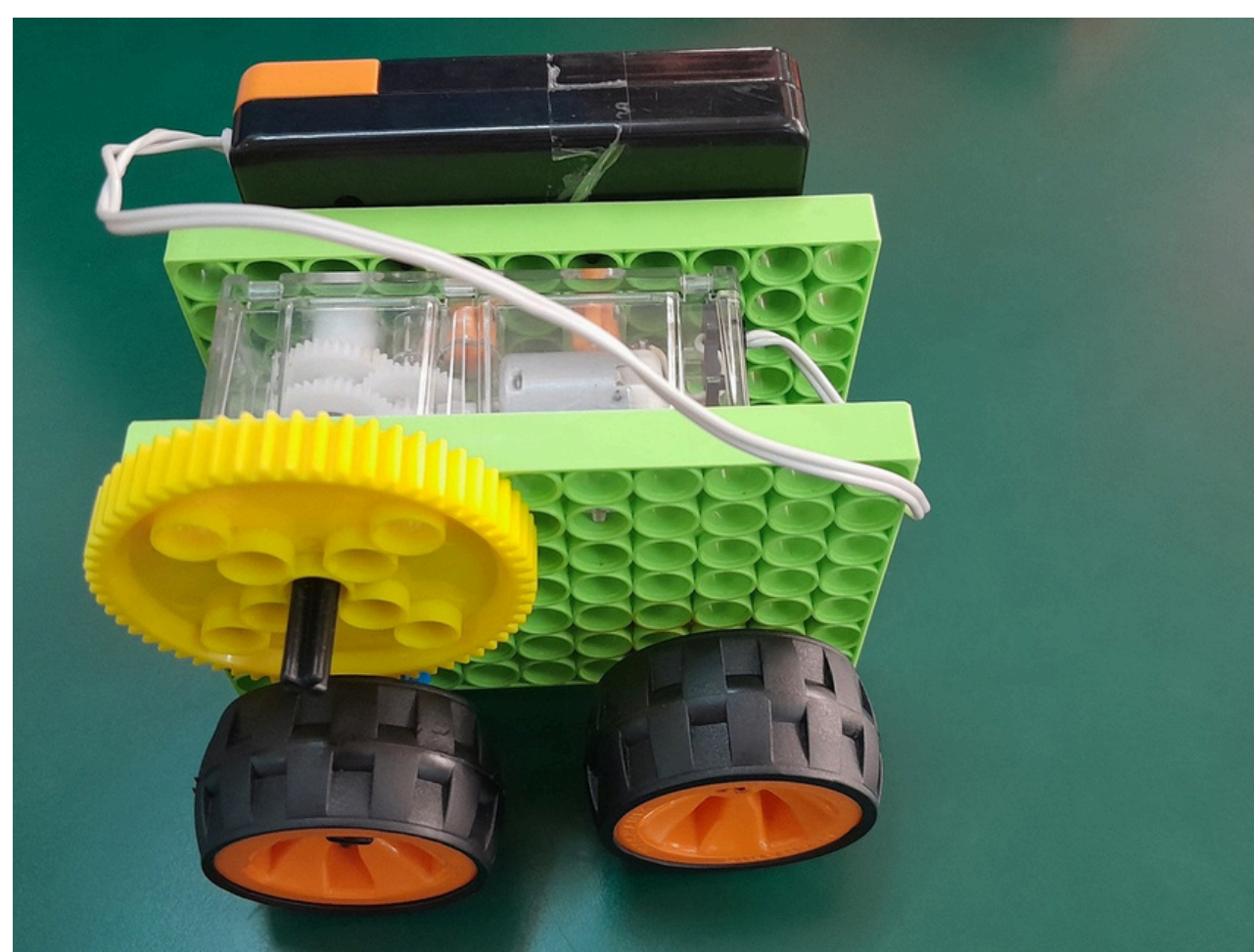
# GLIMPSE OF ACTIVITIES

### Grade IV

The Motion Discovery Robotics Kit introduced students to the basics of mechanical movement and robotics through interactive building activities. This kit allowed learners to explore concepts such as gears, motion transfer, and simple automation by assembling real working models.

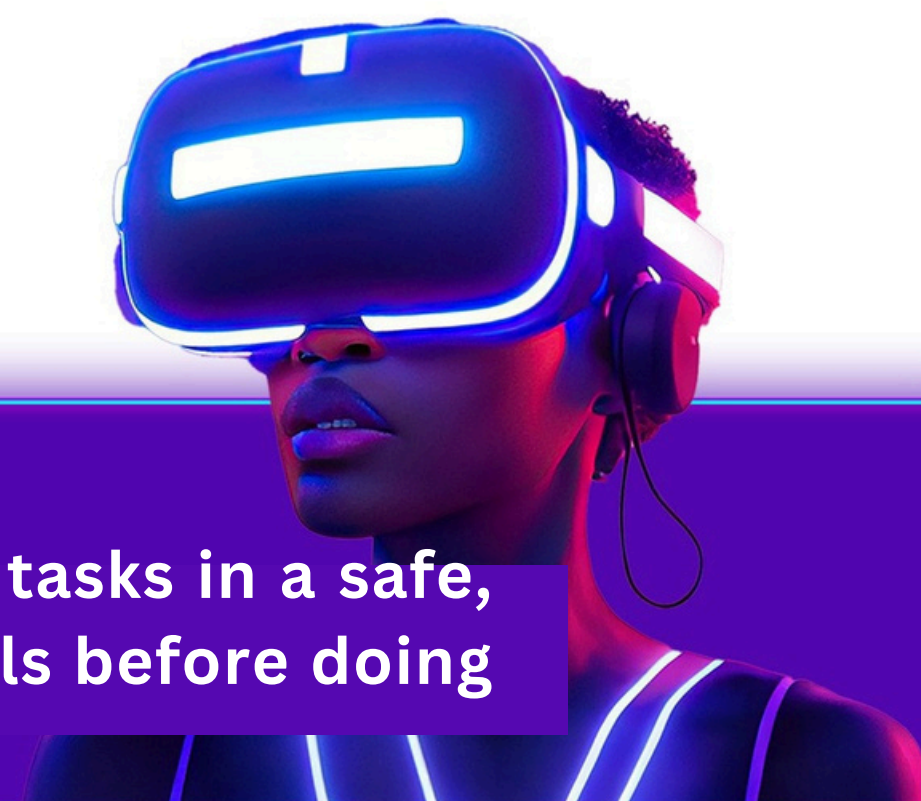
#### Activities Included:

- **Gear Car** – Explored gear-driven motion and speed control.
- **Powder Pounding Machine** – Built a model to simulate traditional pounding action.
- **Waving Robot** – Created a robot with moving arms to understand linkages.



### FUN FACT

Virtual Reality lets people practice dangerous or difficult tasks in a safe, controlled environment, reducing risks and improving skills before doing them in real life.





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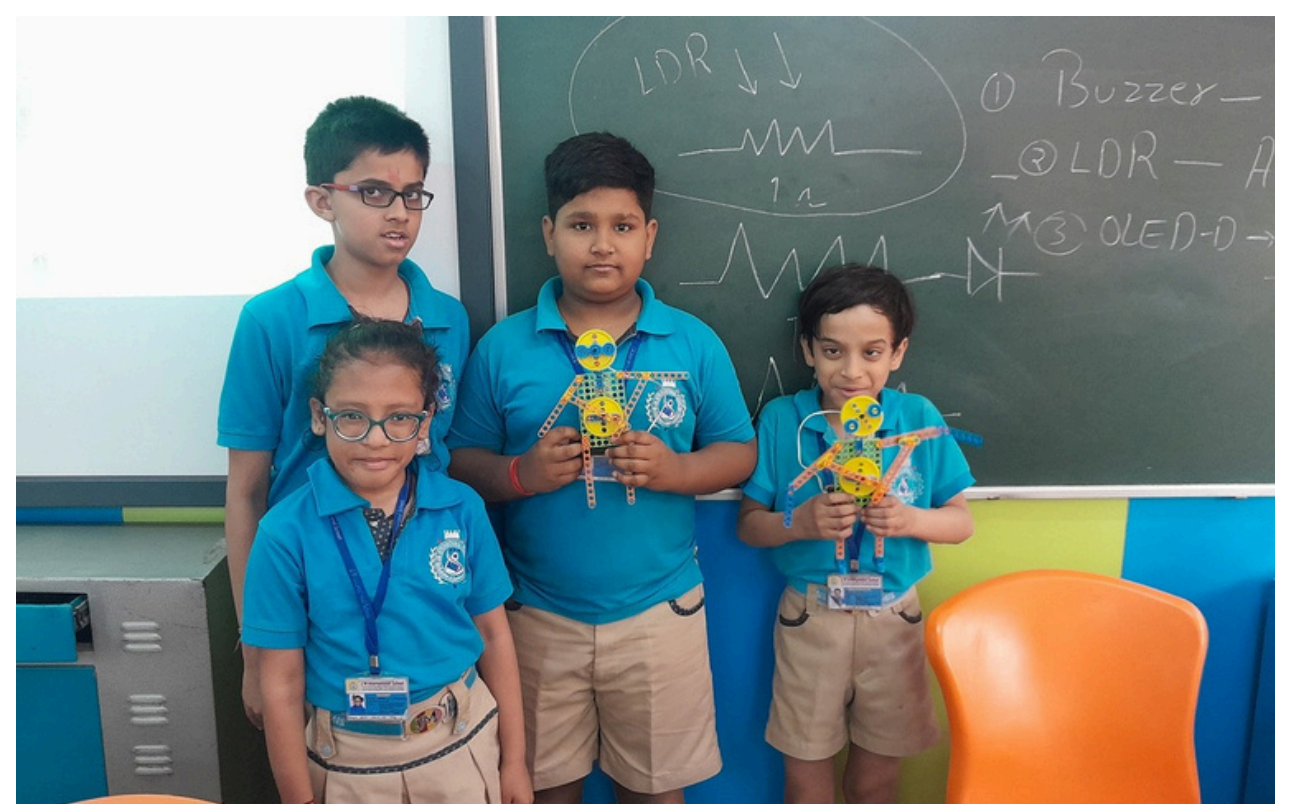
# GLIMPSE OF ACTIVITIES

### Grade V

The Smart Circuit Kit allowed students to explore electronics through hands-on activities and practical circuit-building experience.

#### Activities Included:

- **Dark Room Safety Alarm –**  
Designed a dark-activated alarm using a light sensor and buzzer to understand how sensors respond to environmental changes.
- **Car Music Volume Control –**  
Constructed a volume control circuit using a potentiometer and speaker system to learn how analog input devices can adjust output levels in real-time.



### FUN FACT

VR isn't all fun and games – the technology is now being used in healthcare to treat depression, anxiety, and PTSD amongst other things.



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# GLIMPSE OF ACTIVITIES

### Grade VI

The Tinker Orbit Kit provided students with an opportunity to explore basic electronics concepts through practical activities, including controlling light and creating alarms.

#### Activities Included:

- **Control LED Using Switch** – Learned how to control an LED with a switch.
- **Light Dimmer Using POT** – Created a circuit to adjust the brightness of a light using a potentiometer (POT).
- **Smart Morning Alarm** – Built an alarm system that activates in the morning, integrating sensors and sound.



### FUN FACT

Virtual Reality can make people feel like they're actually touching or moving objects, even though nothing is physically there—showing how powerful the brain's senses really are!



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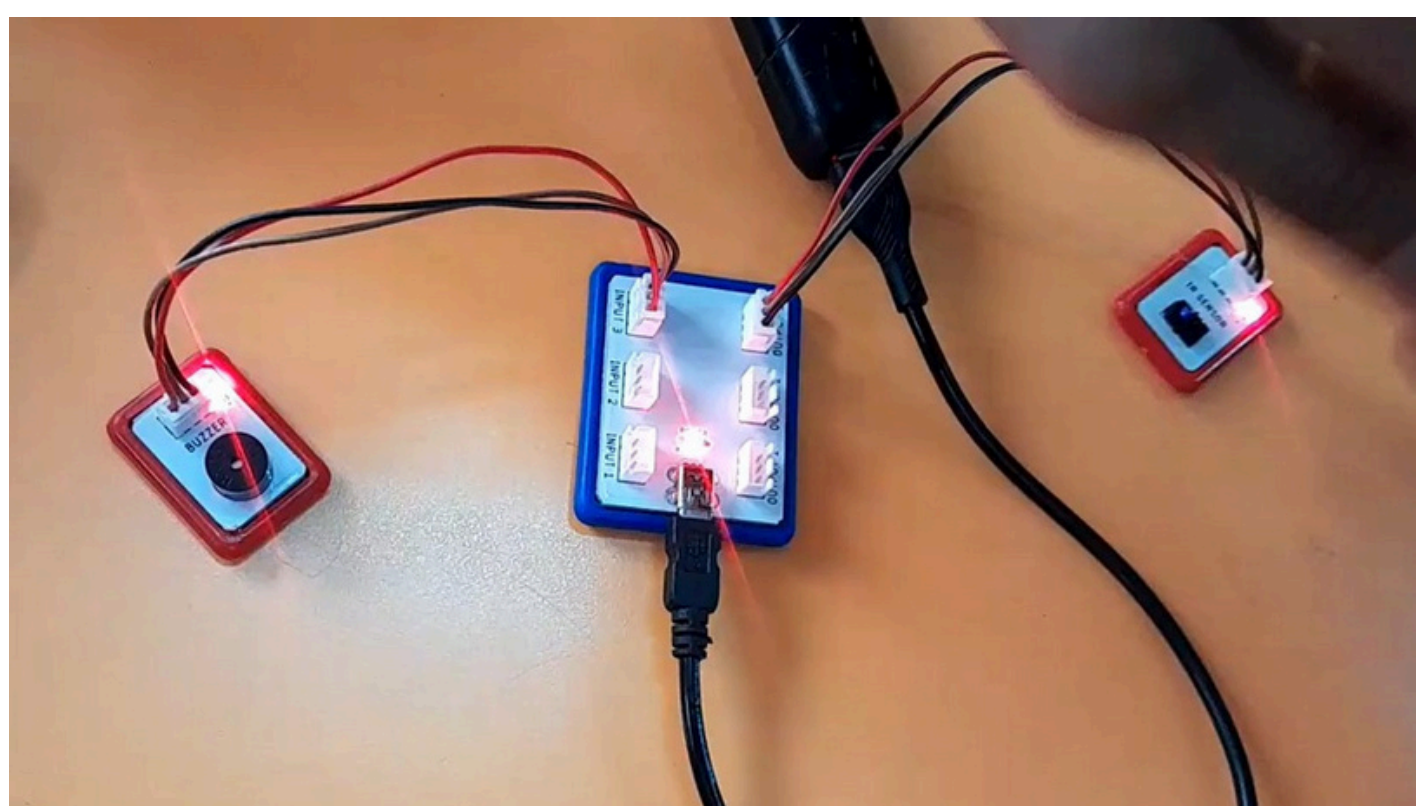
# GLIMPSE OF ACTIVITIES

### Grade VII

The Tinker Orbit PBL and Tinker Orbit kits allowed students to explore electronics through hands-on projects.

#### Activities Included:

- **Smart Watch** – Designed a functional smart watch.
- **Controlling Motor Using POT** – Controlled motor speed with a potentiometer.
- **Anti-Theft System** – Built a security system using sensors and alarms.
- **IR Controlled Light** – Created a light system controlled by an infrared remote.



### FUN FACT

Virtual Reality can trick your brain so well that your body reacts as if what you're seeing is real—even causing faster heartbeat and sweating!



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# GLIMPSE OF ACTIVITIES

### Grade VIII

The Bitli Kit and Tinker Orbit Kit offered students the chance to work on advanced electronics and robotics projects through engaging, hands-on activities.

#### Activities Included:

- **Cubebot (Bitli Kit)** – Built a robotic cubebot that can perform basic movements.
- **Laser Securing System (Tinker Orbit)** – Created a laser-based security system for detecting intrusions.
- **Automatic Fan (Tinker Orbit)** – Developed an automatic fan system that responds to temperature changes.



### FUN FACT

A smart watch is a wearable device that not only tells time but also tracks health, connects to phones, and can run apps—making it a mini-computer on your wrist.



## GLIMPSE OF PROJECTS

### *Project name- Smart Watch*



This smart watch supports individuals with color vision deficiency by identifying and displaying colors on a compact screen. Built using an Arduino Nano and an OLED display, the device offers a simple, accessible solution for color recognition. A color sensor detects the color of an object and sends the information to the Arduino Nano, which processes the data and classifies it into basic color groups (like red, green, blue, yellow). The OLED display then shows the detected color name, allowing users to understand colors visually, even if they cannot distinguish them naturally.

#### **FUN FACT**

VR has the potential to revolutionize education by making history come alive, allowing students to witness historical events firsthand.







## ACHIEVEMENTS AT A GLANCE

**1.Foundation in Electronics and Robotics** Students developed a strong foundational understanding of electronics, sensors, and robotics through structured hands-on learning with kits like Smart Circuit, Tinker Orbit, and Bitli.

**2.Successful Project Implementation** Learners independently built real-life projects such as the Dark Room Safety Alarm, Torch Light, Gear Car, and Waving Robot, demonstrating their ability to translate theoretical knowledge into practical solutions.

**3.Applied Learning through Innovation** Students designed and executed creative projects like Smart Watches, Laser Security Systems, and Anti-Theft Alarms, showcasing innovation, design thinking, and technical integration.

**4.Improved Technical and Analytical Skills** By working with components like Arduino Nano, OLED displays, motors, and sensors, students enhanced their skills in programming, circuit design, and problem-solving.

**5.Connected STEM to Real-World Scenarios** Projects were aligned with real-life challenges, helping students understand the practical relevance of STEM and its impact on daily life, such as Automatic Fans and Smart Morning Alarms.

**6.Boosted Creativity, Confidence, and Teamwork** Working in teams fostered collaboration, while showcasing their projects built confidence and communication skills—key traits for future innovators.

**7.Early Exposure to Emerging Technologies** Introduced to microcontrollers and automation concepts at an early stage, students are better prepared for advanced STEM education and future tech careers.



### FUN FACT

VR gaming experiences can trick your brain into feeling genuine fear, excitement, and presence in entirely fictional worlds.





# THANK YOU



## CONTACT US

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