Robotics Workshop at G.I.C. Kathgharia Inter College, Haldwani, Nainital

On 14th December 2024, we organized an engaging and informative robotics workshop at G.I.C. Kathgharia Inter College, Haldwani, Nainital. The workshop was aimed at introducing students to the fascinating world of robotics and STEM education. The event was conducted by our robotics team, who demonstrated various types of robots and provided hands-on experience in building and programming them. The students were also introduced to the basics of robotics and coding through interactive classes that focused on practical learning and problem-solving. The session was designed to foster creativity, teamwork, and critical thinking in students, helping them understand the real-world applications of robotics.

Workshop Objectives

1 **Introduction Of Robotics**

Provide students with an understanding of robotics, its components, and real-world applications.

2 **Spark STEM Interest**

Encourage students to explore STEM fields, particularly robotics and coding.

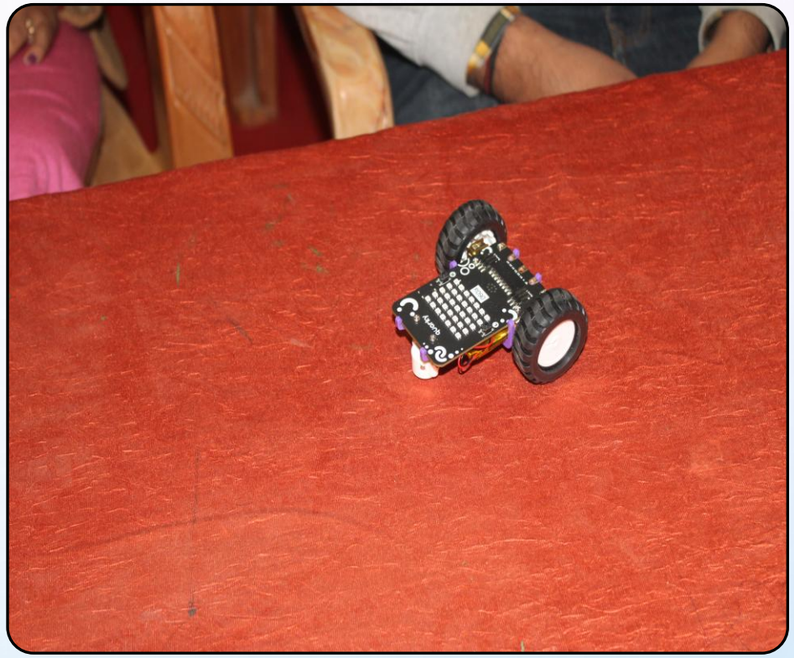
3 **Hands-on Learning**

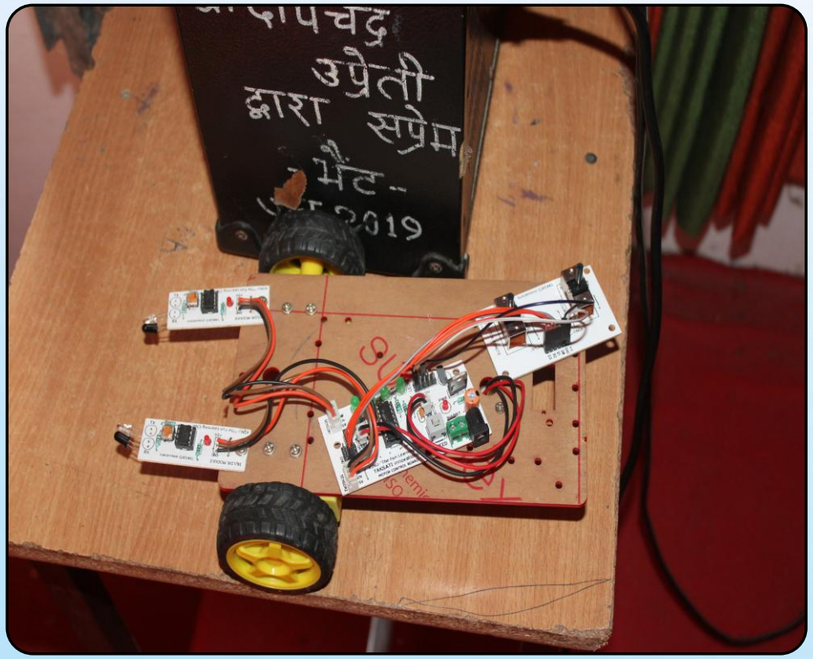
Promote active learning and teamwork through building and programming robots.

Engaging Demonstrations

Robotic Car

Students were introduced to a basic robotic car, demonstrating how motors and sensors can be used to create a mobile, interactive robot. The car could move forward, backward, and change direction, giving students a hands-on understanding of how motors work in robotics.





Obstacle Avoider Robot

A demonstration of an obstacle avoider robot was provided, showing how the robot uses sensors to detect and avoid obstacles. This highlighted the importance of sensors in making robots autonomous and responsive to their environment.

Coding and LED Patterns

Basic LED Pattern Work

The workshop also covered basic LED pattern work, where students learned how to use coding to create different LED patterns. This simple yet engaging activity introduced students to the concept of programming and its role in controlling robotic systems.

STEM Learning Classes

In addition to the demonstrations, the students participated in STEM-based learning, where they were taught basic coding concepts and robotics programming. They learned how to use code to control the actions of their robots, gaining an understanding of how software and hardware work together in robotics.

Group Activities and Achievements

Group 1 & 2

Built robotic cars using plastic materials, focusing on assembly and basic movement.

Group 3

Built a robotic car using metal materials, nuts, bolts, and motors, gaining experience with complex materials and tools.

Group 4 & 5

Learned LED pattern work in robotics, programming robots to display different patterns, showcasing creativity and enthusiasm.

Workshop Success and Impact

1

Active Participation

Students actively participated in building and programming robots, demonstrating enthusiasm and engagement.

2

Skill Development

Hands-on activities enhanced students' understanding of robotics, encouraging teamwork, problem-solving, and critical thinking.

3

Future Exploration

The workshop sparked an interest in robotics and STEM education, inspiring students to explore these fields further.

Future Learning Opportunities

Resources and Information

Students were provided with resources and information on how to further explore robotics, coding, and STEM fields.

Robotics Clubs

Students were encouraged to join local robotics clubs to enhance their skills and knowledge.

Competitions

Students were encouraged to participate in future robotics competitions to further develop their skills.

Conclusion

The robotics workshop at G.I.C. Kathgharia Inter College, Haldwani, Nainital was a resounding success, providing students with a valuable introduction to robotics and STEM education. We are confident that this workshop has ignited a passion for robotics in these students, inspiring them to pursue their interests in technology and innovation.

THANK YOU !