CREATIVE RESEARCH AND INNOVATION

Good Shepherd Central School

Hindalga, Belagavi

CRI

ROBOTICS WORKSHOP REPORT

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INTRODUCTION

A robotics workshop is vital for school students as it enhances STEMM learning through hands-on experiences that integrate Science, Technology, Engineering, Medical and Mathematics. It develops critical problem-solving and analytical skills while encouraging creativity and innovation. Working in teams on robotics projects improves collaboration and communication, and the use of various tools and technologies boosts technical proficiency. Students are introduced to programming concepts, which enhances computational thinking, and the interactive nature of robotics increases engagement and motivation. This exposure can inspire future careers in STEMM fields, teaches perseverance through trial and error, and encourages a lifelong interest in learning and exploration

CREATIVE RESEARCH AND INNOVATION

Date: Aug 10th, 2024 (Saturday)

Time: 10:15AM TO 12:30PM

Venue: Good Shepherd Central School, Belagavi, Karnataka 591108

Participants: 40

Grade: 8th

WELCOME AND INTRODUCTION
10:15AM TO 10:30AM
Opening remarks, introduction and an overview of the day's schedule.

OVERVIEW OF ROBOTICS
10:30AM TO 10:45AM
A presentation covering the basics of robotics, its applications, and its significance in various fields.

HANDS-ON-1 BUILDING ROBOTS
10:45 TO 11:45AM
Students were divided into small groups and provided with robotics kit. Mentors guided them through the process of assembling the robots, explaining each component and its function.

HANDS-ON-2 PROGRAMMING
11:45AM TO 12:00AM
Introduction to basic programming concepts and software tools. Students learned to write simple code to control their robot's movements.

DEMONSTRATION AND TESTING
12:00AM TO 12:20PM
Mentors helped troubleshooting and debugging issues. Groups showcased their robots and demonstrated their work.

PHOTOGRAPHY
12:20PM TO 12:30PM

OBJECTIVES

- To introduce students to the fundamental concepts of robotics, including mechanics, electronics, and programming.
- To provide a hands-on learning experience where students could engage in building and programming robots.
- To spark an interest in STEMM (Science, Technology, Engineering, Medical and Mathematics) fields among the participants.
- To develop teamwork, problem-solving, and critical thinking skills through collaborative activities.

OUTCOMES

- The **basic principles** of robotics, including mechanics, electronics, and programming.
- **Practical experience** in building and programming robots.
- **Problem-solving** skills by tackling real-world challenges through robotics.
- Program robots using **C++** language and tools suitable for robotics .
- **Engineering concepts** like design, testing, and iteration in robotics projects.
- Understanding and using of **actuators** in robotic systems.
- **Critical thinking** skills through the analysis and debugging of robotic systems.
- **Creativity** in designing and customizing robots for specific tasks or challenges.
- **Collaboration and teamwork** as students work in groups to build and program robots.
- **Communication skills** by presenting their projects.
- Opportunities for students to take **leadership** roles within their teams.
- Importance of **persistence and resilience** through trial and error in robot building and programming.
- **Confidence** as students see their robots perform tasks successfully.
- Sparking interest in **STEMM** (Science, Technology, Engineering, Medical and Mathematics) fields.

FEEDBACK

Based on the collected feedback, the students enthusiastically embraced the initiative, expressing a strong desire to delve deeper into the multifaceted realm of robotics. They conveyed a keen interest in not only expanding their knowledge but also actively participating in hands-on projects. This feedback underscores their motivation and readiness to immerse themselves further into the world of robotics beyond the workshop sessions.

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