



**SARVAJANIK
UNIVERSITY**

INCLUSIVE | INTEGRATED | INNOVATIVE



**INSTITUTION'S
INNOVATION
COUNCIL**
(Ministry of HRD Initiative)



Sarvajani Education Society

SARVAJANIK UNIVERSITY

Sarvajani College of Engineering & Technology

Dr. R. K. Desai Marg, Opp. Mission Hospital, Athwalines, Surat-395001

Report for Work shop on

**“AI-Powered Solution Expo: Demo Days
for AI / Industry 4.0 Prototypes”**

Date: 9th April, 2026

Venue: Chemical Seminar Hall, SCET

Faculty Co-ordinator

Prof. (Dr.) Samip Shah

Mechanical Engineering Department

In association with

Institution's Innovation Council (IIC), SCET

INTRODUCTION

The SYNERGY.io Club, an innovative student initiative within the Mechanical Engineering Department at Sarvajanik College of Engineering and Technology (SCET), successfully organized an exclusive live demonstration and interactive pitch event unveiling our latest engineering milestones: A.R.E.S Rover and NEXUS Interactive Platform on 9th April, 2026.

This immersive session, aimed to bridge the gap between theoretical hardware design and practical system integration. The showcase focused on the end-to-end development of an indigenously built rover and introduced a new digital ecosystem for engineering students, exploring how these systems can be leveraged for innovation, research, and collaborative problem-solving.

The Showcase was met with overwhelming enthusiasm, drawing a highly active crowd of students (104 participants) and innovators from across the departments of SCET. The high attendance underscores the students' keen interest in acquiring practical skills in robotics, wireless telemetry, and community-driven engineering.

1.) A.R.E.S. (AUTOMATED ROBOTIC EXPLORATION SYSTEM) :-

- The session began by establishing a strong framework for physical engineering with the unveiling of Rover A.R.E.S. Participants explored our indigenously developed 6x6 multi-purpose rover platform, witnessing live demonstrations of its kinematic motion and core technicalities.
- **Rover Features:-**
 - All-Terrain Rocker-Bogie Suspension: Engineered for extreme terrain climbing, obstacle clearance, and ultimate chassis stability without compromising payload balance.
 - ESP32 IoT Core: Utilizing dual-core processing to enable seamless, zero-latency smartphone telemetry and control.
 - High-Torque Drivetrain: Powered by heavy-duty Johnson motors.
 - Autonomous-Ready Sensors: Fully equipped with MPU kinematics, ultrasonic, and proximity arrays to map environments and detect obstacles.
- **Significance: A.R.E.S. was not just presented as a completed project, but as an Open Development Platform.** It was designed specifically to integrate future hardware and code ideas from fellow students, serving as a foundational testbed for the college's next generation of robotic solutions.



- Developed By:
 - Archan Sharma - Project Lead & Mechanical Design
 - Bhavya Ladumor - Embedded Systems & Control
 - Surati Mohd. Amaan - Hardware Procurement & Logistics
 - Smit Vyas - Logistics & Visual Documentation

2.) NEXUS INTERACTIVE (THE COMMUNITY HUB) :-

Following the physical demonstration, the core of the workshop shifted to digital collaboration with the launch of the **Nexus Interactive Platform**.

WHAT IS IT?

Nexus Interactive is a dedicated, community-driven discussion forum tailored explicitly for SYNERGYians. Operating similarly to a Reddit-style platform, hosted on the official website of SYNERGY.io - SCET (<https://synergyio.vercel.app/nexus>) it is a centralized digital space where students can freely post without the reliance on AI-generated answers.

Significance: To accelerate the innovation drive within the department, Nexus allows students to drop problem statements, share technical fixes, pitch concepts for the A.R.E.S. platform, and spark debates. It bridges the gap between isolated projects and collective college-wide engineering, ensuring that every bright idea has a space to be heard and developed.

Developed By: **Archan Sharma** (2nd Year - Mechanical Engineering)



PARTICIPATION DETAILS & FEEDBACK:

A total of **104 participants** attended the workshop session. Participants showed keen interest during the technical sessions, hands-on demonstrations.

Participants expressed highly positive feedback regarding the session and appreciated the practical demonstration of AI and Industry 4.0 prototypes. They found the expo informative, innovative, and beneficial for understanding real-time industrial applications of Artificial Intelligence, IoT, Automation, and Smart Manufacturing technologies. Participants also appreciated the interactive learning environment, hands-on exposure, and the opportunity to explore emerging technologies, which enhanced their technical knowledge, creativity, and interest in research and innovation.

OUTCOMES OF THE ACTIVITY

The session on “**AI-Powered Solution Expo: Demo Days for AI / Industry 4.0 Prototypes**” provided participants with practical exposure to emerging technologies such as Artificial Intelligence, IoT, Automation, Robotics, and Smart Manufacturing through live prototype demonstrations. The event enhanced participants’ understanding of real-time industrial applications, intelligent process automation, and data-driven decision-making while encouraging innovation, creativity, and problem-solving skills. It also motivated students and participants to explore research, entrepreneurship, and modern technological advancements related to Industry 4.0 and future smart engineering solutions.

The event proved to be a significant success, fulfilling the SYNERGY.io Club's mission to promote practical, technology driven skills among students. The session provided students with a robust perspective on the modern engineering workflow, balancing the physical complexities of hardware integration with the collaborative power of digital community platforms.

ACKNOWLEDGMENT

We sincerely acknowledge the invaluable support and guidance of our Faculty Coordinator, **Dr. Samip Shah**, our Head of Department, **Dr. Pankaj Gohil**, and our Principal, **Dr. Hiren Patel**, whose encouragement played a key role in the smooth execution of the event. Building on this momentum, SYNERGY.io aims to conduct more such innovative events, continuing to foster a culture of creativity, learning, and technology-driven growth within the department.