ARGO
Technologies
Solution To Accelerate Innovation

Robolab
Technologies

LET'S MAKE
ROBOTS

Learn.Build.Share

CENTER OF EXCELLENCE IN ROBOTICS AND AUTOMATIONS

ROBOLAB :- "A PERFECT PLATFORM TO EXPLORE, LEARN AND BUILD ROBOTS"

Robolab is your on campus , Centre of Excellence in Robotics and Automation, tailor-made for you. It is an advanced, state of the art platform to explore, learn and build robots and related technologies. We provide innovative and interactive training by experts consistent with the latest curricula and the industry requirements.

This empowers the trainees to successfully run the lab for the benefit of the larger group of students. Robolab is a perfect platform for its users to learn, build and share their ideas.Having a state-of-the-art and advanced Centre of Excellence at your campus offers multifold benefits for performing research, securing and improving accreditations, securing grants, participation in National and International Level competitions, and peer recognition etc

LEARN. BUILD.SHARE

GLIMPSE OF ROBOLAB

Industrial robotic arm

Instruments and Tools

Best in class 3D Printer

Robotic Platforms

Miniature Industrial Production System

INDUSTRIAL ROBOT TRAINING SECTION

MECHANICAL TOOLS

LIBRARY COMPONENT SECTION

Robolab Technologies

Latest Electronic Components

Pneumatics Technology

Vacuum Technology

Quadcopter

Variety of Robots

PNEUMATIC SECTION

VACCUM TECHNOLOGY SECTION

CENTER OF EXCELLENCE ROBOTICS & INDUSTRIAL AUTOMATION

ROBOTICS AND AUTOMATION LAB

Robolab Technologies

ELECTRONICS SECTION

DESIGN & FABRICATION
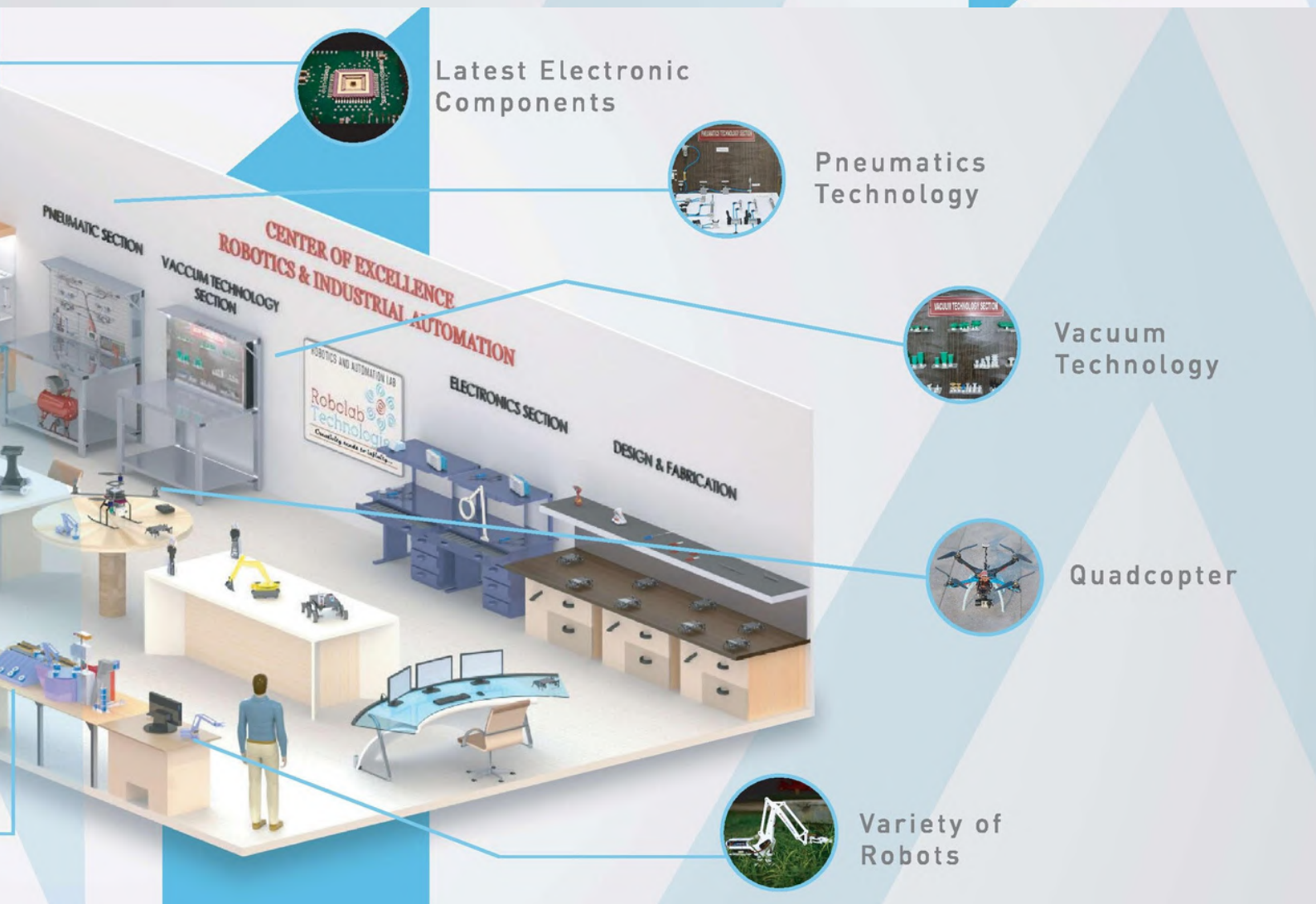
ROBOLAB :- "A perfect platform to explore, learn and build robots"

Basic Robolab

Advanced Robolab

Industrial Robolab

Sr. No	Name of Section and details	Basic Robolab	Advanced Robolab	Industrial Robolab
1	Mechanical Technology Section	Basic	Advanced	Advanced
2	Electronics Technology Section	Basic	Advanced	Advanced
3	Pneumatics Technology Section	✓	✓	✓
4	Robolab's Study Platforms (Robots)	10	17	17
5	Workbench and Instruments Section	✓	✓	✓
6	After Sales Support	✓	✓	✓
7	Sign MoU with the Institute	✓	✓	✓
8	Designing Robolab as per the Space	✓	✓	✓
9	Software Technology Section	Basic	Advanced	Advanced
10	Vacuum Technology Section	✗	✓	✓
11	Miniature Industrial Production System (MIPS)	✗	✓	✓
12	3D Printer Section	✗	✓	✓
13	Industrial Robot	✗	✗	✓
14	Comprehensive Training (After Lab Establishment)	42 Hours	60 Hours	80 Hours

Electronics Technology Section

Includes a variety of processors, motor controllers, sensors, and latest electronics tools needed for the designing and implementing robotic systems
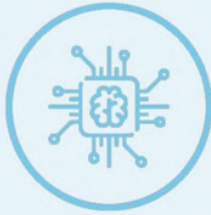
Mechanical Technology Section

Equipped with the necessary tools and instruments needed for Conceptualising ->Designing ->Manufacturing ->Prototyping which gives shape to students ideas.

Vacuum Technology Section

A comprehensive overview of the construction and working principles of vacuum devices and sstems as used in industries.

Pneumatic Technology Section

Practical applications of a pneumatic system along with the fundamental knowledge with which students can learn the concepts & design the systems. This gives access to components used in industry to construct the automation system

3D Printing Technology Section

Learn rapid prototyping is essential for students, which makes them aware of the production cycles. Having objects printed makes the students better understand what they are studying.
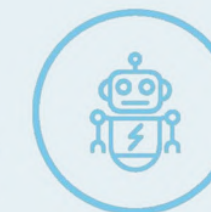
Software Technology Section

Easy to use, and interactive softwares for taking the trainees from basic to advanced stuff. It helps them to design & simulate the robotics systems before implementing them to reality. The softwares are also used to program the robots using an embedded electronic systems.
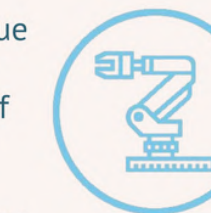
Robolab's Study Platforms (Robots)

Learn maximum practical concepts of Electronics, Electrical, Mechanical, Mechatronics, Computer, while building the variety of robots.

Miniature Industrial Production System

The practice-oriented training system of an automated manufacturing line which helps students to get an experience of how automation is used in real life industry applications.

Industrial Robot

Modern industrial robots are true engineering marvels. They can swiftly carry payloads of tens of kgs with repeatability of a fraction of a centimeter. The industry needs multi-disciplinary engineers to design program and automate the systems.

Mechanical Technology section

Electronic Technology section

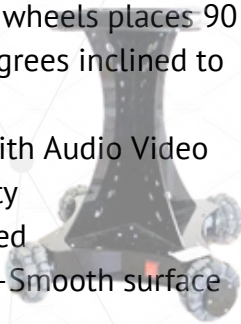**3D Printer Technology section**

Vacuum Technology section

Glimpse of Robotic Study and Research Platforms

OMIBO- Omni Wheeled Robotic Study Platforms

- 4 omni directional wheels places 90 degrees and 45 degrees inclined to each other.
- Wireless camera with Audio Video transmission facility
- Bluetooth controlled
- Operating terrain –Smooth surface

FLEXO-Robotic Hand Study Platforms

Anthropomorphic mechanism resembling the Human Hand - 5 high torque, geared DC servo motors, 10kg/cm torque Pulling action through high tension cables - Spring loaded retrieval action of the fingers

JCBian – Pneumatic Back Hoe Loader

- Knowledge about different kind of pneumatic actuators with the microcontrollers
- Controlling Solenoid valves through the pneumatics actuator board.
- Belt drive on the base is operated with a remote through the app
- C programming is learnt while studying this
- Flow control, pneumatic load and output power calculations, selection of the cylinder as per the application and the knowledge of the various terms, anecdotes and connectors is gained.
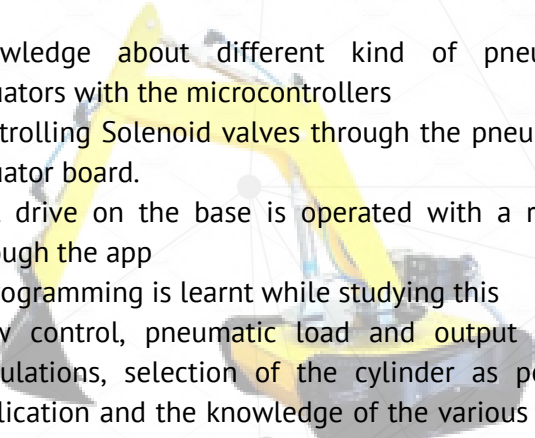
MARSian: Mars Rover robot prototype

- Designing, working and application of the rocker boogie mechanism.
- Load calculations while designing and understanding this robot.
- The two-link mechanism can be used in various other applications.
- Wireless camera, TV tuner cards, C programming for Atmega 16 controllers, Relay based motor drives, servo motors.
- Pan and tilt mechanism for camera is used here. Power systems is applied while deciding and choosing the power source on the robot. On board charging facility is available.
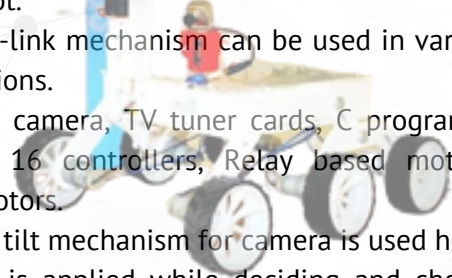
TAL- BRABO ROBOWHIZ Educart

BRABO ROBOWHIZ Educart brings a revolutionary classroom experience specifically designed for students for getting a hands-on learning experience in Robotics Automation technology. BRABO ROBOWHIZ Educart would facilitate students to increase their understanding of the principles and operation of industrial robots used in different manufacturing processes, it would give them an opportunity to practically utilize fundamentals of application development, design and working of robotics cell, programming and many more.

Miniature Industrial Production System (MIPS)

The Miniature Industrial Production System shortly known as MIPS enables the trainees & trainers to acquire a thorough knowledge in the field of Robotics & Automation starting from basic theoretical concepts to advanced applications. A combination of all the technologies used in the lab, the MIPS is a complete platform to learn about industrial automation. It includes a combination of various sensors, motors, pneumatic components, linear actuators, microcontrollers & PLC, etc. to build a miniature manufacturing unit that performs a specific task.
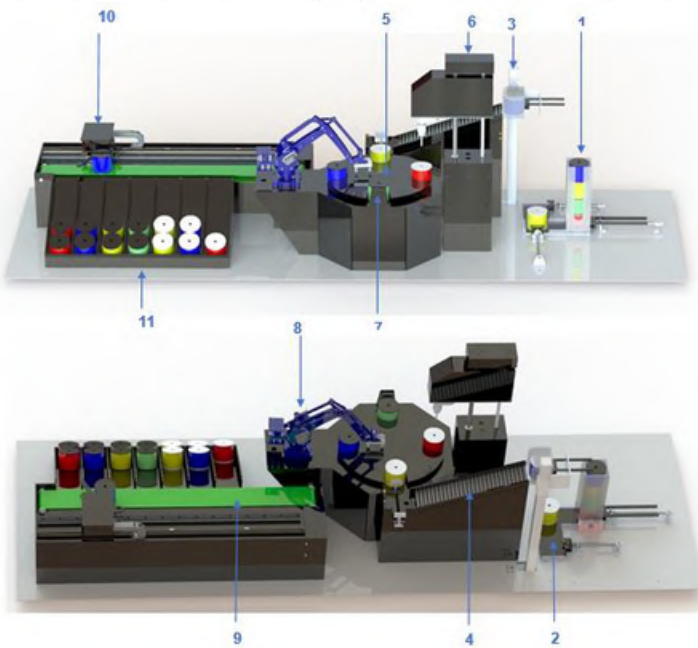
MIPS Modules

- Dispensing Station
    - Stacking Magazine Module
    - Linear Transfer Module
- B. Material Handling Station
    - Slide Module
- C. Processing station
    - Indexing Module
    - Drilling Module
    - Sensing Module
- D. Robotic Manipulator Station
    - Robotic Manipulator Module
- E. Sorting and Storage Station
    - Conveyor Module
    - Separating Module
    - Storage Module

Glimpse OF Robotic Lab Establishment

Benefits To Institute

Research Facility Inside Institute: Institutes establishing Robotics Centre of excellence, which is equipped with robots, software & hardware tools, create an ecosystem to carry out high end research at par with reputed global institutes.

Industry - Institute Interaction: With the Best Robotics resources available, institute can offer industry associated practical learning courses to students, which will make them industry ready.

Monetary Benefits: Institute, being associated with Robolab Technologies, gets a share of revenue generated from the trainings conducted on Robotics & Automation, Academic project trainings etc. at your campus.

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Benefits To Students

Certified Training Programs: Our well defined training & courses inculcate the key skills & concepts in students, enhancing their creativity, logic and problem solving ability. The certified training programs from Robolab give a head-start to the students in their career.

Execution of Innovative Projects: Instead of purchasing their major/mini projects, students' access to latest technology boosts their confidence to undertake innovative & challenging projects on their own.

Summer Trainings & Internships: We offer two/three weeks' summer training and internship programs for students who are really interested to make a vibrant career in the field of Robotics & Technology.

Student-Industry Tie-up Program: All students, who are part of the training program, get an opportunity to connect with the companies related to their interests & qualities, enhancing their chances to get a job of their choice.

Academic Curriculum Oriented Courses: Our training programs at Robotics Centre of Excellence are aligned to university curriculum, acting as a stimulant for students to excel in academics.

Access to Robolab's Online Content: Videos, lectures, blog posts of specially designed robot platforms & automation related material will be available to students participating in the training program.

INVOLVEMENT OF DIFFERENT DEPARTMENTS

Computer Science Engineering:
- It involves making algorithms, writing codes, iterating and improving the robot programming
- Students deal with robot operating system applications and library creation
- CSE students are deeply involved in machine learning and artificial intelligence
- Collection of sensor data as per the parameters satisfying the physics based model of the robot and its environment
- Image processing, signal processing followed by estimation theory (Kalman filters, Bayesian filters etc.), multivariate data analysis

Mechanical Engineering:
- Students utilize knowledge of fastener selection, Shafts, keys and couplings, limits, fits and tolerance applications, design considerations, Design against static and fluctuating load.
- They learn mechanisms & machines, velocity & acceleration analysis, phases of designs, gear design, pulleys & drums, rope, chain and belt drives for motions, Bearing & linear motion
- Robot classification, gripping technologies, manipulator control, Inverse and forward kinematics, coordinate systems and space schemes, textual programming language for industrial robots is learnt by them.
- They get expertise in computer aided drafting(CAD) and software based 3D modeling, mechanism animations, virtual system testing and analysis, computer aided manufacturing(CAM).

CSE · IT · INSTRU. · **Robotics And Automation** · EEE · MECH. · ECE.
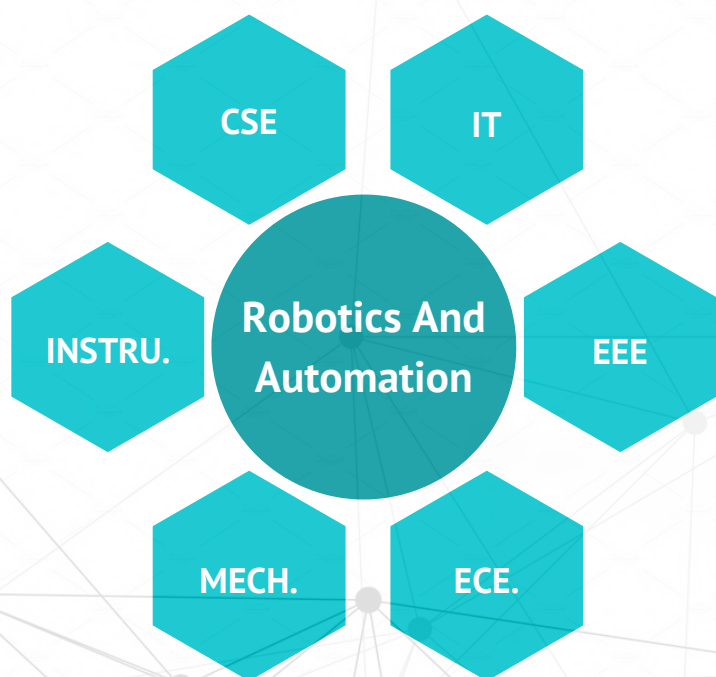
Electrical and Electronics Engineering:
- Students implement electromagnetic fields, electrical circuits, electronic devices and circuits, amplifiers, oscillators, waveform generation and switching devices, ADC & DAC
- They use DC motors and practically learn their working, losses, armature control methods, calculations of efficiency.
- They employ Boolean algebra and switching functions, combinational logic design, sequential circuits
- They work on open loop and closed loop control systems, Transfer functions, time response analysis, PID controllers
- Measuring instruments, potentiometers, power & energy, transducers, and measurement of nonelectrical quantities.
- Students learn & use IC architecture, pin diagram, register and memory organizations, concept of memory segmentation, minimum and maximum mode of operations
- They use special machines like stepper motors and BLDC motors.

Lab Establishment Flow

Day 0

Order Placed for Robolab Establishment

Institute places the order for Robolab establishment. The journey for the lab establishment begins...

Day 1 to Day 5

Site survey and Robolab 3D Model Design

Our engineers conduct a site survey & design a tailor made Robolab as per the space provided by you

Day 6 to Day 20

Infrastructure Work of Robolab by Institute. Your Lab is in the Making..!!

Institute prepares infrastructure as per the design submitted. Our team prepares the hardware & other things needed for the lab
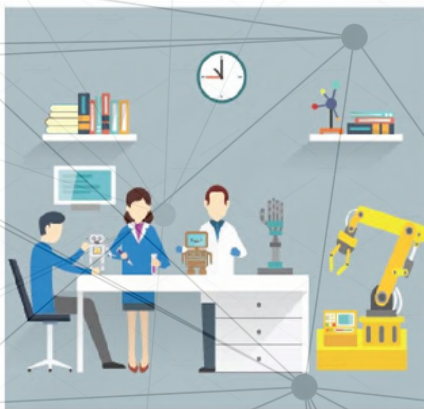
Day 21 to Day 25

Our Team Reaches Campus & the Lab is Established !

Our team sets-up the Robolab with material as per the design & infrastructure. The lab is now ready for use

Day 26 to Day 33

Training & Lab Inauguration. 1 Year Technical Support Begins

Commencement of training for a group of 30 students of your choice. 42 clock hours of power packed training given which empowers the trainees to handle the lab facility in future

Day 35

Signing of MOU for Long Term Association

We sign a MoU for long term association & hand hold the institute to ensure that the set goals are achieved

"From initial enquiry to wrap up, ROBOLAB TECHNOLOGIES were very professional and prompt showed genuine interest in our objectives and were very enthusiastic during training sessions and ensured that trainees were not only enjoying but also taking away valuable learnings.Initially I thought they were too young for something like this but they exceeded our imaginations in providing a world class Robotics Lab at GNIT campus.I would recommend every engineering college to have such ROBOLABs at their campus."

GNI Institutions, Hyderabad

R- Robotics Entrepreneurs
O- Opportunity Seekers
B- Best Lab and Training Providers
O- Open for ideas and discussions
L- Laboratory- state of the art and highly advanced robotics lab
A- Artistic approach towards training
B- Beneficent for Students as well as faculty
Will give them five star ratings for each of the department.
They were really focused. I like being on the team with somebody who has the kind of focus and dedication.

MILIT Pune

CENTER OF EXCELLENCE SETUP IN SOME OF THE MOST DYNAMIC INSTITUTIONS IN INDIA

- Military Institute of Technology, Pune, Maharashtra
- College Of Engineering, Pune, Maharshtra
- Pimpri Chinchwad College of Engineering, Pune, Maharashtra.
- Pune Vidhyarthi Griha's College of Engineering and Technology, Pune, Maharashtra
- Army Institute of Technology, Pune, Maharashtra
- Vishwakarma Institute of Technology, Pune, Maharashtra
- Walchand College of Engineering, Sangli, Maharashtra
- Pune Vidhyarthi Griha's College of Engineering and Technology, Pune, Maharashtra
- Sunderdeep Group of Institutions, Ghaziabad, Uttar Pradesh

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- Guru Nanak Institutions, Hyderabad, Telangana
- Amritsar College Of Engineering and Technology, Amritsar, Punjab
- Banasthali Vidyapith, Vanasthali, Rajasthan
- MVJ College Of Engineering, Bangalore, Karnataka
- Sphoorthy Engineering College, Hyderabad, Telangana
- Nowrosejee Wadia, Pune, Maharashtra
- Military College of Electronics and Mechanical Engineering, Hyderabad, Telangana
- K. R. Mangalam University, Gurgaon, Delhi-NCR
- Shree L. R. Tiwari COE&T, Mumbai, Maharashtra

AWARDS AND ACHIEVEMENTS

D.I.P.P.
STARTUP INDIA

Startup India initiative,launched by Hon. PM Narendra Modi Ji.(DIPP)

HOT 100
WINNER 2017

Winner of the HOT100 Startup Award by CORE Media Group

ET THE ECONOMIC TIMES
BEST STARTUP 2017

Best startup you can work for in the year 2017 by The Economic Times

insights success
TOP25 TECH COMPANIES IN INDIA

Top25 Tech Companies in India by Insights Success Media

SCOO NEWS
TOP 50 EDUCATION STARTUPS

Top50 Ed-Startups that will redefine the Education System by SCOONEWS in 2017

insights success
Trailblazer of the Robotics and Artificial Intelligence Space

Trailblazer for Robotics and Artificial Intelligence Space by Insights Success Media

D.S.T.
Top 3000 Startups in India, Department of Science and Technology

Top 3000 Startups in India by Department of Science and Technology (DST)

SMART FIFTY
Top 3000 Startups in India, IIM Calcutta

Top 3000 Startups in India by IIM Calcutta (IIM C)

WORLD STARTUP EXPO
STARTUP OF THE YEAR 2016

StartUp of the Year-Under Future Education category at World StartUp Expo

Your Very Own **ROBOTICS** Based Center of Excellence **to Enhance Engineering Skills** In Students

LEARN.

BUILD.

SHARE

ARGO Technologies

MAKE IN INDIA

Robolab Technologies
Creativity tends to infinity...

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