ANNUAL REPORT

MAKER BHAVAN FOUNDATION

FY-2024

makerbhavanfoundation.org

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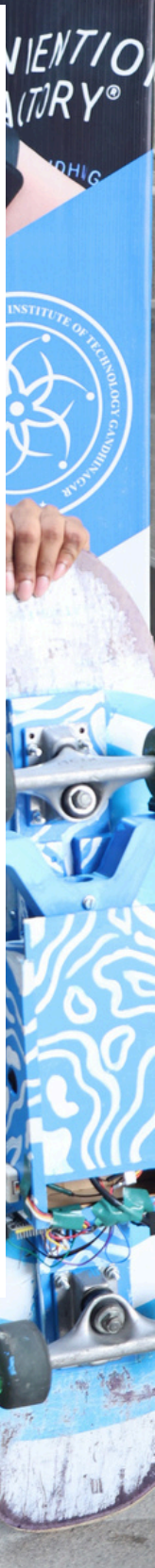


VISION

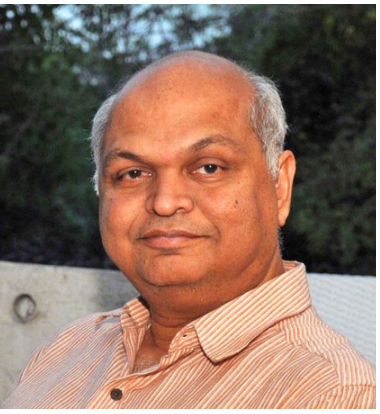
To ignite a transformation in engineering education, empowering India's brightest young minds to engineer a future of boundless innovation and positive global impact.

MISSION

We work with higher education institutions in India to build cutting-edge makerspaces, deliver immersive project-based learning experiences, and facilitate industry collaborations to cultivate the next generation of engineers who can translate ideas into tangible innovative solutions for real-world challenges.

BOARD OF DIRECTORS

Our esteemed Board of Directors share a deep commitment to creating transformative education opportunities and empowering students to reach their full potential.



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Founder and Chairman

Ruyintan E Mehta
President

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Ajay Lavkare
Director

Kirat Patel
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Sudharshan Saraf
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Shaibal Roy
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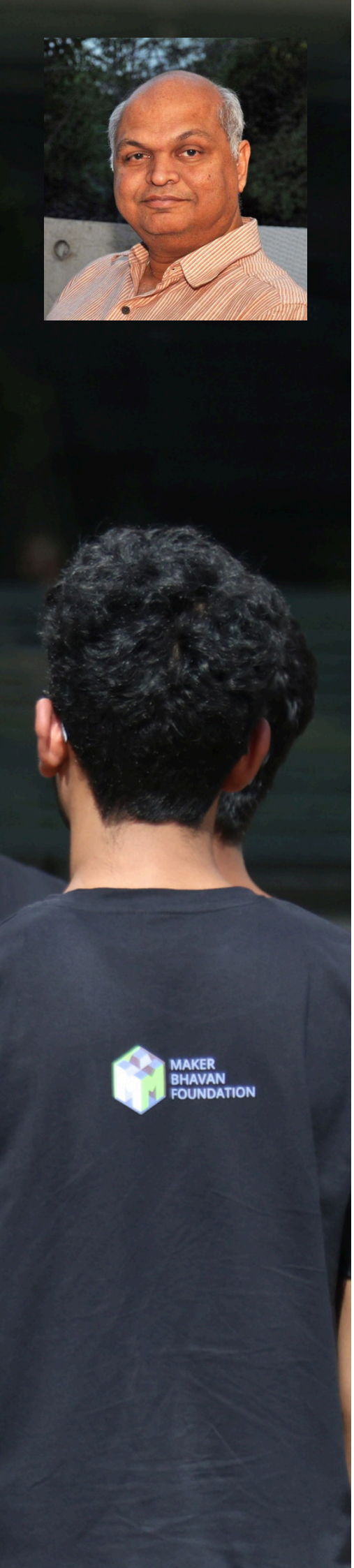
Dr. Timothy A. Gonsalves
Director

Dr. Ranbir Singh
Director



Chairman's Note

From an Idea to a Growing Mission

In 1975, we walked out of the gates of IIT Bombay as engineers—armed with our degrees and lifelong friendships. Yet, looking back, we realized what we didn't have: a place where we could explore and experiment freely.

In 2014, when it was time for our batch to 'give back', we decided to build what we had once wished for—a Tinkerers' Lab at IIT Bombay - a makerspace where students could invent, experiment, and build with their hands.

By 2019, it was time to take the next step—to take this idea to institutions across India. And so, Maker Bhavan Foundation was founded with a simple yet ambitious vision: To make hands-on learning an integral part of India's engineering education.

Since then, we've helped set up state-of-the-art makerspaces, introduced programs like InventX and the Vishwakarma Awards and partnered with LEAP at IITMIC to foster hands-on learning and innovation skills among students.

We're just getting started. Our dream is for every engineering student in India to create technology—not just study it.
This is the legacy we're building. And it's only the beginning.

DR HEMANT KANAKIA

President's Message

MBF 2.0: Scaling with Purpose

The past year has been transformative. Our programs have made hands-on education more accessible, more impactful, and more aligned with the needs of India's youth. Along the way, we've gathered valuable insights—insights that now shape our next new chapter: Scaling 2.0.

2025 marks a pivotal moment. As we scale, our focus is sharpening. While we continue to work with top-tier institutions, our priority is shifting toward tier II colleges, where resources are fewer, but the hunger to learn and innovate is just as strong. We believe that every engineering student, not just a privileged few, deserves access to the tools, mentorship, and a transformative learning experience.

Our 2025 goal is bold: to reach 30 colleges across India. And over the next three years, we're aiming even higher—100 colleges, reaching 10% of India's graduating engineers every year.

Central to this next phase is collaboration. In 2025, we aim to double our corporate partnerships, building stronger bridges between industry and academia. We're also stepping into a wider conversation, working with policymakers and education leaders to help shape the future of STEM learning in India. Scaling 2.0 is about more than numbers—it's about ensuring that no student is left out. To that end, building deep, meaningful partnerships, helping shape a more equitable and inventive future for engineering education in India. It's about pushing boundaries—together.

Let's build what's next.

RUYINTAN MEHTA

Executive Summary from the CEO

Building Momentum, Empowering Makers

2024 was a defining year for the Maker Bhavan Foundation. It wasn't just about meeting milestones—it was about unlocking potential and proving what's possible when we champion hands-on learning at scale.

Across the country, our Tinkerers' Labs network continued to grow—**doubling in numbers in just one year.** These aren't just makerspaces—they're launchpads where students transform ideas into real-world solutions.

At Invention Factory®, we crossed a major milestone: **over 100 provisional patent disclosures filed**, with several student teams now pursuing full patents. These outcomes validate our belief that when young undergraduates are given the right tools, mentorship, and full freedom, they don't just learn—they invent.

The momentum extended across our programs. **Applications for Invention Factory® and the Vishwakarma Awards quadrupled. LEAP, our partner institution, expanded to 15 institutions**, impacting 2,800 students and more than 300 faculty members. India's students are clearly eager for challenge-based, experiential learning—and we are here to meet that moment.

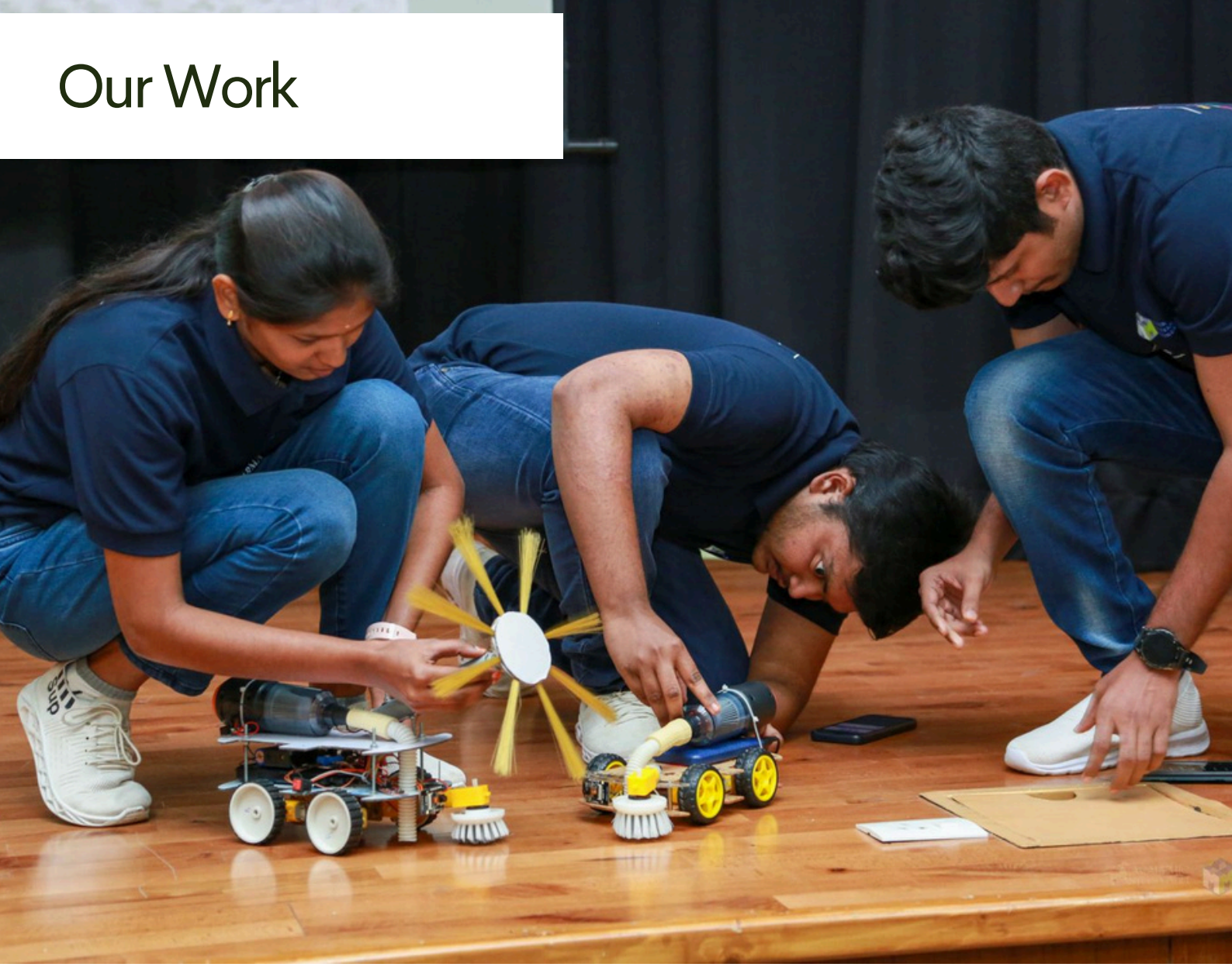
Our story is also gaining visibility, with over 100 media features this year. But what matters most isn't the spotlight—it's the makers we're nurturing and the energy they bring to reimagining what engineering education can be.

Looking ahead, our vision is bold and simple: to empower a million makers by 2030. Not just to build things, but to build India's future.

Thank you for being a part of this journey. The momentum is real—and as our Founder mentioned, we're only getting started.

DAMAYANTI BHATTACHARYA

Our Work



MBF is dedicated to developing students' skills and capabilities while expanding access and opportunities for the many learners who start with limited resources so that they may have the potential to rise and thrive. By nurturing such vibrant maker learning ecosystems, we aim to empower the next generation of master innovators, practical problem solvers and confident leaders.

Raise The Talent Base of Engineers

MAKER INNOVATOR COMMUNICATOR

PROJECT BASED LEARNING

MAKER

Develop core technology and problem-solving skills by learning to build real world solutions.

Tinkerers' Lab

Our labs are equipped with the latest desktop manufacturing and fabrication equipment, open 24/7, led and managed by students.

Here students work in multidisciplinary groups, tinker, experiment and build tangible engineering products.

LEAP

Learn Engineering by Activities with Products is a partner initiative founded by Prof T A Gonsalves with IIT Madras Incubation Cell. LEAP provides IIT-style project based learning for engineering colleges for students and faculty.

LEAP's hands-on curriculum empowers undergraduate students to tackle real-world societal challenges.

Tinkerers' Lab

35,000+

Sq. feet of makerspace created for hands on learning

1500+

Students / week used our facilities in 2024

2000+

Projects undertaken in 2024

18

Labs across tier I and tier II colleges in India

12

Start-ups funded

LEAP

3,000+

Students trained in project based learning

300+

Faculty benefited from skill development programs

15

Partner colleges in India

Tinkerers' Lab Showcase

On 17 December 2024, the Indian Institute of Technology Ropar inaugurated Dr Ranbir Singh Tinkerers' Lab—a cutting-edge facility funded by philanthropist Dr Ranbir Singh through MBF.

As a matter of fact, 2024 saw MBF sign 12 new MOUs, primarily with tier II institutions, as part of our mission to democratize access to project-based learning for every student, everywhere.

By the end of 2025 we expect Tinkerers' Labs will be active in over 30 institutes across India—nearly tripling our current footprint and ushering in a new era of hands-on, student-led innovation at scale.

AGASTYA 4.1

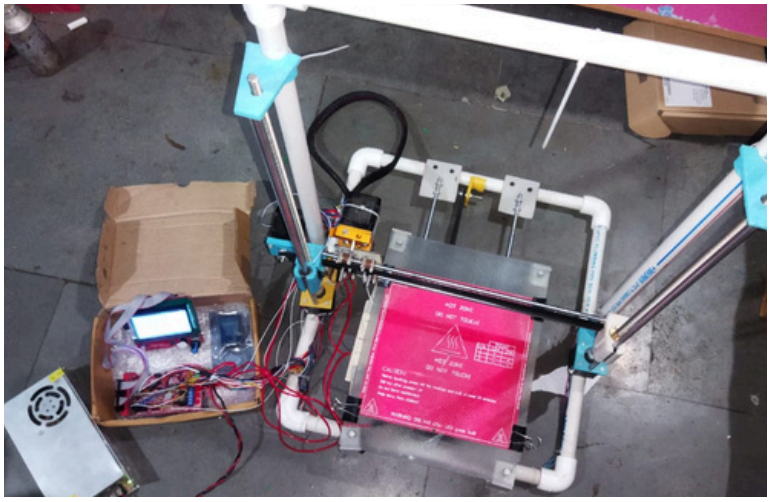
TINKERERS' LAB, NIRMA UNIVERSITY

A cutting-edge, fourth-generation remotely operated underwater vehicle (ROV) designed for precise underwater tasks, it combines advanced mechanical, electronic, and software systems to excel in dynamic environments. It can navigate through gates, detect objects, and manipulate them with accuracy.

LOW COST 3D PRINTER

TINKERERS' LAB, PREC LONI

The frame of the 3D printer is constructed using durable and lightweight materials such as aluminum extrusions or laser-cut acrylic sheets, ensuring stability and precision during operation. The printer operates on the Cartesian coordinate system, featuring X, Y, and Z axes controlled by stepper motors. These motors are driven by an Arduino Mega microcontroller and a RAMPS 1.4 shield.



Experiential Learning Course Showcase

The Collaborative Classroom CC) and Experiential Learning Lab (ELL) in the Department of Electrical Engineering at IIT Bombay supports faculty in embedding active learning in their courses. In 2024, 13 courses were taught, engaging 685+ students. More than 70 projects were created ELL.

MBF's flagship makerspace at IIT Gandhinagar hosted 11 courses by the institute's faculty and 4 project-based workshops by facility staff. It also organized workshops for K–12 students across Gujarat.

Our partnerships enable universities to incorporate the pedagogy of active learning into their curriculum to achieve targeted learning outcomes for the betterment of their students.

THE ELECTRONICS DESIGN LAB (EDL) COURSE

EDL is a capstone design course in the Department of Electrical Engineering, IIT Bombay. This course empowers students to develop electronic products from concept to prototype. The introduction of the Experiential Learning Lab (ELL) significantly enhanced the curriculum & Technology Readiness Level (TRL) of student project prototypes. Every year, more than 200 students enroll in EDL and work in teams of 4–5 students. In the last 3 years, more than 600 students have benefited from the introduction of prototyping facilities (ELL) for their EDL projects.

DESIGN INNOVATION AND PROTOTYPING COURSE

Run from Maker Bhavan at IIT Gandhinagar, this is a mandatory full-semester, 5-credit course that introduces undergraduate students to the fundamentals of techno-aesthetic design and rapid prototyping. Through hands-on and experiential learning, students gain practical skills using advanced tools and techniques such as laser cutting, vacuum forming, PCB milling, etc. With 389 first-semester students participating in collaborative group settings, the course lays a strong foundation in creative problem-solving, design thinking, and technical fabrication.

JUMP-START INNOVATION FOR DEEP-TECH

INNOVATOR

Teach innovation skills to develop an inventive mindset and solve real world problems.

Invention Factory®

A six-week intensive summer program where students learn how to identify a real world problem, design and develop a solution , file provisional patent declarations and compete for best invention.

Vishwakarma Award

A nationwide thematic challenge to encourage talented student teams to build innovative, deployable prototypes rapidly with impact.

Technovation Sandbox

A living lab approach at IIT Bombay - which acts as a testbed for students to learn both need identification and deployment of solutions. Students gain experience in product development, leadership skills & entrepreneurship.

Invention Factory® 2024

700+

Applications received from over 300 colleges across the country

30

New provisional patent declarations filed in USA and India, bringing the total to over 100

40.56%

Increase in students' confidence and self efficacy on patenting

Vishwakarma Award 2024

500+

Applications received from 262 colleges

18

Projects built promoting the concept of campus as a living lab

Innovation Track Showcase

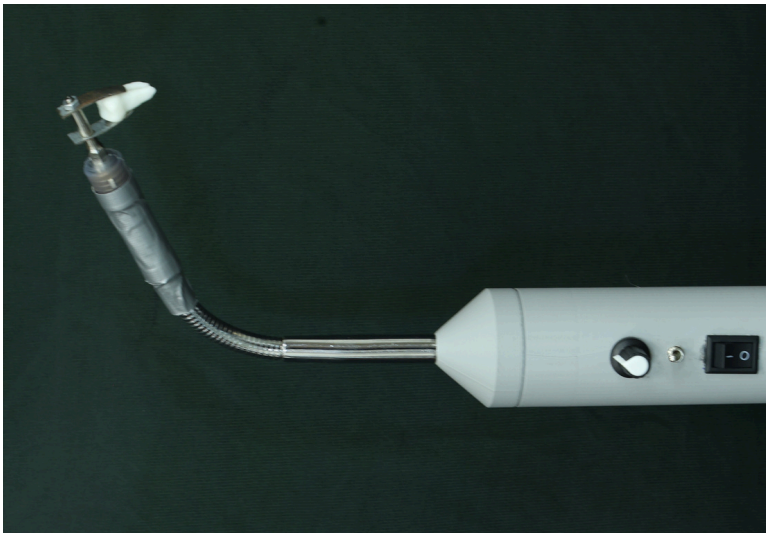
India needs disruptive innovation to gain a competitive edge globally. Yet, less than 5% of the country's engineering students are capable of innovative problem-solving. Invention Factory® and Vishwakarma Awards focus on developing trained technology talent that is well-versed in the innovation process. This ecosystem of intensive innovation programs is rapidly transforming how engineering students learn to ideate, develop, and deploy solutions.

In 2024, through the Invention Factory®, Vishwakarma Awards, and the Technovation Sandbox, we have supported students in building and documenting over 74 functional prototypes. These span healthcare, accessibility, sustainability, mobility, and more - reflecting the power of structured innovation in action.

TOOTH EXTRACTOR FACILITATOR

INVENTION FACTORY®

Tooth Extractor is a device which makes a tooth mobile enough to be extracted easily, without the use of force and pulling on the tooth, reducing risks of complications, bridging the skill gap between inexperienced and experienced oral practitioners.
Stavan Mehta, IIT Bombay &
Kritika Patidar, IIT Jammu



BIOBULB

VISHWAKARMA AWARDS

A carbon capture system using microalgae to reduce CO_2, NOX, and SOX emissions, improving air quality while generating biofuels and fertilizers to support sustainable living.
Chinmoy Dan, Aryan Anand,
Sudhanshu Kumar, and Ishika Roy
Delhi Pharmaceutical Science and
Research University

TRAIN STUDENTS WHO CAN FUEL INDUSTRY 4.0

MAKER COMMUNICATOR

Combine technology and problem solving abilities with essential cognitive soft skills to enhance overall employability.

Soft Skills Training Cuts Across All Programs

We ensure that students who participate in any of our programs are not only trained to be effective problem solvers but also trained in cognitive soft skills. Our Centre for Essential Skills provides free courses on communication, critical thinking and interpersonal skills.

Industry-Academia Partnerships

Our industry partners are passionate to drive positive change in the engineering ecosystem. They provide support that enables us to organize and run our programs and events.

TECHNOCRAFT INDUSTRIES INDIA LTD.

ALKYL Alkyl Amines Chemicals Limited

ADDVERB Human | Robot | Possibilities

Lenovo

UPL OpenAg™

hp

TATA MOTORS

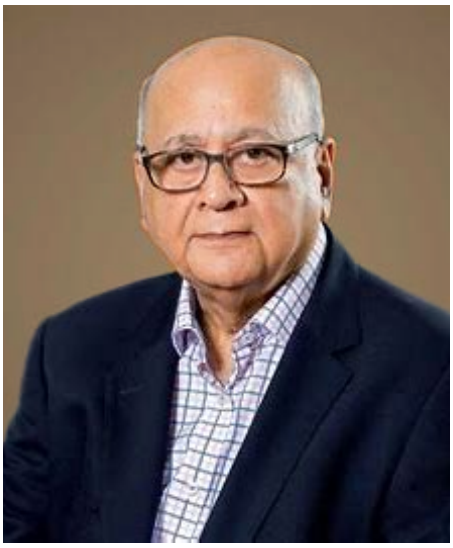
RIECO

TI A Makerspace Company

ideaForge™ Create. Inspire

In the past years, our partners have supported us in establishing new labs, sponsoring our programs, and issuing industry sponsored challenges for our student maker community.

Why Do I Partner With MBF?



Yogesh M. Kothari
Chairman and Managing Director,
Alkyl Amines Chemicals Limited

"At the rate at which we are experiencing rapid change in technology, industries, societal patterns, and processes in the 21st century due to increasing interconnectivity and smart automation,
Tinkerers' Labs are essential for industries in India, as they provide access to tools and resources that can help drive innovation, workforce development, rapid prototyping, collaboration, and incubation of startups.
By leveraging the power of Tinkerers' Labs, industries in India can stay competitive in a rapidly changing global economy."

Prof. Manoj Gaur
Director, IIT Jammu

"We commend Maker Bhavan Foundation, our steadfast partner in igniting this maker spirit at our campus.
Together, we built the Tinkerers' Lab, a vibrant hub where curiosity takes flight. Through programs like Invention Factory®, students dive into a world of innovation, honing their technical and creative skills like never before.
These experiences are more than projects; they're stepping stones to becoming problem-solvers, builders, and risk-taking leaders. This isn't just about learning for exams; it's about preparing our students for the challenges and opportunities of tomorrow. It's about building a future where imagination meets reality, powered by the maker's spirit."

Gagan Goyal
General Partner, Indian Quotient

"I think initiatives like the Vishwakarma Awards are very important because they promote learning by doing. This kind of learning not only helps students cultivate and strengthen their knowledge about the concepts, but also develops their interpersonal skills which are essential for problem-solving, critical thinking, and presentation.
Our education system today lacks these skills. Additionally, Vishwakarma Awards also encourages UG and PG students to think about the commercial application of their concepts, thus building future operators, creators, and entrepreneurs."

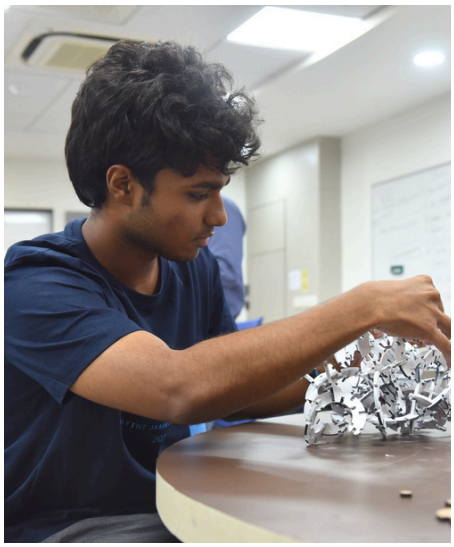
Students' Reflections

Kusum Saini
Vishwakarma Participant,
PhD and Batch of 1969 Innovation Fellow at IIT Delhi

"The last two days of the program were truly transformative for me. Getting the opportunity to meet and interact with jury members and key speakers was a game-changer. It boosted my confidence tremendously—I now feel comfortable engaging with founders and CEOs of major companies. One of the most memorable moments was interacting with Parul Gupta Ma'am and Sanjay Jesrani Sir. Their perspectives were incredibly inspiring and left a lasting impact on me.

The program didn't just improve my communication and teamwork skills—it also gave me the courage to take my ideas forward.

I've already started reaching out to some of the jury members for mentorship on my startup journey. It also broadened my understanding of innovation and sustainability."



Sarthak Purohit
Invention Factory® Participant
Transportation Design, MITID Pune

"As a transportation design student, participating in the Invention Factory® was my first real exposure to such a fast-paced, hands-on environment—and it was both hectic and incredibly fun.

Over the past six weeks, I've learned more than I ever thought I could in such a short span. The time constraints really pushed me to pick up new skills quickly, something that wouldn't have happened in a more traditional or controlled setting.

Coming from a design background, identifying real-world problems and building viable, impactful solutions was a new challenge for me. It really made me think hard about the kind of change I want to create. I also got to use machines like 3D printers and laser cutters for the first time—technologies we don't usually get to operate ourselves back at my institute."

Rahul Prajapat
Tinkerers' Lab Alumnus
Founder, Tvarit gmbh

"During placement season, we were presented with many opportunities in many finance and business roles, but **my time in Tinkerers' Lab moved me to stay in core engineering. It inspired me to get into entrepreneurship and build something that is deep tech, and actually impacts society and industry.**

I established my own start-up, Tvarit AI, which is serving manufacturing industry with a vision 'Zero Waste and Sustainable Manufacturing'. Primarily automotive industries, suppliers of BMW, Bajaj, Tatas and Diamlers of this world, are enjoying the benefits of our hardware and AI systems to gain a competitive edge. We've impacted 55+ manufacturing plants so far in EU as well as India."

THANK YOU

for your continued support

FOUNDATIONS	Kanakia Foundation Indira Foundation
INDIVIDUAL CONTRIBUTIONS	Rajesh Mashruwalla The Leung-Roy Family Dr. Ranbir Singh Lightstone Technologies Group Inc
CSR	Reico Industries Alkyl Amines Techno craft Idea Forge Lenovo United Phosphorus Limited AIA Engineering Lenovo
SPONSORSHIP	Technoventor Addverb Ecosense TATA Motors

Financials

Our financial overview reflects a strong alignment between our resources and strategic priorities. This year, we maintained a balanced allocation of funds across core initiatives, operating expenses, and key partnerships, ensuring both impact and sustainability in our programs.

1. Tinkerers' Lab
2. LEAP: Learn Engineering by Activities with Products
3. Invention Factory®
4. Vishwakarma Awards
5. Centre for Healthcare Entrepreneurship
6. Experiential Learning Courses
7. Technovation Sandbox

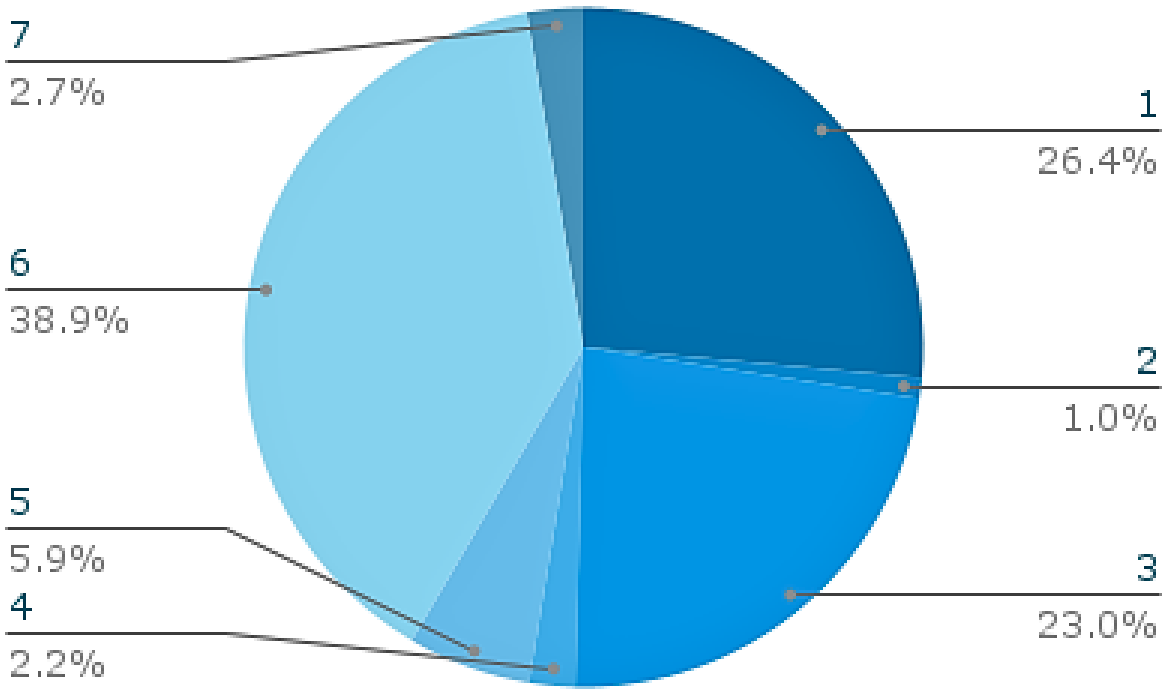


Chart 1: Breakdown of financial expenditure across various programs

Financials

Comparative Balance Sheet as on December 31...

		2022	2023	2024
ASSETS		**Amount**	**Amount**	**Amount**
Current Assets				
	Checkings Account	$10,960	$42,893	$45,631
	Savings Account	$20,917	$132,336	$297,330
		$31,877	$175,229	$342,961
Other Current Assets	Fidelity Investments	$213,045	$167,653	$292,775
	Rent Deposit	$0	$1,898	$1,898
Total Assets		**$244,922**	**$344,780**	**$637,634**
LIABILITIES & EQUITY				
EQUITY				
	Opening Balance Equity	$475,275	$240,353	$343,195
	Net Surplus/(Deficit)	-$234,923	$102,842	$294,439
	Total Equity	$240,353	$343,195	$637,634
Current Liabilities				
	Accounts Payable	$4,570	$1,585	$0
Total Liabilities & Equity		**$244,922**	**$344,780**	**$637,634**

Financials

Income Account as on December 31...

	2022	2023	2024

Income	Schedule	Amount	Amount	Amount
Donations		$473,850	$607,648	$925,181
Other Income				
Bank Interest		$8	$27	$39
Dividend		$2,647	$2,955	$13,178
Capital Gains/Loss		$2,380	-$8,347	$2,447
Income Tax Refund		$32	$0	$0
Total Income		**$478,917**	**$602,282**	**$940,845**

Financials

Expenditure Account as on December 31...

		2022	2023	2024
Expenditure		**Amount**	**Amount**	**Amount**
Donations & Grants	1	$624,630	$360,702	$512,089
Admin Expenses		$4,121	$5,848	$9,167
Advertisement & Promotion		$4,715	$29,323	$27,360
Bank Charges		$825	$1,020	$95
Laptop		$2,029	$3,427	$0
Legal Fees and accounting charges		$1,650	$100	$3,715
Printing & Stationery			$12	$686
Professional Fees			$346	$504
Rent			$13,881	$16,635
Repairs & Maintenance			$1,042	$0
Salary		$44,997	$65,326	$67,775
Sponsorship		$7,500		$0
Travelling Expenses		$22,109	$18,017	$7,259
Website Expenses		$1,263	$395	$1,122
Total Operating Expenses		$89,209	$138,737	$134,317
Total Expenses		**$713,839**	**$499,440**	**$646,406**
Surplus/ Deficit		**-$234,923**	**$102,842**	**$294,439**

This report is a celebration of the strides we have taken in the growth of a culture of making in higher education institutions empowering thousands of students and strengthening of our partnerships across academia, industry, and the broader community at large.

Looking ahead, our ambitions remain as bold as ever. The coming years will see us striving to expand our reach, particularly toward tier II-III institutions, ensuring that every aspiring engineer in India has access to the tools, mentorship, and experiential learning they deserve.

Thank you for accompanying us on this extraordinary journey.

DAMAYANTI BHATTACHARYA
CEO, MAKER BHAVAN FOUNDATION

What Motivates The Team

At Maker Bhavan Foundation, we are driven by a shared belief that every engineering student deserves the chance to learn by doing and to lead with purpose.

What motivates us is seeing students go beyond textbooks, build real-world solutions, and grow into confident problem-solvers. For us, it's not just about education—it's about empowering the next generation to engineer a better, more inclusive future.

Damayanti Bhattacharya
Chief Executive Officer

Namita Lobo
Executive Director - Operations/ Business Development

Sandeep Natekar
Senior Program Manager - Tinkerers' Lab

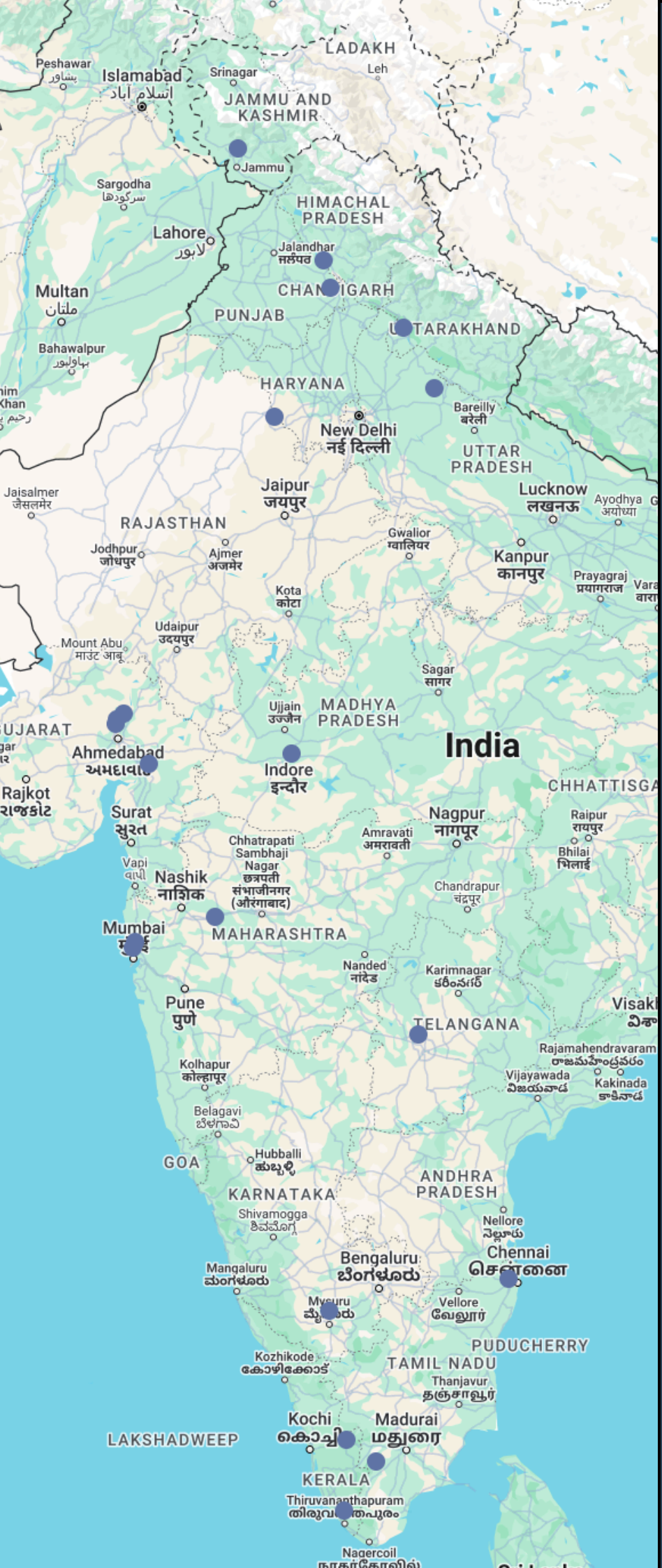
Yogesh Chettiyar
Manager - Tinkerers' Lab

Osheen Jain
Manager - Communications and Outreach

Krina Sheth
Manager - Accounts and Admin

Aditya Singh
Fellow

Rashi Parekh
Fellow



OUR PRESENCE

IIT Bombay

IIT Hyderabad

IIT Gandhinagar

Pravara Rural Engineering College, Loni

IIT Jammu

Nirma University

BITS Pilani, Pilani Campus

ICT Mumbai

IIT Bombay ChemE

IIT Indore

IIT Ropar

Ahmedabad University

RAMCO Institute of Technology

Teerthankar Mahavir University

College of Engineering Roorkee University

Chitkara University

National Institute of Engineering

Navarachana University

Sri Chitra Thirunal College of Engineering

Government Engineering College, Idukki

Prince Shri Venkateshwara Padmavathy Engineering College

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