MJF Jan 2021 Newsletter

Motwani Jadeja Foundation

Motwani Jadeja Mobile Design Lab & Codeavour 2021

The Motwani Jadeja Foundation has recently focused its efforts on investing in the ground-breaking Motwani Jadeja Mobile Design Lab, encouraging the entrepreneurial innovation of young people and women in effective and exciting ways.

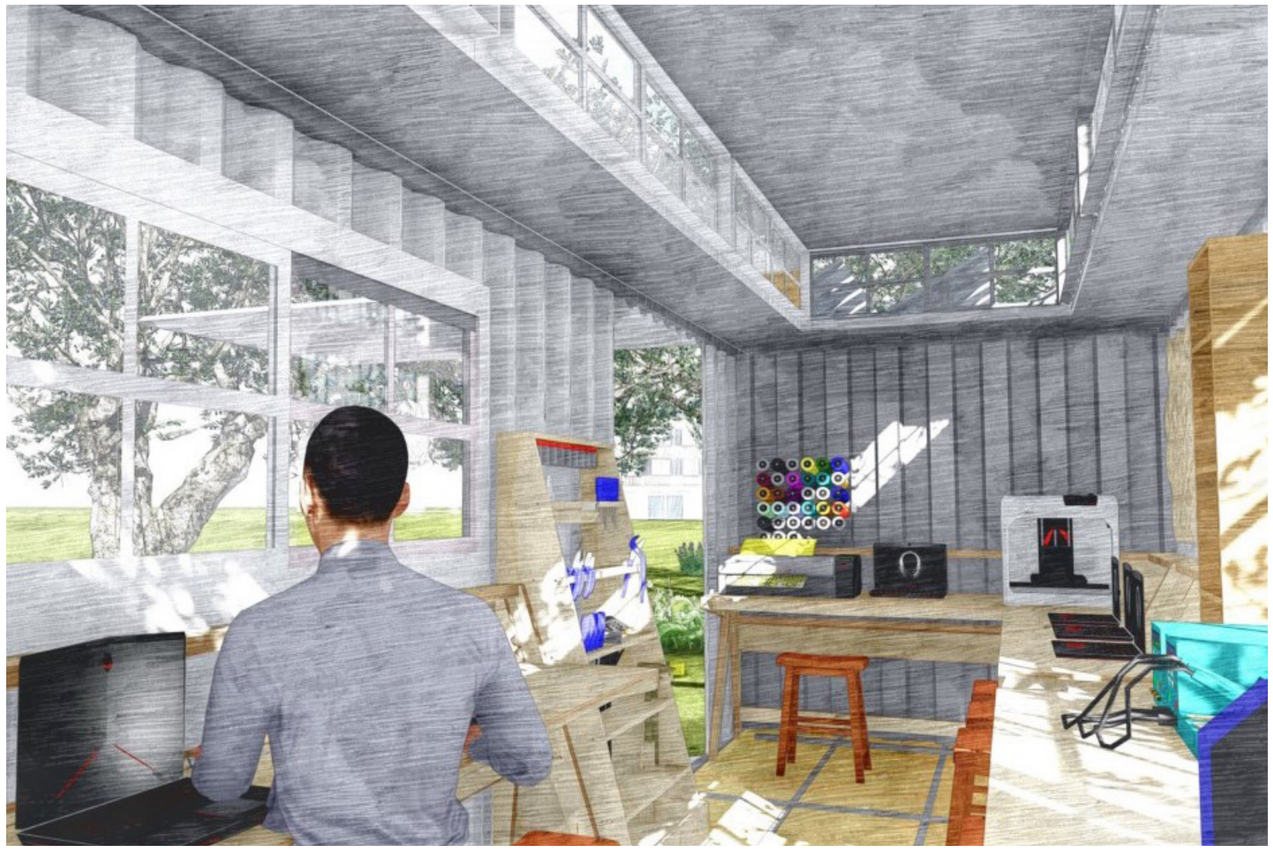
The Motwani Jadeja Mobile Design Lab is based on the idea of a mobile 'Fab-Lab', which means 'Fabrication-Laboratory', and is a worldwide hub of open design spaces and facilities where you can make (almost) anything. Fab labs connect digital craftsmanship with

open source machines for digital fabrication. The underlying open design principles make it possible to easily share and reuse designs and blueprints over the internet. This means that fab labs become a networked structure for global collaborative design and production, for the sharing of knowledge and economic growth.

In MJF's educational program, students learn how to use these tools for digital fabrication and open design principles, ultimately coming up with solutions for local issues. A fab lab is equipped with an array of flexible computer-controlled tools that cover several different length scales and various materials, with the aim to make "almost anything". Gujarat's first FabLab was established at CEPT in January 2014 and is co-run by CEPT University and The Motwani Jadeja Family Foundation.

Building on this successful initiative, the Motwani Jadeja Mobile Design Lab takes these ideas and the popularity of new mobile maker hubs around the world, which are essentially design labs housed in a moving vehicle. A 'mini-makerspace on wheels', containing the most essential making machines, the Motwani Jadeja Mobile Design Lab adapts to the current climate by ensuring that the lab can function as a portable unit for carrying equipment that caters to hands-on activities and digital fabrication. It specifically aims at learning and making for 'Problem Solving' for the Indian context, therefore.

The Design Lab started as a self-driven initiative by RC fellows and supported by MJF. Chandni Chhabra and Rudrapalsinh Solanki who designed the Motwani Jadeja Design Lab were associated with MJF as a MakerFest team and RC fellows, based on their projects which were designed for problem-solving, and their involvement in developing the maker activities at Fablab CEPT. The mobile design lab was also initiated with a similar problem solving intention.

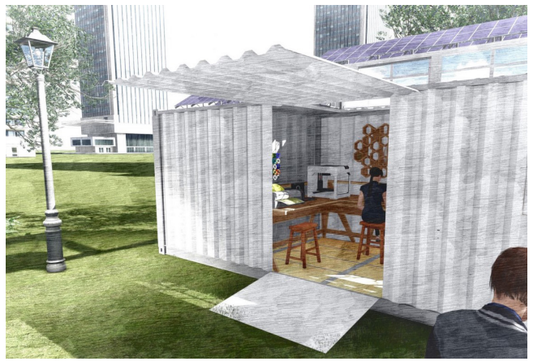


The design of the mobile Design Lab holds a standard platform that contains the suite of machines, and materials and equipment found in a stationary lab. This Design Lab design also includes Laser Cutter, desktop CNC machine, precision Mini Mill, 3D printers, laptop computers, vinyl cutters, software, large format printer, an electronics workbench, small tools for molding & casting, molding and casting materials, silk screening materials, documentation tools camera, scanner and accessories), power and internet cables, and books.

"The key factor linking learning with making is that making only happens by learning from our context and we learn by making. For someone who wants to problem solve, the 'Mobile Design Lab' is a place to access making through learning. It's not just a vehicle filled with tools & gadgets but a place to explore and find solutions—a place where ideas & skills are empowered." Chandni Chhabra.

Rajeev Circle Fellows **Chandni Chhabra** and **Rudrapalsinh Solanki** – designers of the Motwani Jadeja Design Lab

Many people can benefit from the Motwani Jadeja Mobile Design Lab, from direct beneficiaries (such as students and local entrepreneurs), who are given access to modern making tools to solve local issues, and who can therefore generate entrepreneurial opportunities, to indirect beneficiaries (such as the local economy), who are enabled to provide stimulus to STEM education, and a 'do-it-yourself' approach to problem solving for local entrepreneurs and businesses.



By ensuring that the Design Lab is mobile, furthermore, MJF is extending this hands-on learning and the capacities of a stationary maker-space to a much larger audience of users. The Motwani Jadeja Mobile Design Lab therefore takes this experience to the community so that everyone has the chance to experience the STEM based maker movement where they are and get access to create design solutions for themselves and their community.

MJF hopes to make learning and problem solving accessible to all with Motwani Jadeja Mobile Design Lab and looks forward to hearing more about the exciting inventions that are produced!

CODEAVOUR 2020 AI

The Motwani Jadeja Foundation is proud to have sponsored the Codeavour 2020 competition, the biggest international AI and coding competition for kids.

Hosted by STEMpedia, and bringing together 5,426 teams from 98 countries, the support helped take this competition to new heights, providing the young participants with the best possible experience. The competition, held online, encouraged the next generation to bring out their inner coders and make innovative projects with PictoBlox.

Codeavour 2020 has succeeded at enabling children to explore the exciting worlds of AI and coding, and to develop critical thinking, creativity, collaboration, and communication – the four C's of the 21st-century skills – to create solutions for real-world problems.

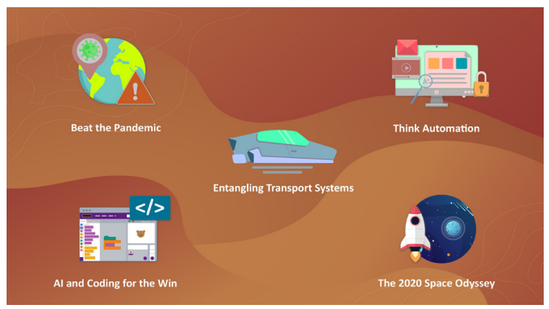
"STEMpedia's focus is always on enabling kids to explore new things around the world they are living in. Generation Z lives in the AI world before the social world. We want them to expose themselves to AI and learn the underlying fundamentals to build a strong curiosity." Dhrupal Shah, Co-Founder & C.E.O

Themes for making the world a better place have included 'Beat the Pandemic with AI', in which kids can use their skills to try to solve problems that Covid-19 has presented; 'Think Automation' where kids can channel their

'inner James Bond' through automating their surroundings and making routine tasks go auto-pilot.

By taking part in 'AI and Coding for the Win,' children explored and experimented with AI and coding in order to invent something new and exciting, and in 'Entangling Transport Systems', they imagined and designed innovative solutions to the world's transportation problems. And perhaps one of the most exciting, in the 'Space Odyssey' children were encouraged to become frontrunners of space exploration and unravel mysteries of the universe. From small steps to giant leaps!

Codeavour 2020 helped children and young adults explore their dreams and the future of technology on many levels, not only presenting exciting projects, but also training up students and teachers. In association with schools, free Student Webinars were set up in order to motivate and teach AI & ML concepts to the students and kids. These were hugely popular, with the total number of student



webinars conducted by STEMpedia Team at 136, and the total number of students trained on AL & ML by STEMpedia Team was a huge 9280. Through Teacher Trainings, moreover, 151 teachers were taught about AI & ML so that they could guide students and kids throughout the competition and further afield.

In its Social Outreach efforts, Codeavour 2020 also collaborated successfully with schools, activity centers, STEM/ STEM businesses and NGOs, to take this competition to every corner of the world. The scale of this reach out was huge, with the total number of academic partners (i.e. schools and activity centers) at 76, the total number of partners at 52, and the total number of community partners at 5, confirming an impressive social impact.

In particular, Codeavour collaborated with the Agastya International Foundation to make the competition accessible for underprivileged children. Agastya's vision is of a creative India, with it's mission "to spark curiosity, nurture creativity, and instill confidence" in economically disadvantaged children and government school teachers. It aims to do this by bringing imaginative and innovative hands-on science education, project-based and peer-to-peer learning to schools, towns and villages across India. In order to support this cause, Codeavour trained over forty educators of Agastya Foundation on Artificial Intelligence. Now, these teachers will be able reach economically disadvantaged children in rural India through Agastya's Mobile Labs, and to provide crucial training across various states. They will cover 10 regions across India and train 15-20 teams from each region, therefore hoping to draw 150 to 200 teams of underprivileged children from rural India, bringing opportunities and promise to their lives.

Codeavour also collaborated with INDIAai to make the competition reach even further afield, through the reach of its website. INDIAai is the National AI Portal of India - a central hub for everything AI in India and beyond – through the joint initiative of MeitY, NeGD and NASSCOM, and it aims to be the trusted content powerhouse in the backdrop of India's journey to global prominence in Artificial Intelligence. By collaborating with this website, Codeavour was able to spread the word and include as many young minds as possible.

In another impressive collaboration, Codeavour involved Atal Tinkering Labs, whose vision is to 'Cultivate one Million children in India as Neoteric Innovators', through their mission to establish Atal Tinkering Laboratories (ATLs) in schools across India. Aligning with the goals and values of Codeavour, the objective of this scheme is to foster curiosity, creativity and imagination in young minds; and inculcate skills such as design mindset, computational thinking, adaptive learning, physical computing etc. With support of Atal Innovation Mission, NITI Aayog's team, the Codeavour team reached out to Atal Tinkering Labs all across India, conducted a webinar to raise awareness about latest technologies like AI & machine learning, and then invited the students to participate in the competition.

It was also important to focus on reaching out to girls who were interested in technology, which Codeavour ensured through its collaboration with Sheroes, the 'women-only social network', which brings together girls and young women to discuss issues around careers, cooking, relationships, health, lifestyle and modern life. By conducting a webinar to discuss the role and contributions of girls/women in STEM, bust gender-based myths and discuss how to bridge the gender gap in the technology industry, Codeavour and Sheroes together succeeded in bringing more girls into the competition.

As well as collaborating with these ground-breaking organizations and platforms, Codeavour also established a series of Guest Webinars, so as to motivate students, educators and school leaders to learn and explore the field of coding and artificial intelligence. The series of webinars bring in industry experts and educationists to share their thoughts and experiences with Codeavour's wider network.

Topics covered include: the Importance of Artificial Intelligence & Coding; the Education for Young Minds; Girls in STEM and Coding: The future ahead; AI & Coding Education in Atal Tinkering Labs: Challenges & How To Overcome Them; Why Educational Toys Are Important to a Child's Development?; and Equipping Children with 21st-Century Skills to Make Them Future-Ready. A wide range of impressive expert speakers were invited to participate in these panels, including Alice Hou, the Founder of Girls in STEM, USA; Abbas Gabajiwala, the Director, Zephyr Toymakers; and Payal Manan Rajpal, South Asia Head, Robotex International, and the founder of Hack the Crisis – India.

Overall, Codeavour enabled a groundbreaking meeting of minds, organizations, and the future generation, providing an optimistic, dynamic and exciting series of projects, dialogues and opportunities for young people all over the world. Congratulations to the organizers and all those involved for putting together an inspiring programme!