MathworksTrisemestereXperience- Build, Simulate, and Launch Your UAV Startup in 90 Days

Three Months Intensive Workshop - MathworksTrisemestereXperience

"MaTriX 1.0: Model-Based Design for UAV Startups"

A hands-on program on MBD using MATLAB and Simulink

- Organized by Venture Center -

Potential gains	• Equip startups with strong technical foundations in UAV system modeling, simulation, and deployment using MATLAB & Simulink. • Provide business acumen on sales, marketing, fundraising, and customer acquisition. • Connect startups with investors, mentors, and industry experts. • Enable startups to leverage Model-Based Design (MBD) for UAV applications
Organized by	Protoshop at Venture Center
For whom	• Early-stage startups and studentpreneurs focused on UAV. • Only 10participants will be shortlisted in the program
When	Starts from 22 August 2025***(Please refer to the detailed schedule in page 3)***
Program Structure	• Duration: 3 months • Frequency: Weekly virtual sessions
Where	Protoshop, Venture Center, 300 NCL Innovation Park, Dr. Homi Bhabha Road, Pashan, Pune-411008
Contact	**Registration queries:** Mr. Adarsh Lodhi | +91 – 8956226076 | adarsh.lodhi@venturecenter.co.in
Cost	• INR 3,500/- per participant • Only 10 seats: First come first serve (based on preliminary screening) • Note:- • Registration closes once 10 seats are full • Participation only after confirmation of registration by organizers • Organizers reserve the right to accept or refuse or delay registrations so as to optimize the composition of the group and hence maximize learning for all participants.

Introduction

MathWorks, in collaboration with Venture Center Pune, is hosting an Accelerator Program focused on startups in the UAV (Unmanned Aerial Vehicle) industry. This program will provide comprehensive support to UAV startups, covering technical, business, and funding aspects to help them accelerate their product development and market adoption.

MathWorks will deliver technical sessions focused on core and advanced concepts in UAV design, simulation, and deployment using MATLAB and Simulink. Complementing this, Venture Center will lead sessions on business strategy, sales, fundraising, and go-to-market planning.Together, we aim to build a strong foundation for the next wave of UAV innovation in India.

Overview

What's in it for Startups?

- Stronger business strategies and go-to-market plans
- Investor connections through Venture Center Pune
- Networking with fellow startups& ecosystem partners
- Access to MathWorks software & technical support (Program duration)
- One-on-one mentorship from industry experts, and investors.
- Enhanced technical proficiency in UAV design and development

Model-Based Design Positions Startups for Success

Accelerate UAV Innovation with Model-Based Design
Model-Based Design (MBD) helps startups reduce development time, detect issues early, and automate key steps like code generation using MATLAB & Simulink.

- ☑ Rapid prototyping & simulation
- ☑ Automated coding & verification
- ☑ Real-time optimization & digital twins

Learn how MBD can give your UAV startup a competitive edge.

Mathworks program: 2024 - 25

Terms and Conditions

- No sessions will be repeated if a participant is unable to attend due to any reasons
- All the sessions will be conducted virtually

Program includes

- Access to MATLAB and Simulink licenses for the program duration
- Comprehensive training materials, Technical support from MathWorks experts
- Free membership in mailing list to follow-up on program and intimation of relevant events/ funding opportunities from Venture Center
- Certificates will be given to only those candidates who complete the workshop assignments and have 100% attendance

Date &Time	Description	Speakers/Mentors
22 August 2025 10:30am to 12:30pm ***(Virtual session)***	**Program Kickoff & Industry Landscape** • Introduction to Venture Centre, iDEX and MathWorks • Overview of MathWorksAccelerator Program • Innovation in UAV Space – Use Cases & Growth • Market Opportunities for Startups • Startup Introductions & Networking Session	Premnath V – Venture Center Satish T - Mathworks
29August 2025 10:30am to 12:30pm ***(Virtual session)***	**Model-Based Design Workflow for UAV Development** • Understanding the UAV MBD Workflow: Introduction to the end-to-end model-based design process for UAVs using MATLAB & Simulink. • Plant Modeling Essentials: Explore approaches to modeling UAV dynamics, including multirotor, fixed-wing, and VTOL configurations. • Model Fidelity Spectrum: Discuss the trade-offs between low- and high-fidelity models and their impact on simulation and design decisions. • Case Studies in UAV Design: Walk through practical examples highlighting plant modeling for multirotor, fixed-wing, and VTOL UAVs.	Richa Singh - Mathworks
05 September 2025 10:30am to 12:30pm ***(Virtual session)***	**AI-based object detection for UAVs and Motion Planning** • Control System Design Fundamentals: Develop and tune guidance, navigation, and control algorithms for stable UAV flight. • Motion Planning Techniques: Implement trajectory generation and obstacle avoidance strategies tailored for UAV missions. • Leverage pretrained Models (YOLO) for object detection: Integrate these detections into the UAV's navigation system to dynamically react to moving and static obstacles. • Sensor fusion With AI for enhance Path Planning: Integrate LiDAR sensor data for real-time environment mapping and autonomous path planning.	MinhajFalaki - Mathworks
12 September 2025 10:30am to 12:30pm ***(Virtual session)***	**One on One - Mentoring Session**	Mathworks Team: Satish Thokala, Shuvadeep, Richa Singh, KhushinLakhara
19 September 2025 10:30am to 12:30pm ***(Virtual session)***	**Industry Expert Session: Regulatory Landscape for UAVs** • Identifying Market Needs and Customer Segmentation • UAV Regulatory Landscape in India and Beyond • Growth Strategies: Partnerships, Licensing & International	DFI + Quality council of India (QCI)

	Expansion	
26 September 2025 10:30am to 12:30pm ***(Virtual session)***	**Hardware-in-the-Loop (HIL) Simulation & Co-Simulation for UAVs** • PX4 Autopilot Integration: Set up and configure HIL simulation with PX4 Autopilot for real-time software validation. • Mission Planner Workflow: Execute and monitor autonomous missions using Mission Planner within the HIL environment. • Unreal Engine Co-Simulation: Enable high-fidelity 3D visualization and environment interaction through Unreal Engine co-simulation. • Real-World Testing & Validation: Demonstrate how HIL accelerates verification, reduces risk, and bridges the gap between simulation and flight testing	Mathworks Team: KhushinLakhara, Richa Singh
03 October 2025 10:30am to 12:30pm ***(Virtual session)***	**One on One - Mentoring Session**	Mathworks Team: Satish Thokalal, Shuvadeep,RichaSingh,KhushinLakhara
10 October 2025 10:30am to 12:30pm ***(Virtual session)***	**Sales, Marketing and Branding for UAV Startups** • Developing a Go-To-Market Strategy for UAV Products • B2B vs. B2C sales Strategies • Fireside Chat with a Successful UAV Startup founder	Nitin Gupta – Founder of Flytbase Kiran Deshpande (TiEglabal and Pune, Founder of MOJO networks)
17 October 2025 10:30am to 12:30pm ***(Virtual session)***	**Exploring Funding Opportunities for Innovators and Startups** • Types of Funding Sources • Understanding Eligibility and Strategic Fit • Grant Writing Essentials • Effective Pitching and Common Pitfalls	(Venture Center Team) ShrutiDevasthali MugdhaLele Soma Chattopadhyay
24 October 2025 10:30am to 12:30pm ***(Virtual session)***	**Investor Expectations & Building a Compelling Pitch Deck** • Introduction to Investor Expectations • Key Elements of a Winning Pitch Deck • Design & Delivery Best Practices • Investor Q&A & Due Diligence Preparation	Sanjay Kanvinde – Venture Center
31 October 2025 10:30am to 12:30pm ***(Virtual session)***	**One on One - Mentoring Session**	Venture Center Team: MugdhaLele Soma Chattopadhyay
07 November 2025 10:00am to 01:30pm ***(Virtual session)***	**Demo Day** • Showcasing Startup Innovations to Investors & Industry Leaders • Q&A Session • Feedback and networking • Vote of Thanks	Venture Center Angel and Strategic Investors

Speakers	
 **Satish Thokala** Aerospace and Defense Industry Manager · MathWorks	Satish Thokala is Aerospace and Defense Industry manager at MathWorks. In the current role, he is responsible to analyze technology adoption in the Aerodefindustry, and develop strategies to increase the adoption of MATLAB® and Simulink®. Before joining MathWorks, he worked at Hindustan Aeronautics Limited and Rockwell Collins with a total experience of over 20 years. His area of expertise is Avionics systems design for both military and civil aircrafts. Early in the career, Satish to the design and development of communication radios and flight tests for the same on Jaguar and MIG fighters. He led large engineering groups developing software for cockpit displays, engine control, autonomous systems and participated in the DO-178 certification audits.
 **Shuvadeep Chakraborty** Application Engineering Manager Aerospace and Defense Industry Manager · MathWorks	Shuvadeep Chakraborty is a seasoned Technology Architect and Digital Transformation Leader with over 21 years of experience, particularly in the Aerospace and Aviation sectors. His career spans leading organizations such as Infosys and Boeing in India, as well as contributing to early-stage startups in the Seattle area, before joining MathWorks in 2024. He has actively mentored AeroDefense startups through KIIT-TBI (Kalinga Institute of Industrial Technology – Technology Business Incubator) and played a pivotal role in driving innovation by leading Boeing's BUILD Accelerator program, focusing on startups in the Aerospace and Defense domains. Shuvadeep's core interests lie in Go-to-Market strategies, product roadmaps, and achieving strong product-market fit. He holds a bachelor's degree in Mechanical Engineering from BITS Pilani.
 **HimanshuChattwal** Senior Sales Manager · MathWorks	HimanshuChattwal is a seasoned sales leader with close to two decades of experience in the automotive and aerospace industry. With a deep understanding of the UAV market and electrification segment, Himanshu has played a pivotal role in driving sales growth and market penetration for MathWorks India. He is adept at navigating the electrification segment and fostering key partnerships.
 **Richa Singh** Application Engineer · MathWorks	Richa Singh is an Application Engineer at MathWorks, specializing in modeling, simulation, and control design for the Aerospace and Defense industry. In her current role, she collaborates with leading industry partners to streamline the development of complex systems using MATLAB and Simulink, with a focus on system dynamics, guidance and control, and system-level simulation. Beyond her industry-facing role, Richa actively contributes to the MathWorks Accelerator Program, where she mentors startups in the autonomous systems space—guiding them in leveraging model-based design for faster innovation and deployment. Richa holds both a Master's degree and a Ph.D. in Aerospace Engineering from the Indian Institute of Technology Bombay, with a specialization in Dynamics and Control.

 **KhushinLakhara** Aerospace Engineer · MathWorks	KhushinLakhara is currently working as an Aerospace Engineer in the Education Programs team at MathWorks, where he focuses on developing technical tools and educational content for aircraft, UAV design, and flight controller development. He holds a B.Tech. andM.Tech. in Aerospace Engineering from the Defence Institute of Advanced Technology, India. Prior to joining MathWorks, Khushin worked with defense and UAV startups, contributing to UAV design and the development of flight controllers for combat UAVs. He has also published researcharticlesin the area of high-power electric propulsion. His key interests include drone design, flight control systems, and mission-level simulation.
 **MinhajFalaki** Senior Product Manage, MathWorks	MinhajFalaki is a Senior Product Manager at MathWorks, specializing in autonomous systems and vision-based technologies. In his current role, he supports customers in adopting AI-driven workflows for image and point cloud processing applications. Before joining MathWorks, Minhaj worked as a Lead Engineer, where he was actively involved in the development of autonomous systems. He holds a Master's degree in Mechatronics Engineering from NIT Surathkal, India.
 **Narayanachar Dhananjay** Senior Engineer · Mathworks	**NarayanacharDhananjay**is a Senior Engineer at MathWorks, where he focuses on developing algorithms and tools for the UAV Toolbox, enabling innovation in autonomous aerial systems.Prior to MathWorks, he worked as an Engineer – Image Processing, contributing to the development of autonomous UAV platforms. Dhananjay holds a Master's in Electrical Engineering and a Ph.D. in Aerospace Engineering from the Indian Institute of Science (IISc), Bengaluru, with a specialization in Guidance and Control.
 **Nitin Gupta** Founder and CEO, FlytBase	Nitin Gupta is the Founder and CEO of FlytBase, a leading provider of AI-native software for fully autonomous drone operations. With over a decade of experience in the drone industry, Nitin drives the vision and strategy behind FlytBase's global success across security, inspections, and emergency response. Under his leadership, the company has partnered with enterprises worldwide and earned recognition through awards like the NTT Data Global Innovation Contest and TiE50. Nitin's background spans aviation, robotics, and software, fueling his mission to revolutionize physical work through AI-powered autonomy.

 **Sanjay Kanvinde** Angel Investor and Advisor, Lavni Ventures	Sanjay Kanvinde is the co-founder & general partner at Lavni Ventures, a deep-tech driven impact investment firm. Sanjay also serves as a board advisor, mentor, or trustee at several startups, charities and social organisations. Prior to his current role, Sanjay had a full career in the Oil & Gas Industry with SLB (formerly known as Schlumberger). Over different international assignments he has worked in the functional areas of Research & Development, Knowledge Management, Corporate IT Management, Business Development, and Operations. Sanjay has a MSEE degree from The University of Texas at Austin, USA and a BE degree from the College of Engineering, Pune, India.
 **Premnath V** Director, Venture Center, Pune	**Dr. V. Premnath** holds a B.Tech. from the Indian Institute of Technology - Bombay and a Ph.D. from the Massachusetts Institute of Technology, USA. He has also been a Chevening Technology Enterprise Fellow with the Centre for Scientific Enterprises, London Business School and Cambridge University, UK. He brings with him considerable experience in technology development and commercialization (two successfully commercialized families of products), working with start-up companies (in Cambridge-UK and India) and engaging with large corporations on research and consulting projects as project leader.
 **Mugdhalele** Head - Social innovation & Innovation Management, Venture Center, Pune	**Dr. MugdhaLele** is Head – Social Innovations at Venture Center. She is a Ph.D from School of Health Sciences,University of Pune and has teaching and research experience in a State Government medical university. AtVenture Center, she is responsible for driving the Social Innovations and related activities and is responsiblefor providing technical mentoring for incubatees at Venture Center. Mugdha has been a Fellow of theChevening Rolls Royce Science, Innovation, Policy and Leadership Programme (CRISP) at the Said BusinessSchool, University of Oxford, UK in 2016. In 2018 she has also been part of the Aritra Accelerator Programfor Leadership in the Social Sector at IIM Bangalore with Phicus Solutions and Dr. Reddy's Foundation.
 **Manisha Premnath** Head - Incubation & mentoring, Venture Center, Pune	**Dr. Manisha Premnath** is the Chief Operating Officer of Venture Center, India's premier incubator for science-led startups. With over 15 years of experience in innovation and incubation management, she has played a key role in establishing bioincubation facilities, tech transfer offices, and mentoring programs that have supported hundreds of startups. She holds a PhD in biotechnology from Pune University, with research at CSIR-NCL and the University of Aberdeen, and is a Chevening CRISP Fellow from the University of Oxford. Dr. Manisha Premnath also serves on the boards of several health-tech startups and a publicly listed pharmaceutical company.

 **Soma Chattopadhyay** Head - Incubation & mentoring, Venture Center, Pune	**Soma Chattopadhyay** is currently associated with Venture Center as Head - Incubation and Mentoring. In her present role she is the first point of contact for the innovators, understanding their business and connecting them to the right resources. She is also responsible for the entire incubation process for the start-ups and for any support required during the course of incubation period. She obtained her M.Sc in Physical Chemistry from Calcutta University followed by >9 years of experience as Team Leader in the R&D division of an MNC named Cookson Electronics (now, Alent) which includes ~3 years of collaborative research work in Indian Institute of Science (IISc) Bangalore. She brings experience of heading the reliability designing instrumentation laboratory in Cookson Electronics along with assembly material formulation, designing reliability assessment, writing technical projects, CapExmanagement,Green Belt Six Sigma certification, internal auditor for ISO9001:2008 standard. She serves as nominee Director on the boards of Module Innovations Pvt Ltd and NavStik Autonomous Systems Pvt Ltd
 **ShrutiDevasthali** Head - Funding & Investment, Venture Center, Pune	**ShrutiDevasthali** heads the Funding and Investment team and is the NIDHI PIP - Project Manager at Venture Center. She is a Chartered Accountant and a certified Financial Risk Manager. She is responsible for seed fund activities, monitoring and mentoring of Venture Center's portfolio companies, monitoring funding under grant programs operated by Venture Center. During her previous work engagements Shruti has worked with CRISIL Limited and Dun and Bradstreet Information Services India Private Limited in the areas of credit and financial analysis.

About the organizers	
PROTOSHOP	**Protoshop** combines Tinkering lab and Prayashala, which are the prototyping facilities at Venture Center. Protoshop is an initiative of Venture Center (a technology business incubator hosted by CSIR-NCL) with the generous support from in-house funds and the host Institution. It aims at providing services to the Inventors and Entrepreneurs to design and build their prototypes and bringing their ideas into life. For more information about Protoshop: http://www.protoshop.in/
VENTURE CENTER	**Entrepreneurship Development Center (Venture Center)** – a CSIR initiative – is a Section 25 company hosted by the National Chemical Laboratory, Pune. Venture Center strives to nucleate and nurture technology and knowledge-based enterprises by leveraging the scientific and engineering competencies of the institutions in the Pune region in India. The Venture Center is a technology business incubator supported by the Department of Science & Technology's National Science & Technology Entrepreneurship Development Board (DST-NSTEDB). Venture Center's focuses on technology enterprises offering products and services exploiting scientific expertise in the areas of materials, chemicals and biological sciences & engineering. For more information, visit: http://www.venturecenter.co.in/

MathWorks	**MathWorks** is the leading developer of mathematical computing software.MATLAB, the language of engineers and scientists, is a programming environment for algorithmdevelopment, data analysis, visualization, and numeric computation.Simulink is a block diagram environment for simulation and Model-Based Design ofmultidomain and embedded engineering systems. They can explore and implement designswithout having to write C, C++, CUDA, or HDL code.Engineers and scientists worldwide rely on these product families to accelerate the pace ofdiscovery, innovation, and development in automotive, aerospace, electronics, renewableenergy, financial services, biotech, and other industries.MathWorks supports over 5,000 startups and 400 Accelerators worldwide. www.mathworks.com/startups
Maharashtra State Innovation Society	The**Maharashtra State Innovation Society (MSInS)**is an initiative by the Government of Maharashtra under the Department of Skill Development and Entrepreneurship. It aims to foster a thriving innovation and startup ecosystem across the state. MSInS supports startups through funding schemes, mentorship, incubation, and partnerships with academic institutions, corporates, and government bodies. It organizes flagship events like Maharashtra Startup Week to showcase innovative solutions and connect entrepreneurs with government procurement opportunities. With a strong focus on sectors like agriculture, healthcare, education, climate-tech, and emerging technologies like AI and IoT, MSInS also facilitates intellectual property support and global linkages. Overall, it serves as a catalyst to position Maharashtra as a leading innovation-driven economy. https://msins.in/
iDEX Innovations for Defence Excellence PM Awardee	**iDEX** is an initiative launched by the Ministry of Defence, Government of India, under the Defence Innovation Organisation (DIO) to promote innovation and technology development in the defence and aerospace sector. It aims to create an ecosystem where startups, MSMEs, innovators, and academia can develop cutting-edge solutions for the Indian Armed Forces. iDEX provides funding, mentoring, and incubation support through Defence Innovation Hubs across India and runs challenges like DISC (Defence India Startup Challenge) to identify and support promising technologies. https://idex.gov.in/