Government of India
Ministry of Defence
सत्यमेव जयते

Department of
Defence Production

75
Azadi Ka
Amrit Mahotsav

iDEX Innovations for
Defence Excellence
रक्षा उत्कृष्टता के लिए नवाचार

A Runway for Innovations

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Hon'ble Raksha Mantri's Message

Shri Rajnath Singh
Hon'ble Raksha Mantri
Minstry of Defence
Government of India

राजनाथ सिंह
RAJNATH SINGH

रक्षा मंत्री
भारत
**DEFENCE MINISTER
INDIA**

Date : 04.03.2022

Message

In 2018, the Hon'ble Prime Minister, Sh. Narendra Modi launched the Innovations for Defence Excellence (iDEX) initiative, under Defence Innovation Organisation (DIO) with the aim to achieve self-reliance while also fostering innovation and technology development in Defence and Aerospace by engaging industries including MSMEs, start-ups, individual innovators, R&D institutes and academia.

Defence has been identified as one of the most critical, encouraging and growing sectors, contributing towards national security of India. With the increasing focus of the government on the Defence sector over the past few years, the government is leaving no stone unturned to foster entrepreneurship and development of the startups in this space. Infact, with recent new commitments, iDEX has been propelled to achieve higher levels of indigenization and self-reliance in India.

As a ripple effect, iDEX has been able to contribute immensely to the job and wealth creation for the nation. This scheme has boosted the confidence of budding entrepreneurs and incomparable minds, retaining the best of talent and allowing them to stay in India to leverage the innumerable opportunities available to them at their doorstep.

I encourage all the budding entrepreneurs with a vision to support the Indian Defence system, to level up and create disruption in order to achieve the optimum level of innovation to support the Services and work for the Nation.

With good wishes,

(Rajnath Singh)

Office : Room No. 104, Ministry of Defence, South Block, New Delhi-110011
Tel. : +91 11 23012286, +91 11 23019030, Fax : +91 11 23015403
E-mail : rmo@mod.nic.in

Chairman's Message

Shri Ajay Kumar, IAS
Defence Secretary,
Additional in-charge - Secretary
(Defence Production) and Chairman, DIO
Ministry of Defence
Government of India

डा. अजय कुमार
रक्षा सचिव

Dr. Ajay Kumar
Defence Secretary

भारत सरकार
रक्षा मंत्रालय
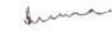Government of India
Ministry of Defence

April 12, 2022

MESSAGE

Defence startups are redefining the Indian Defence landscape, and have emerged as hubs for cutting edge research and innovation on relevant technologies. The growing focus of the government on the National Security and Defence sector has ignited a fresh spark in the innovation and startup ecosystem.

Under the 'Make in India' mission, Defence has been identified as one of the most promising sectors, contributing towards national security as well as socio-economic development of the country.

iDEX has been fueled by the passion of young innovators and startups on one side and expertise and resources of different stakeholders of the Defence ecosystem on the other. Last three years have been an extraordinary journey for iDEX towards bridging the gap between technology startups and Armed Forces. With the government encouraging private players to participate in the development of our country, the ball is now in the court of young entrepreneurs. It is time for the budding innovators to induce world class disruptive technology in the Services, while also supporting the 'Atmanirbhar Bharat' initiative via schemes like iDEX.

This book has been curated to give you a glance of remarkable home grown innovations by our Defence Startup Ecosystem. This book is an effort to welcome all investors and VCs to propel the efforts in building unicorns in Defence Innovation Ecosystem.

(Dr. Ajay Kumar)

CEO's Foreword

Shri Sanjay Jaju, IAS
Additional Secretary,
Defence Production and CEO, DIO
Ministry of Defence
Government of India

संजय जाजू
Sanjay Jaju
अपर सचिव
Additional Secretary
Ph : +91 11 23012470
Fax : +91 11 23013133

भारत सरकार
रक्षा मंत्रालय
रक्षा उत्पादन विभाग
साउथ ब्लाक, नई दिल्ली - 110 011
Government of India
Ministry of Defence
Department of Defence Production
South Block, New Delhi - 110 011

Additional Secretary (Defence Production) / CEO (DIO)

In the past few years, innovation and entrepreneurship has evolved not only as a concept, but also as a mindset amongst the youth of our country. The innovation ecosystem has been witnessing a flurry of activities, directing the nation towards a startup revolution, especially in impactful sectors like Defence and Aerospace. While self-reliance is a major corner-stone on which the military capability of any nation rests, Defence manufacturing is primarily driven by capital acquisition of Defence equipment.

Defence Innovation Organization, under the aegis of Department of Defence Production (DDP), Ministry of Defence (MoD) is implementing the Innovations for Defence Excellence (iDEX) initiative with support from its co-founders, HAL and BEL, along with other stakeholders, including Defence Public Sector Undertakings (DPSUs), the Services, and the Partner Incubators (PIs).

iDEX creates an ecosystem, essentially to foster innovation, entrepreneurship and technology development, specifically in the Defence and Aerospace sector with an underlying objective to make the country self-reliant and self-sufficient.

I encourage startups and individuals to exhibit their extraordinary designs which shall ease the inculcation of technology and upgraded products in the Defence and Aerospace sector.

I am pleased to note that iDEX-DIO has published a Coffee Table Book. This book will enhance iDEX startup's global visibility, networking opportunities and reach out to new customers and investors to build and grow unicorns in Defence ecosystem.

(Sanjay Jaju)

Additional CEO's Foreword

Shri Anurag Bajpai, IFS

Joint Secretary, Defence Industries
Production and Additional CEO, DIO
Ministry of Defence
Government of India

Anurag Bajpai
Joint Secretary (DIP)/ Addl. CEO(DIO)
Tel: 23011553

भारत सरकार
रक्षा मंत्रालय
रक्षा उत्पादन विभाग
नई दिल्ली-110 011
Government of India
Ministry of Defence
Department of Defence Production
New Delhi-110 011

India is determined to be among the leading countries in the world in Defence capabilities and a dynamic defence industry is essential to ensure national security and military superiority.

Innovation for Defence Excellence (iDEX) plays a crucial role to enhance India's Defence startup capabilities and help build an ecosystem of Defence innovation. iDEX facilitates rapid development of new, indigenised and innovative technologies for the Indian Defence and Aerospace sector to meet their needs in shorter timelines. iDEX has a long journey planned ahead to support a growing synergy between India's innovators, the Defence manufacturing industry and the country's Defence needs.

To cater to futuristic challenges in the Defence sector, it is vital that we harness innovation. The investment for innovation will ensure that we stay ahead on our path to build an Atmanirbhar Bharat.

The idea behind the development of this Coffee Table Book is to showcase the bouquet of Defence technologies supported by iDEX. This is also to provide a marketing platform to all iDEX startups. I hope this book is able to motivate more entrepreneurs to *Work for the Nation* and come forward to actively participate and contribute in this initiative.

With best wishes to iDEX and startups.

(Anurag Bajpai)

Letter from Director, DIO (BoD)

Dr. Chintan Vaishnav
Mission Director
Atal Innovation Mission
NITI Aayog, Government of India

डॉ. चिंतन वैष्णव
Dr. Chintan Vaishnav
Tel : +91 1123096580
E-mail : chintan.vaishnav@gov.in

मिशन निदेशक, अटल इनोवेशन मिशन,
नीति आयोग
भारत सरकार
समद मार्ग, नई दिल्ली
Mission Director, Atal Innovation Mission
NITI Aayog
Government of India
Samsad Marg, New Delhi

Dated: 4th March, 2022

Innovations for Defence Excellence is a much needed and an admirable initiative by the Ministry of Defence to bolster innovation in the Defence and Aerospace sector.

Innovating is an ever-evolving process and iDEX has been able to onboard exceptional innovators and startups to support them on their journey to serve the nation. iDEX has always been at the forefront of innovation in Defence and Internal Security, and most of its projects also have tremendous civilian applications: Quantum Computation, AI/ Predictive Maintenance/ Logistics/ Data Analytics, Security/Encryption, Communication etc.

The success of this scheme will eventually be measured by the impact created from fostering innovation across the length and breadth of the country. Looking at the journey of startups associated with iDEX, I proudly associate myself with this path-breaking initiative.

Heartiest Congratulations to all startups that have motivated millions of other budding entrepreneurs to walk this path to pride!

(Dr. Chintan Vaishnav)
Mission Director

Letter from Advisor to the Board

Shri Mudit Narain
Chief Technology Officer
Office of the Principal Scientific Advisor
Government of India

भारत सरकार के प्रमुख वैज्ञानिक सलाहकार का कार्यालय
318, विज्ञान भवन एनेक्से,
मौलाना आजाद मार्ग, नई दिल्ली - 110011
Office of the Principal Scientific Adviser
to the Government of India
318, Vigyan Bhawan Annexe,
Maulana Azad Road, New Delhi-110011
Tel. : 23022112, 23022038
Fax : 23022113, 23022116
Website : www.psa.gov.in

iDEX was designed with a vision to attract the best of Indian technology and engineering talent to innovate for Indian defence. In previous centuries and decades, defence R&D enabled innovation for many other sectors, many of which we use in our daily lives, such as the internet or GPS, or even the microwave oven. However, in more recent decades, technology innovation in the startup world outpaced that for defence. iDEX is an effort to bridge that gap, for India, using Indian talent and by supporting Indian companies.

It is heartening for me to see successes come out of the iDEX initiative in such diverse fields, from safety devices to artificial intelligence, from drones to radars, and from deep tech hardware to advanced software, in a period of less than 4 years since its launch in DefExpo in 2018.

I believe iDEX's journey is just starting, just as those of the startups that have engaged with it. I am delighted to see the products being showcased by iDEX startups. Not only will these technologies lead to greater self reliance in Indian defence, but also an increased confidence in the Indian Armed Services about the ability of our young engineers, innovators and entrepreneurs to deliver on their technology requirements. Over time, iDEX projects and grant-winning companies will also deliver newer technologies and products for Indian citizens and commercial applications, and highly-skilled engineering talent, whose value will be well beyond the investment in this initiative.

I am delighted to see this book come out, which will inspire many more young engineers and innovators to join this effort.

Best Wishes

(MUDIT NARAIN)
Chief Technical Officer and
Adviser to DIO-iDEX Board

iDEX
The Trailblazer

Innovations for Defence Excellence, a game changer in the Defence eco-system, was launched by the Hon'ble Prime Minister in 2018 with the objective of fostering innovation and incorporating cutting edge and disruptive technologies in our Armed Forces in a quick time frame.

The iDEX scheme has been instituted under the overarching mission of the MoD to achieve self-reliance and indigenization. iDEX is catalyzing the vibrant energy of our startup eco-system and is today steering trans-disciplinary innovations / projects. An enterprising network of experts from the Services, DPSUs, Industry, Academia, iDEX officials and the startups are involved in the process of co-creation and co-innovation. The aim is to provide atleast 50 world class solutions to the Armed Forces and the defence industry in the next couple of years.

The 5 editions of DISC and the various Open Challenges have been a huge success and have witnessed tremendous interest and participation from the startups. Thus, within a couple of years since the inception of the scheme, the iDEX startups despite the COVID pause/ restrictions are now ready

with the prototypes for conduct of trials by the Services / Challenge Owners.

The iDEX has flourished under the visionary leadership at MoD and with the active support from the Services, DPSUs, Academia, DRDO, Industry, Partner Incubators etc. The announcement of Rs 500 Cr for the scheme for supporting the iDEX startups, also another Rs 1000 Cr for procuring from these startups in the current Financial Year exemplifies the intent of the Ministry. Provision has also been made in the Defence Acquisition Procedure for procurement from the iDEX startups. Thus the scheme is not only kindling the spirit of innovation but is now a path to procurement.

The transformative , iDEX Prime being launched during the DefConnect 2.0 will help the startups in undertaking much bigger challenges, with Grant being provided upto INR 10 Cr and would cater to project / developmental cost of more than 20 Cr.

iDEX is scaling up at a breakneck pace to support more and more innovators and startups . The iDEX startups are now entering the next phase, i.e productisation and commercialisation. This will indeed lead to the broad basing of the defence industrial base.

The 'Innovate for & from India' Journey

(By Hon'ble Prime Minister Shri Narendra Modi)

Program Name	No. of Problems Statements	Year of launch	No. of Winners
DISC 1	10	2018	35
DISC 2	03	2019	09
DISC 3	03	2020	14
DISC 4	11	2020	17
OPEN CHALLENGE 1	09	2020	09
DISC 5	35	2021	41
OPEN CHALLENGE 2	09	2021	05
DISC 6	38	2022	to be announced
OPEN CHALLENGE 3	09	2022	05

2018 — Launched in **Def Expo 2018**

2019 — Startup Manthan **Aero India 2019**

DefConnect 2019

2020 — Startup Manthan **Def Expo 2020**

Innovate4Defence **Internship 2020**

2021 — Aero India **Startup Manthan 2021**

Commanders Conference 2021

Innovate4Defence **Internship 2021**

2022 — **DefConnect 2.0**

iDEX Star★ups

Brisk Olive Business Solutions Pvt. Ltd.

Name of the Founder:
Colonel Sunil Prem (Retired)

Challenge (DISC / OC):
Open Challenge 2.0 (Rapid Foldable Infantry Assault Bridge)

Sector of Innovation:
Army – For all dismounted troops, especially infantry troops. To help dismounted troops to cross water
obstacles, during an assault, in the face of the enemy.

Technology Used:
A unique foldable bridge design with special materials, very low weight and volume.

Product Details:
A rapid foldable infantry assault bridge. During an assault across a water obstacle in the face of the enemy, it can be launched in seconds or minutes.

Product: rapid foldable infantry assault bridge

Name of the Founder:
Ashis Kumar Behera

Challenge (DISC / OC):
DISC 4 (Computer Generated Targets for Virtual Training)

Sector of Innovation:
AI Based Simulation Engineering in Aerospace

Technology Used:
Development/Enchantment of AI algorithm for Virtual Target Operation

Product Details:
The development of smart AI driven virtual targets in a Live Virtual Constructive environment to react/address the pilot (trainee) actions to elevate productivity & skill sets.

Aatwri Aerospace & Defence Pvt Ltd

M/S Aditya Precitech Pvt. Ltd.

Name of the Founder:
Kunapareddy Naga Venkateswarao

Challenge (DISC / OC):
DISC 3 (Four-axis stabilized antennae for C & Ku band operation)
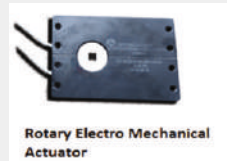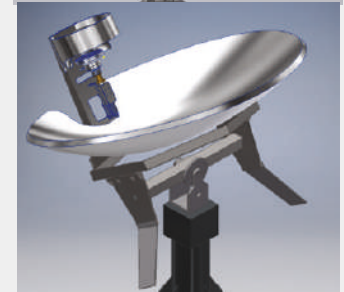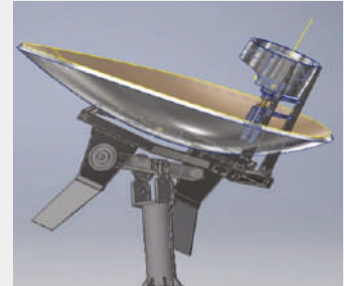
Sector of Innovation:
Defence/Navy

Technology Used:
SATCOM & Motion Compensation

Product Details:
4 Axis Stabilized C&Ku band Antennae for naval ships

Rotary Electro Mechanical Actuator

ASTROME

Astrome Technologies Pvt. Ltd.

Name of the Founder:
Neha Satak & Prasad H L Bhat

Challenge (DISC / OC):
DISC 1 & DISC 3 (4G/LTE Tactical LAN) & (Four-axis stabilized antennae for C & Ku band operation)

Sector of Innovation:
Secure Communication Products

Technology Used:
Millimeter Wave Electronic Beamforming technology

Product Details:
We have pioneered the world's first Point-to-Multi Point E-band Radio which is completely software driven and offers significant reduction in both CAPEX and OPEX for deployment of 5G and rural broad-band networks. Astrome's second product is called GigaSat, an innovative Ku/Ka-band electronically steerable terminal for satcom markets. GigaSat will serve the need for low-cost user terminals required by LEO satellite internet providers and for mobility terminals for GEO satellites.

Astromeda Space Pvt. Ltd.

Name of the Founder:
Rajaguru Nathan K

Challenge (DISC / OC):
DISC 4 (Remote In Flight health monitoring of Aircrew)

Sector of Innovation:
Healthcare, Aerospace

Technology Used:
Astrovest is a connected intelligent garment for the real-time acquisition and analysis of body metrics to provide clear results on the user wellness and performance. Astrovest uses technologies such as e-fabrics, smart conducting materials, IOT and smart wearables.

Product Details:
Astrovest is a connected intelligent garment for the real-time acquisition and analysis of body metrics to provide clear results on the user's wellness and performance. Its body-worn sensors collect vital parameters and store it in memory with time stamping for further data analysis.

Astrovest consists of different types of sensors (Heart Rate, Pulse, Blood Pressure, Rate of Respiration, Body Temperature, Arterial Oxygen Saturation, Electro-Cardiogram, Electro-Myogram, Electrodermal Activity, and Galvanic Skin Response) which measure the body metrics; the sensors are to be placed with precision and care.

Prototype 1:
Sensors embedded with smart conductive fabrics in Vest (Astrovest)

AVGARDE

Avgarde Systems Pvt. Ltd.

Name of the Founder:
Nilutpal Choudhury, Manash Bhuyan & Amal Sebastian

Challenge (DISC / OC):
DISC 4 (Reduction of RCS of Naval Warships)

Sector of Innovation:
Critical Infrastructure Protection/ Aerospace and Defense/Telecom

Technology Used:
Software Defined Radio/Stealth/Metamaterial

Core Capabilities in Manufacturing and R&D:
AVGARDE is an innovation-driven startup focused on developing disruptive products and intelligent solutions in the RF and wireless domain for multiple market segments, including Aerospace & Defense, Communications & 5G, Test & Measurement and Academic Research.

The company specializes in developing FPGA Communication IPs, Software Defined Radio applications for electronic warfare, RF Automated Test Equipment, 5G prototyping, Visible Light Communications systems and RF Electronics.

Product Details: Avgarde Systems has a technology suite catering to Wireless Connectivity/ Wireless Security/ Stealth
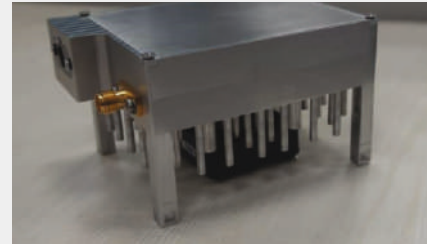
Product: U-cell Picture

Product: U-cell Picture

BigCat Wireless Pvt. Ltd.

Name of the Founder:
Kannan G

Challenge (DISC / OC):
DISC 3 (Four-axis stabilized antennae for C & Ku band operation)
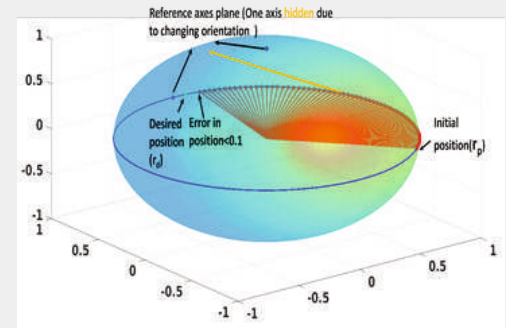
Sector of Innovation:
Wireless Communication

Technology Used:
Gimbal based Stabilization Platform, Beamforming

Product Details:
Four Axis Stabilized Antennae for C & Ku Band Operation

Name of the Founder:
Kannan G

Challenge (DISC / OC):
DISC 3 (Friend or Foe Identification System)

Sector of Innovation:
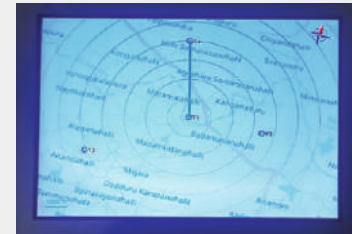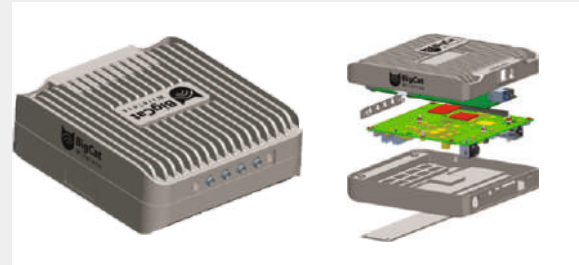Wireless Communication

Technology Used:
SDR

Product Details:
Friend or Foe Identification System

BigCat Wireless Pvt. Ltd.

BigCat Wireless Pvt. Ltd.

Name of the Founder:
Kannan G

Challenge (DISC / OC):
DISC 1 (4G/LTE Tactical LAN)

Sector of Innovation:
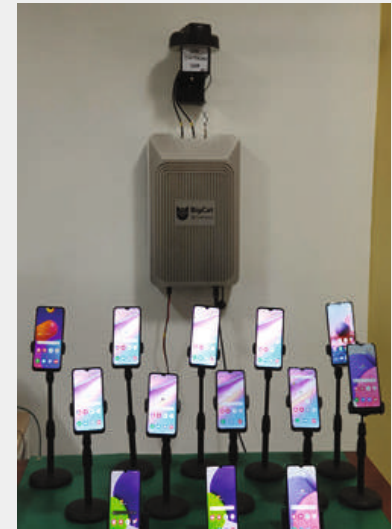Wireless Communication

Technology Used:
SDR

Product Details:
Development of 4G/LTE based Tactical Local Area Network

Product Details:
Development of 4G/LTE based Tactical Local Area Network

Big Bang Boom Solutions Pvt. Ltd.

Name of the Founder:
Praveen Dwarakanath & Dr. Shivaraman Ramaswamy

Challenge (DISC / OC):
DISC 1 & DISC 2 (See Through Armor) & (Countermeasures for Illegal Drones)

Sector of Innovation: Heavy Armored Vehicles – 360° Advanced battle interface for situational awareness of the battle environment

Anti-drone defense systems – Radio frequency drone detection, classification and jamming

Technology Used:
Sensor Fusion, Artificial Intelligence, Machine Learning, Image Stitching, RF Communications, RF Signal and Fingerprint Detection, Recognition and Matching

Product Details:
 SEE THROUGH ARMOR (STA)
 Armoured vehicles while enabling safety severely handicap the crew's visibility leading to poor situational awareness.

 Our solution uses multiple cameras and sensors to produce a stitched 360 view that is synced to an AR helmet. This allows soldiers to 'see through' their vehicles, in both visual and infrared, in real-time.

 The live-feed is overlaid with information from other vehicle systems and used to identify friendly and enemy forces.

Anti-Drone Defence System:
 Our solution consists of 8 analyzers that simultaneously sample different frequency bands and provide a 5 km radius coverage including height with 99.9% detection

 Our software would be integrated with radar detection systems and optical systems to enable visual confirmation of alarms
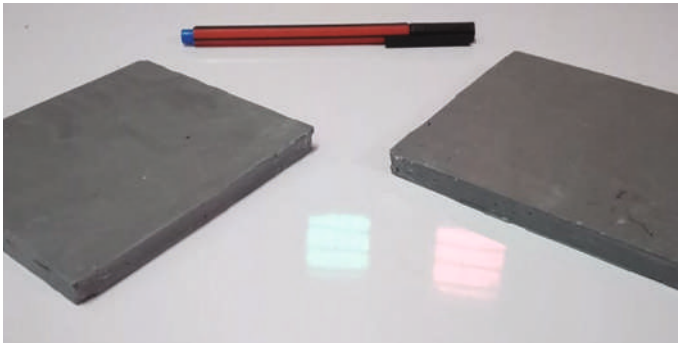
Product: See Through Armor

Product: Anti-Drone Defence System

Product:
40mm Grenade Launcher Drone –
In-house development

Lightweight Carbon Fiber
Lightweight Body Armor -
NIJ Level 3

Product: Boron Nitride based Hybrid Ceramic Body Armor – In-house development

Product: Exoskeleton -
for Enhanced Physical Abilities – DBT – BIRAC – BIG

CHIP SPIRIT

Chipspirit Technologies Pvt. Ltd.

Name of the Founder:
Mohan Jindal

Challenge (DISC / OC):
DISC 1 (Secure Hardware Encryption Device)

Sector of Innovation:
Data Security and Hardware

Technology Used:
FPGA based implementation

Product Details:
Abhed1 is a secure cryptography solution which is a completely hardware based device that avoids any hidden foreign Backdoors, Trojans, and intentional holes in procured materials/devices/firmware

Abhed1 is a fully hardware-based encryption and decryption device which can carry out encryption/decryption for USB3.1 devices

Abhed1 can securely transact data over the Ethernet 1G interface and over a public network through our customized encapsulated secure tunnel which is created with our own protocols based on IPsec
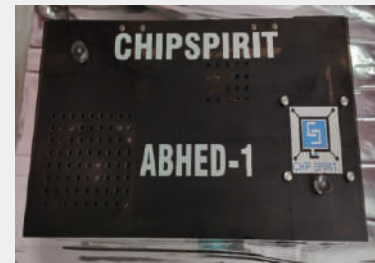
Product: Chipspirit Abhed1

CompilerAI Labs Pvt. Ltd.

Name of the Founder:
Sorav Bansal and Shubhani

Challenge (DISC / OC):
Open Challenge 1.0 (Certified Compiler and Code Analyser based on AI Tech)

Sector of Innovation:
Cyber Security and Reliability of Mission Critical Software

Technology Used:
Code Analyzer and Certified Optimizing Compiler which uses state-of-the-art formal verification techniques that are both scalable and precise

Product Details:
Certified Compiler and Deep Semantic Code Analyzer
It is hard to ascertain the correctness, performance, and security properties of mission-critical, safety-critical and security-critical software. It is also difficult to test and verify a third-party software that is only available in binary executable form. Moreover, even if the developers have verified that the source code is free of defects and security vulnerabilities, there is a potential that the executable code has defects and security vulnerabilities, because the compiler may introduce incorrect behaviors.

Our product performs **deep symbolic analysis of software with high precision and scale.** When coupled with our **translation validator**, this allows us to **prove properties of binary executable code.** For scenarios where the tool is not able to prove properties, it is capable of generating test inputs that can potentially trigger a safety bug or a security vulnerability. Thus, our tool also has applications in **fuzzing and penetration testing of software,** at both the source code level and the binary executable level.

Collaborative Intelligence Pvt. Ltd.

Name of the Founder:
Sangeeta Das

Challenge (DISC / OC):
AI based Satellite based Image Analysis

Sector of Innovation:
Deep Tech:-AI & Robotics

Technology Used:
Computer Vision and Machine Learning

Product Details:

ciTryambak- An AI based platform for intelligent surveillance, tracking and security and anomaly detection using land based, aerial and satellite images and videos

ciRakshak: A range of mobility platforms with ease of stair-climbing and specialized all terrain maneuverability that can undertake high risk and hazardous tasks without endangering human lives and support contact less delivery

Crimson Energy Experts Pvt. Ltd.

Name of the Founder:
Cdr. Binu Tom Jacob (Retd), Cmde. RD Mane (Retd) & Chief Innovator Cdr. Nitin Madhavan (Retd)

Challenge (DISC / OC):
Open Challenge 2.0 (Development Of Machine Algorithms For Maritime Anomaly Detection)
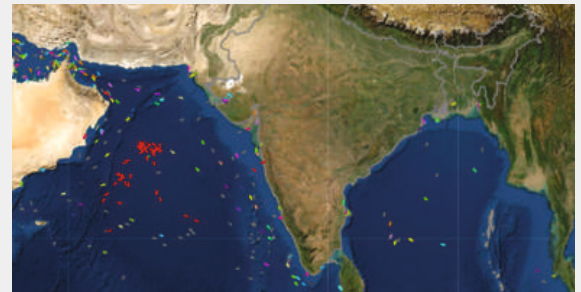
Sector of Innovation:
Maritime Analytics

Technology Used:
Artificial Intelligence and Machine Learning

Product Details:
DeepDarshak TM is a Machine Learning/AI based platform for carrying out analytics on AIS and other ship position data to assist the users in identifying Vessels of Interest and suspicious activity. The system uses Deep Learning, Python algorithms and the latest data processing techniques along with our vast domain expertise to ensure safety and security of our seas.
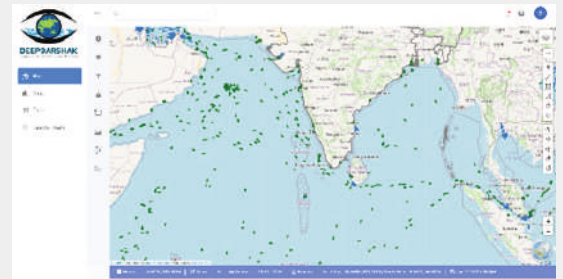
Cyran AI Solutions Pvt. Ltd.

Name of the Founder:
Dr. Manan Suri

Challenge (DISC / OC):
DISC-4 (AI based Satellite Image Analysis)

Sector of Innovation:
AI Hardware and Software

Technology Used:
Development / Enchantment of AI
algorithm for Virtual Target Operation

Product Details:
Building multiple cutting-edge and pioneering
products for dual use applications in sectors such
as – AI for Smart Industry 4.0, AI for Security, AI
for Geospatial and AI for Edtech
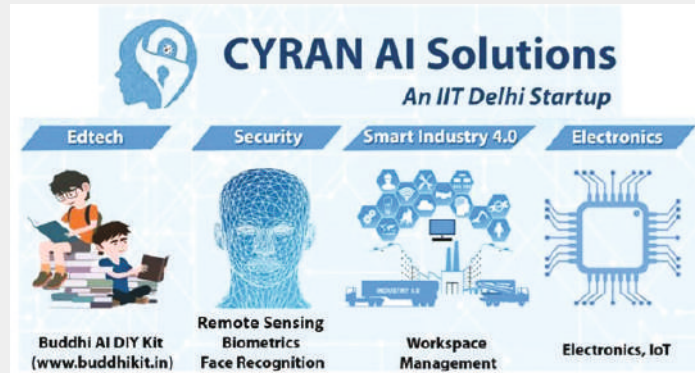
Lekha Wireless Solutions Pvt. Ltd.

Name of the Founder:
M. Amarnadha Reddy & Ramu T.S

Challenge (DISC / OC):
DISC 3: (Friend or Foe Identification)

Sector of Innovation:
Wireless Radio Access Network

Technology Used:
MANET SDR Technology

Product Details:
· MANET based Mesh Radio with IFF Functionality
· Situational Awareness for Friend and For Vehicles
· Peer-Peer MANET Networks with > 64 Nodes

· Additional Audio, Video and Data Payloads
· Mission critical and high availability communication
· Defence Networks

· Disaster Management
· Tested links for Terrestrial, air borne and waterfront data link applications
· Streaming of high-quality video, Audio and Control Data Payloads.
· Configurable max network Ranges and Max System Users
· Allows switching of waveforms mapping to a deployment use case

Antares: SDR based IFF

Dimension NXG Pvt. Ltd.
(Brand Name: AjnaLens)

AjnaLens

Name of the Founder:
Pankaj Raut, Abhishek Tomar & Abhijit Patil

Challenge (DISC / OC):
DISC 1 (See Through Armour)

Sector of Innovation:
See-through Armour

Technology Used:
Augmented reality glasses + 360-degree camera system

Product Details:
AjnaESAS is an indigenous see-through armour system for armoured vehicles. It comprises a 360° camera system which is mounted on the tank and an Augmented Reality Head Mounted Display (AR-HMD) which is worn by the crew member sitting inside. In addition to providing panoramic vision, the robust camera system empowers the crew with night vision and 4X zoom capabilities. The system can also be enhanced with advanced features like IFF.

DV2JS Innovation LLP
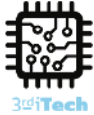
Name of the Founder:
Vrinda Kapoor, Vinayak Dalmia and Mukul Sarkar

Challenge (DISC / OC):
Remotely Piloted Airborne Vehicle, IAF

Sector of Innovation:
Custom design 100 MP Cameras for Airborne platform. Will have capbility for high altitude imaging for surveillance applications

Technology Used:
High Resolution Camera Custom designed CMOS image sensor
Custom designed high end optics
Custom designed processing algorithm

Product Details:
Low power high resolution camera unit for surveillance application
Capability for high altitude imaging
Basic image processing features
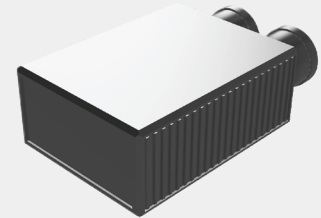
Camera Body

Exact Space Technologies Pvt. Ltd.

Name of the Founder:
Rahul Raghunathan

Challenge (DISC / OC):
DISC 4 (Predictive and Prescriptive Machine Monitoring)

Sector of Innovation:
AI for improved Industrial Asset Reliability

Technology Used:
Artificial Intelligence, Analytics, Machine Learning, IoT Platform

Product Details:
Pulse is our proprietary Artificial Intelligence platform which can use real-time data from critical industrial machinery to identify any early signals of potential failures, diagnose the root cause of the issue and provide a corrective action to help avoid failures.

Flutura Decision Sciences & Analytics Pvt. Ltd.

Name of the Founder:
Krishnan Raman, Derick Jose & Srikanth Muralidhara

Challenge (DISC / OC):
DISC 4 (Predictive, Preventive & Prescriptive Machine Monitoring)

Sector of Innovation:
Preventive maintenance using AI

Technology Used:
Cerebra, an AI platform that uses Kafka, Spark, Python, OpenTSDB, Django, Angular, etc.

Product Details:
AI powered Machine Health Monitoring System for the Main Circulating Pump (MCP) of Submarine with real-time sensor data monitoring and predictive maintenance.

EyeROV Technologies Pvt. Ltd.

Name of the Founder:
Johns T Mathai

Challenge (DISC / OC):
DISC 1 (Unmanned Surface/Underwater Vehicles)

Sector of Innovation:
Robotics and Artificial Intelligence

Technology Used:
Underwater Robotics, AI, Computer Vision Core Capabilities in Manufacturing and R&D: Robotics, Artificial Intelligence, Machine Learning, Computer Vision and Analytics. We also have an inhouse data analytics software for image enhancement and the 2D/3D asset modelling for ease of analysis and archiving. Eye ROV acts as a Technology Enabler in the area of the structural integrity inspection of critical infrastructures like Dams, bridges, Oil pipelines.

Product Details: EyeROV TUNA
The EyeROV TUNA PRO is a modular ROV (Remotely Operated Vehicle) platform with high performance onboard computers and an intuitive control console for critical infrastructure inspections and surveillance operations etc.

EyeROV's visualisation and analytics platform (EVAP)-provide a complete solution for underwater video/image processing, AI based reporting and visualization.

Gurutvaa Systems Pvt. Ltd.

Name of the Founder:
Harshad Dave

Challenge (DISC / OC):
DISC 2 & 3 (Countermeasures for illegal drones) / (Portable Spoof Emitter)

Sector of Innovation:
Anti Drone Defence Systems

Technology Used:
VCO/Synthesizer

Product Details: Major Specifications as under;
- Effective Jammer Frequencies GNSS L1 (GPS, GLONASS, Galileo and BeiDou), 2.4GHz ISM, 5.8GHz ISM, 433MHz/915 MHz
- Individually Selectable Modes
- Directional Jamming
- Fast Interception Time
- Designed to IP54
- Start-up Time: < 3 secs
- Option to Increase Operation Time

with Modular and Upgradable Battery
Integrated GPS Spoofing (Optional)
Standard Picatinny Rail for Mounting of Accessories
Sling Arrangement
Disruption range of 1 ~ 2 Kms

HW Design Labs Pvt. Ltd.

Name of the Founder:
Jayakrishnan A L

Challenge (DISC / OC):
DISC 2 (GPS Anti-Jam Device)

Sector of Innovation:
Defence - Avionics

Technology Used:
RF/Wireless, Embedded, DSP Algorithms

Product Details:
HWGAJD-01, low SWaP GPS Anti-Jam Device employs multi-level jamming and interference mitigation techniques. It uses advanced signal processing techniques and is immune to jamming and interference. HWGAJD-01 supports GPS & Nav-IC standards, enabling seamless navigation of the aircrafts or military vessels/vehicles during mission critical operations.

HSTPL
Hyper Stealth Technologies Pvt Ltd
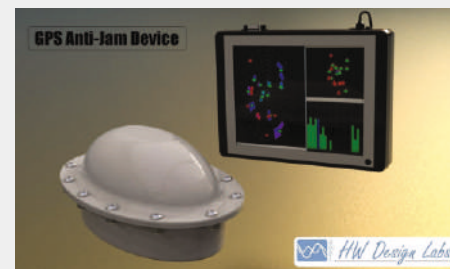
Hyper Stealth Technologies Pvt.Ltd.

Name of the Founder:
Manish Dalmmia

Challenge (DISC / OC):
Open Challenge 1.0 (Integrated Mobile Camouflage System)

Sector of Innovation:
Stealth & Camouflage for Defence

Technology Used:
Signature management by controlling the Visual, Thermal, Infra-red & Radar Signatures of objects

Product Details:
The Integrated Mobile Camouflage System aims at reducing the detection range of AFV by 55% when viewed through Hand-Held Thermal Imager HHTI/Battle Field Surveillance Radar (BFSR)/ Tank based thermal camera under given environ-mental and weather conditions
It is an integrated system consisting of low emissivity and/or CAM-IIR coatings and

Mobile Camouflage System materials providing the ability of the Armored Field Vehicle to merge with a terrain background

Illustrated Images of the IMCS

Name of the Founder:
Ramu T Srinivasaiah

Challenge (DISC / OC):
DISC 1 (4G/LTE Tactical LAN)

Sector of Innovation:
Wireless Communication

Technology Used:
3GPP based 4G technology

Product Details:
Lekha's Vyapi is an integrated eNodeB product suitable for macro and micro cell deployments. Product includes software and hardware designs from Lekha wireless. The software stacks include L1, L2 and L3 layers. The hardware design includes digital baseband HW, Radio Module and high-power Radio Front End designs. LTE NW is validated against multiple UEs from different chip vendors. The solution is easy to deploy with lower cost of ownership and accelerates time to market.

Extreme flexibility for tactical and private networks where both centralized and distributed mode of deployment is supported on the same HW.

Lekha Wireless Solutions Pvt. Ltd.
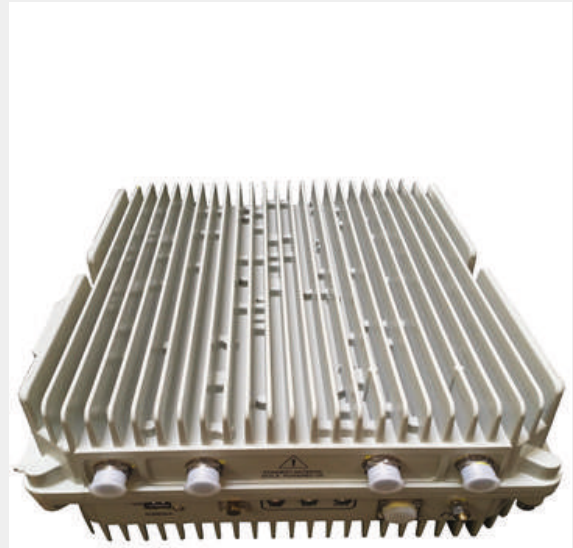
Logic Fruit Technologies Pvt. Ltd.

Name of the Founder:
Sanjeev Kumar

Challenge (DISC / OC):
DISC 1 (Secure Hardware Encryption Device)

Sector of Innovation:
Secure Data Transmission

Technology Used:
USB3 IP Development

Product Details:
Unit will be responsible for encrypting the data that is provided to it through the clear side USB pen drive (present in the predefined folder) using the AES-256 and SHA-2 techniques with the minimal software intervention and stored in the media side USB pen drive or transfer it through ethernet.

MMRFIC Technology Pvt. Ltd.

Name of the Founder:
Saravana Kumar Ganeshan

Challenge (DISC / OC):
DISC 2 (GPS Anti Jam Device)

Sector of Innovation:
mmWave Radar, AESA front ends, Connectivity Solutions for Defense and Civil market, Low PIM f lters, RF ICs and Base-Band modems for custom communication and Radar systems

Technology Used:
Antenna array, Adaptive beamforming, RF-mmWave, Mixed-signal Analog, Digital Design along with Signal Processing algorithms in baseband modem

Product Details:
The delivered products and those under development currently include, Custom LNA in Ka and W Band, W Band Receiver in SiGe, Wide Band Octal TRM solution in X Band, Ultra Low Jitter PLL in X Band,

K Band Radar for Surveillance, K Band Exciter for RF Transceiver systems, VPX Card Programmable RF Transceiver, Custom IPs for WLAN Transceivers, GPS & NAVIC receivers and Anti Jam GPS Receiver.
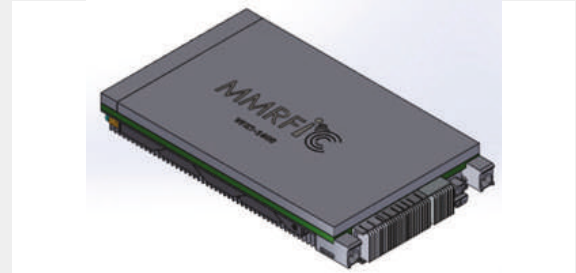
NAVYUG

Navyug Infosolutions Pvt. Ltd.

Name of the Founder:
Col Sunil Prem & Sanjeev Kumar

Challenge (DISC / OC):
DISC 3 (Friend or Foe Identif cation System)

Sector of Innovation:
For the Indian Army's Mechanized Forces – to prevent fratricide among own tanks/ Infantry Combat Vehicles (ICVs)

Technology Used:
A unique waveform in the RF Spectrum and for the transponder-receiver signal, and integration of the IFF with tanks and ICVs

Product Details:
The project involves development of an IFF device, and integration of the IFF device with the LRF, Sights and Gyro of a tank/ICV, to provide a signal to the gunner/commander, before a round is f red upon a target tank/ICV
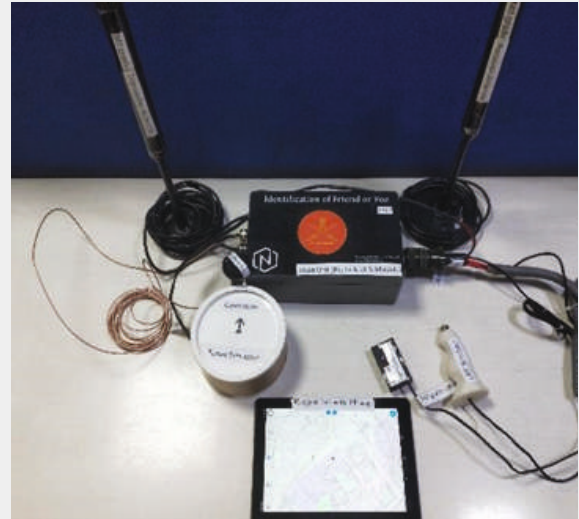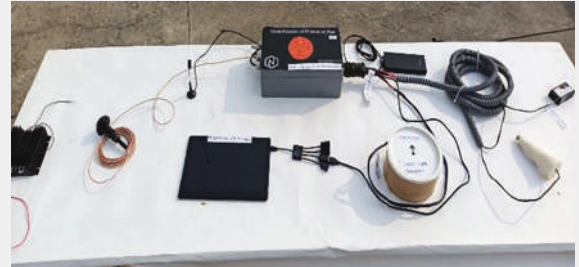
NewSpace Research & Technologies Pvt. Ltd.

Name of the Founder:
Sameer Joshi & Julius Amrit

Challenge (DISC / OC):
Open Challenge 1.0 [HAPS (High Altitude Pseudo Satellite)]

Sector of Innovation:
Unmanned Aerial Systems

Technology Used:
Solar Powered, Stratospheric altitudes, Long Endurance, Autonomous Operations, Swarm Capable (Constellation)

Product Details:
High-Altitude Pseudo-Satellite ("HAPS") is a Solar Powered Stratospheric Platform. The platform exploits the high solar irradiance and above-the-weather space in-between Medium-Altitude Long Endurance ("MALE") vehicles flying closer to Earth's surface and satellites orbiting in space. The capabilities of Endurance and Flexibility along with the focus of an aircraft

HAPS offers a significantly disruptive product for Persistent Coverage over a point-of-interest.

Product: HAPS (Artist's impression)

NewSpace Research & Technologies Pvt. Ltd.

Technology Used:
UAV Swarming driven by Artificial Intelligence (AI), Machine Learning (ML) and Computer Vision (CV)

Product Details:
Air/canister launched fixed-wing, multi-role swarming UAVs that is being developed to enable a host of network centric missions that include Anti-Access Area Denial (A2AD), distributed and multi-modal Intelligence Surveillance and Reconnaissance, Kamikaze Strikes

Product: ALFA-S (model)

NoPo Nanotechnologies India Private Limited

Name of the Founder:
Gadhadar Reddy

Challenge (DISC / OC):
DISC 1

Sector of Innovation:
Desalination System

Technology Used:
Single Walled Carbon Nanotube (SWCNT) based Desalination System

Product Details:
A small-diameter single-walled car-bon-nanotubes-based device for seawater desalination- The water-filter uses the unique water transport property of carbon nanotubes (in 0.6 to 1nm diameter), to achieve a very high efficiency.
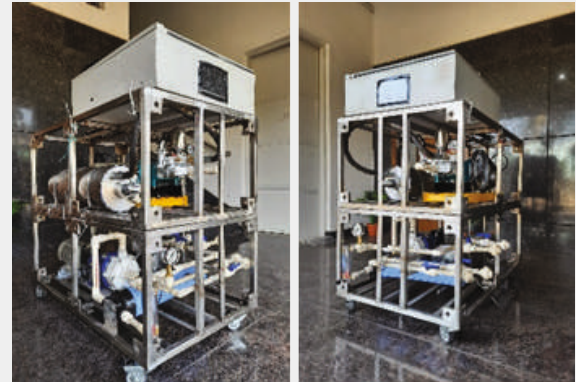
North Street Cooling Towers Pvt. Ltd.

Name of the Founder:
Mukesh Bansal

Challenge (DISC / OC):
DISC 1 (Carbon Fibre Winding)

Sector of Innovation:
Weapons (Rocket Launchers)

Technology Used:
Filament Winding Technology

Product Details:
84 mm Rocket Launcher MK III
    Caliber: 84mm rifled
    Weight: 10 Kg
    Length: 1,065 mm
    Effective fire range
        350 to 400 m against moving vehicles
        500m against stationary vehicles
        1000 m using smoke and high explosive
        rounds
        2000 m using rocket-boosted laser guided
        ammunition
    Rate of fire: 6 rounds per minute

Service life: 1000 rounds

84 MM ROCKET LAUNCHER

Nyokas Technologies Pvt. Ltd.

Name of the Founder:
Ajay Sangwan

Challenge (DISC / OC):
DISC 1 [Individual Protection System (IPS)]

Sector of Innovation:
Smart Fabrics and Military Personnel

Technology Used:
Advanced ballistic system with vital parameters monitoring sensors attached

Product Details:
A fully functional system capable of providing bullet proof armour protection (ballistic helmet and eyewear, bullet proof jacket, and splinter proof clothing) along with measuring vitals (heart rate, pulse and blood pressure) in a person wearing the system. The vitals will be transmitted to a distance of 400m to a central location where they can be monitored and shared with other entities as per requirement.

Key Technologies Developed/Applied
- Bullet Proof Armour System (Ballistic Helmet and Eyewear, Bullet Proof Jacket, and Splinter Proof Clothing)
- A continuous monitoring device for vital parameters
- Clothing enhanced with odour free, smart temperature and anti-microbial properties
- Location information of the soldier using GPS

Okulo Aerospace Pvt. Ltd.

Name of the Founder:
Dr. Parithi Govindaraju

Challenge (DISC / OC):
Open Challenge 1.0 (Long Endurance Aerial Surveillance Platform)

Sector of Innovation:
Aerospace Engineering (UAVs)

Technology Used:
Photovoltaic cells to increase endurance of electric UAVs

Product Details:
The Company's Solar-Electric Hybrid Long Endurance UAVs addresses the core incompetency of limited flight time of existing electric drones by possessing a continuous flight time of up to 3x-5x times the existing drones. The company's drones will be equipped with electro-optical/infrared (EO/IR) sensors, providing the war fighter with mission critical ISR, increased operational effectiveness, and rapid tactical response in virtually any environment. The company's drones will be capable of doing fully autonomous missions and also operate Beyond Visual Line of Sight (BVLOS).
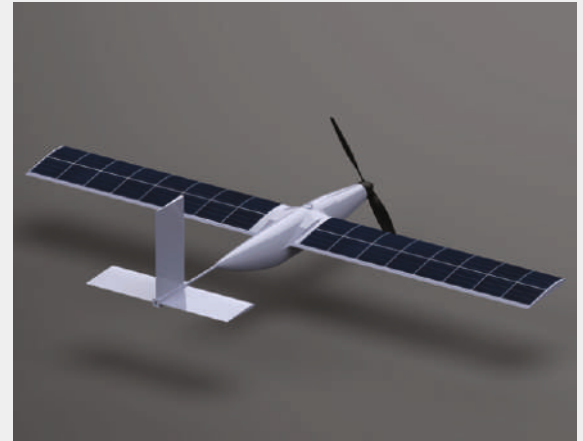
Optimized Electrotech Pvt. Ltd.

OPTIMIZED ELECTROTECH

Name of the Founder:
Sandeep Shah, Anil Yekkala, Dharin Shah, Kuldeep Saxena, Purvi Shah

Challenge (DISC / OC):
DISC 1 (Remotely Piloted Airborne Vehicles)

Sector of Innovation:
Electro Optical Systems

Technology Used:
- Edge-Analytics
- Artificial Intelligence
- Machine Learning

Product Details:
Optimized Electrotech has designed & developed successful products for Long Range Surveillance, VisionTM series, with built-in Artificial Intelligence and Edge Analytics. These products have been tested at India's International borders and their performance has excelled at every level. Optimized Electrotech's short range surveillance products that include RelEyeTM, a Smart Access Control System with thermal imaging and facial recognition, is already in use by Indian Railways making public transports safer. Optimized Electrotech's products work across the Electro-magnetic spectrum to provide excellent imaging results, with different products manipulating different sections of the spectrum.

Ossus Biorenewables Pvt. Ltd.

Name of the Founder:
Suruchi Rao, Shanta Rao & Kamar Suhail Basha

Challenge (DISC / OC):
DISC 1 (Desalination and Oily Water Separation)

Sector of Innovation:
Water/Green Energy

Technology Used:
Bioelectrochemical process for desalination and oily bilge water treatment deployed in the form of an add-on device to water handling systems; name of device is Nautilus

Product Details:
The Nautilus operates by utilizing a designer biocatalyst by the Ossus Team which can specifically target and alchemize the high salt content of sea water as well as the hydrocarbon content of bilge water. The designer biocatalysts are efficiently able to break down these components into electrons as bioproducts and produce no secondary sludge. The design of these biocatalysts is proprietary to Ossus and are available to use in the Nautilus as easy to install cartridges with a shelf life of 300-500 days.

2021 MVP

PLANYS

Planys Technologies Pvt. Ltd.

Name of the Founder:
Tanuj Jhunjhunwala, Vineet Upadhyay, Rakesh Sirikonda, Prabhu Rajagopal, Krishnan Balasubramanian

Challenge (DISC / OC):
Defence India Startup Challenge (DISC) – I under the category – "Underwater Unmanned Systems"

Sector of Innovation:
Naval Defence, Underwater Ranging

Technology Used:
Major technologies used in this project are listed below:
- Semi-autonomous navigation systems
- Underwater positioning, station-keeping, and communications systems
- Long-range in-air wireless communication system
- Acoustic and magnetic ranging hydrophones and magnetometers respectively

Product Details:
Planys is working on developing an underwater semi-autonomous robotic platform which will perform acoustic and magnetic signature profiling of naval vessels, both on the surface and submersible.

PUZZLES

Puzzles Technologies India Pvt. Ltd.

Name of the Founder:
Apoorva M Ankad & Dr. Hemanth Kumar T E

Challenge (DISC / OC):
DISC 4, (Prediction and Forecasting of Atmospheric Visibility)

Sector of Innovation:
AI based Meteorological Services for Aviation

Technology Used:
Computer Vision, Artificial Intelligence, Machine Learning, Data science etc

Product Details:
Puzzles solution to predict the real time location-based visibility forecasting, uses METAR data along with satellite meteorological data based on latitude, longitude and altitude. Meteorological data like temperature, precipitation, relative humidity, wind speed, wind direction, visibility, PM10, PM2.5, etc. would be correlated with the visibility range. Using time-series machine learning algorithms, visibility forecasts can be predicted for real time. Long short-term memory (LSTM) networks are a version of recurrent neural networks (RNN), that makes it easier to remember past data in the memory. LSTM is well suited to classify, process and predict time series for a given time lags of unknown duration.
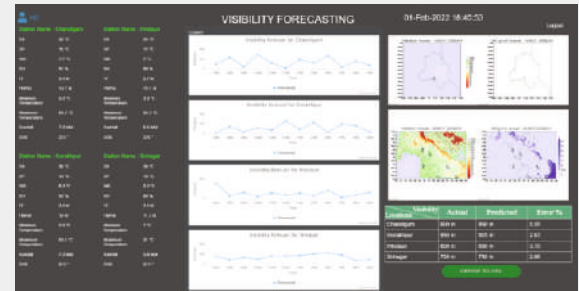
OXYGEN 2 INNOVATION Pvt. Ltd.

Name of the Founder:
Air Vice Mshl Ashok Singhal AVSM VSM (retd) & Abhinav Singhal

Challenge (DISC / OC):
DISC 4 (Computer Generated Targets for Virtual Training)

Sector of Innovation:
AI Based Simulator

Technology Used:
Artificial Intelligence (AI), Virtual Reality (VR) /Augmented Reality (AR)

Product Details:
Computer Generated Forces/Intelligent Targets for Embedded Virtual Training
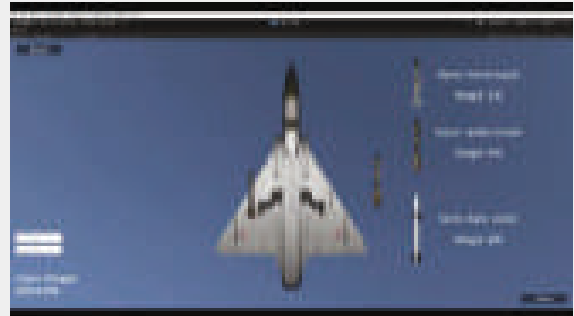
QED Analyticals Pvt. Ltd.

Name of the Founder:
Vineet Gupta

Challenge (DISC / OC):
Disc 4 (Predictive, Preventive and Pre-scriptive Machine Monitoring)

Sector of Innovation:
Industry 4.0

Technology Used:
IoT, Machine Learning, Signal Processing

Product Details:
An IoT and AI based solution to predict failure modes of a machine and recom-mend optimal maintenance

Q→NU
Proactively
Quantum™

QuNu Labs Pvt. Ltd.

Name of the Founder:
Dr. Anil Prabhakar, Srinivasa Rao Aluri, Mark Mathias & Sunil Gupta

Challenge (DISC / OC):
Open Challenge 2.0 (Quantum Security Keys Over 200 Kms)

Sector of Innovation:
Cybersecurity and Quantum Cryptography

Technology Used:
Quantum Key Distribution

Product Details:
A pair of quantum secure key distribution nodes (Alice and Bob) that can support upto 200 kms for secure encryption key distribution
Leverages the current 100 km QKD technology with two patents pending
Uses DPS (Differential Phase shift) protocol with Decoy State Method - A proprietary method for distributing secure quantum keys between two nodes through a relay node

Radome Technologies and Services Pvt. Ltd.

Name of the Founder:
Nagendra Prasad Kumble

Challenge (DISC / OC):
DISC 1 (AI in SCM and Logistics / AI in Aircraft Health Monitoring)

Sector of Innovation:
Predictive and Prognostic Maintenance of Critical High Functioning Assets

Technology Used:
Data Analytics, Artificial Intelligence and Machine Learning

Product Details:
ProHM+ is a data analytics tool based on AI & ML that enables predictive, prescriptive and prognostic maintenance of aircraft engines, airframe and equipment. Several layers of data analytics allows the user to monitor the condition of the aircraft and take necessary action to avoid untimely failure of the aircraft components and thus enhancing the life of the asset.

Name of the Founder:
Capt. Nikunj Parashar

Challenge (DISC / OC):
DISC 4 (Autonomous Underwater Swarm Drones)

Sector of Innovation:
Unmanned System & Robotics

Technology Used:
Unmanned System, Artificial Intelligence, SWARM Technology, Control System

Product Details:
Autonomous Swarm of AUV for Mine Counter Measure for Indian Navy. These AUVs will work with pre-feed data on detected and classified mines in the area. These AUVs are fully operational with available data catering for position accuracies in open and shallow waters.

Sagar Defence Engineering Pvt. Ltd.

Name of the Founder:
Ahmed Shk. Abdeally Calcuttawala,
Taher Calcuttawala &
Aliasgar Calcuttawala

Challenge (DISC / OC):
DISC 1 (Unmanned Surface Vehicles)

Sector of Innovation:
Unmanned Vehicles in Marine Industry

Technology Used:
Naval Architecture, Drone Technology, Plastics Technology, Mechatronics Engineering

Product Details:
Saif Seas – Battery Operated Self Propelled Lifebuoy is an innovative device used to remotely save lives on water bodies. With speed in excess of 7m/sec on water, easy to operate and compact makes it a positive compliment to the present systems. Serving as a platform on water this can be used with a variety of other payloads to perform other tasks.

Saif automation services LLP

SAIF SEAS
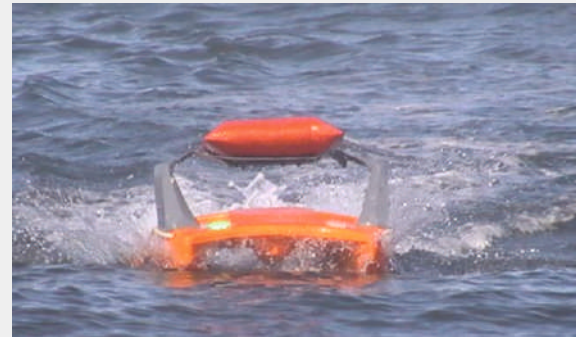
Sci-Com Software India Pvt. Ltd.

Name of the Founder:
Dr. Vishwas Udpikar

Challenge (DISC / OC):
DISC 3 (To create a portable spoof emitter for surveillance and ground based air defence weapons)

Sector of Innovation:
FMCW Realtime RADALT Tester

Technology Used:
Use of developed and established DDC (Digital Down Conversion) Firmware IP developed internally
CHIRP Analysis/Synthesis/Processing Firmware IPs developed internally

Product Details:
We provide the products in the following domains: Electro-optics, Digital Communication, RADAR, Industrial Automation, Machine Vision, IoT, Smart Security, PIDS & Video Analytics

Silverstreak Techscape Pvt. Ltd.
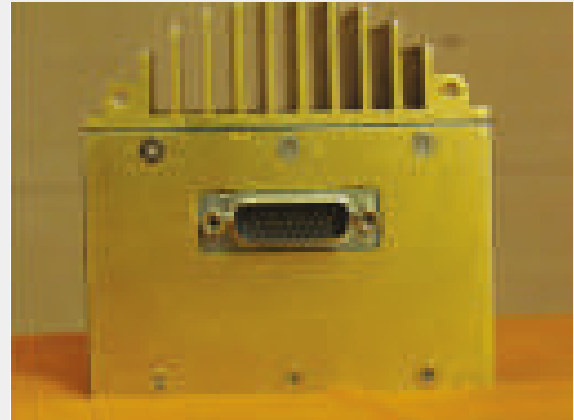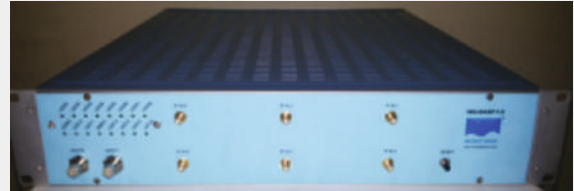
Name of the Founder:
Athilat Gopinath, Dr Swaroop Sahoo & Sanal Joseph

Challenge (DISC / OC):
DISC 4 (Target Detection in Chaff Environment)

Sector of Innovation:
Software and Hardware

Technology Used:
Signal Processing and Processor Development

Product Details:
The Development of smart AI driven Virtual targets in a Live Virtual Constructive environment to react / address the pilot (trainee) actions to elevate productivity & skill sets.
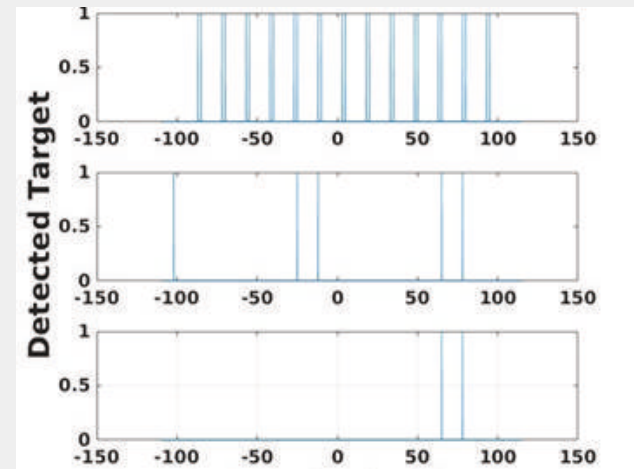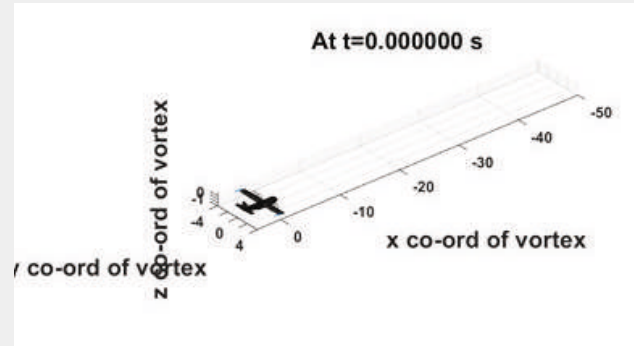
Skyroot Aerospace Pvt. Ltd.

Name of the Founder:
Pawan Kumar Chandana & Naga Bharath Daka

Challenge (DISC / OC):
DISC 4 (Foliage Penetration Radar)

Sector of Innovation:
FOPEN Radar And Aerospace

Technology Used:
Range Doppler Processing

Product Details:
FOPEN Pulsed RADAR (Monostatic RADAR system that is man-portable and rugged enough to meet and serve the need of armed force)

KALAM- SOLID ENGINE FIRING
➢ High Thrust
➢ Low Cost
➢ Short built time

RAMAN LIQUID ENGINE FIRING
➢ Hypergolic propellants
➢ Metal Matrix Composite
➢ 100% 3-D printed

Starbru Techsystems Pvt. Ltd.

Name of the Founder:
Ashutosh Rai & Naval Jain

Challenge (DISC / OC):
Open Challenge 1 (next generation communication over existing radio network without modification to existing infrastructure)

Sector of Innovation:
Secure Communication Products

Technology Used:
A secured IOT kind of functional system for security forces but without internet or GSM inputs.

Product Details:
We are providing visual operational frameworks by integrating our own make hardware & software system to achieve next generation data communication outputs without modification in existing communication infrastructure.

Name of the Founder:
Brigadier Shyam Mohan Murari, VSM (Retd)
Dr Bhaskar Mohan Murari

Challenge (DISC / OC):
DISC-1 (Individual Protection System with built-in sensors)

Sector of Innovation:
Defence Body Protection smart System

Technology Used:
Composite Material

Product Details:
    Bulletproof Jacket with Sensors
    Helmet with Eye protection
    Data transmission, reception, analysis and display.

Tatvabodh technology Pvt. Ltd.

![Tonbo imaging logo]

Tonbo Imaging Pvt. Ltd.

Name of the Founder:
Arvind Lakshmikumar

Challenge (DISC / OC):
DISC 1 (See Through Armour)

Sector of Innovation:
Electro-Optics

Technology Used:
Infrared Imaging, Multisensor Imaging, Computer Vision, Artificial Intelligence, Edge Analytics, Precision Inertial Stabilization, Augmented Reality

Product Details:
The See Through Armor solution for Armored Fighting Vehicles (AFVs) prevents soldiers from risking their lives and provides 360° surrounding information without opening the vehicle's hatch. The solution uses artificial intelligence for target detection, recognition and multiple target tracking to relay role-based information to the crew's AR-based head-mounted device, facilitating real-time information and instant decision-making.

TRESA

Tresa Energy Pvt. Ltd.

Name of the Founder:
Nishant Kalbhor

Challenge (DISC / OC):
Open Challenge 2 (Axial Flux BLDC Motor Drive for 7.0M RIB)

Sector of Innovation:
Electric Vehicle Powertrains

Technology Used:
- Ultra-High Power Density Axial Flux Motors
- Inhouse built Electric Motor Inverters
- High Energy Density Lithium Polymer Pouch Cells
- Active Thermal Management System

Product Details:
TRESA Tech reduces the weight by 4-5x of the existing electric motors and 10x of the existing IC Engines. The normal operating condition efficiency ranges from 90-95% for our Motors.
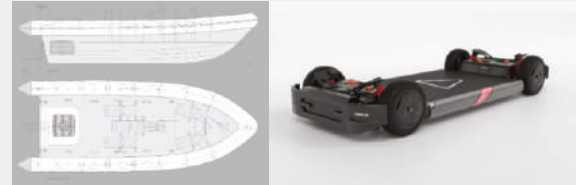
VAYU BHUVAN Pvt. Ltd.

Name of the Founder:
Dr. N. Venkatanathan & Dr. James A Baskaradas

Challenge (DISC / OC):
4.0 (Prediction and Forecasting of Atmospheric Visibility)

Sector of Innovation:
Airforce

Technology Used:
Artificial Intelligence

Product Details:
Design and development of weather forecasting model & weather monitoring devices

HOT SPOT ANALYSIS : FOG OVER INDIA
(DEC–JAN : 1971–2015)

Artificial Intelligence Based technique for prediction of Atmospheric Visibility

DB-Dry Bulb Temperature	WB-Wet Bulb Temperature	DP-Dew Point Temperature	DDD-Surface Wind Direction	FFF-Surface Wind Speed
FMFM-Maximum Wind speed	SC-Sky cover	RH-Relative Humidity	QFE-Pressure	RRR-Rainfall
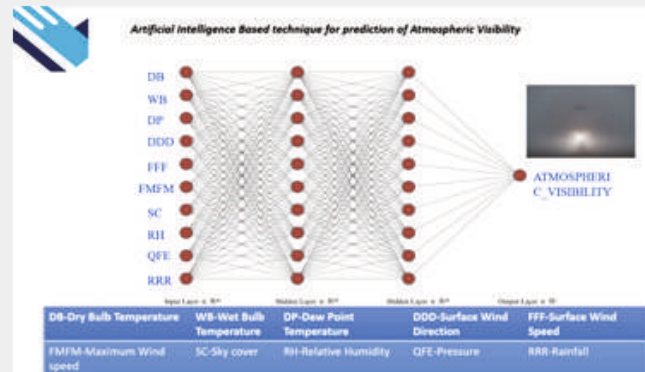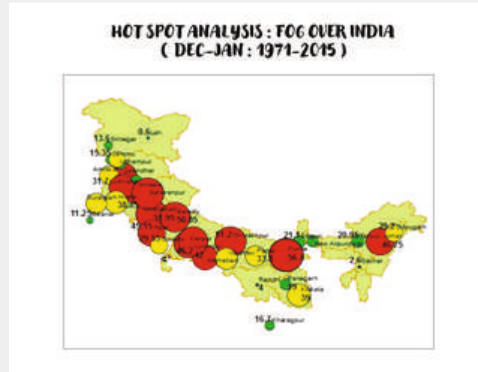
Zeus Numerix Pvt. Ltd.

Name of the Founder:
Basant Kumar Gupta

Challenge (DISC / OC):
DISC 4 (Reduction of RCS of Naval Warships)

Sector of Innovation:
Superstructure design for passive reduction of warship's radar signature

Technology Used:
High frequency analysis for ISAR hot spot imaging & impact of RAM coating

Product Details:
Optimization of superstructure shaping as well as equipment enclosure; Full EM spectrum: 3 GHz to 35 GHz; Capability for parallel computing for reducing simulation time
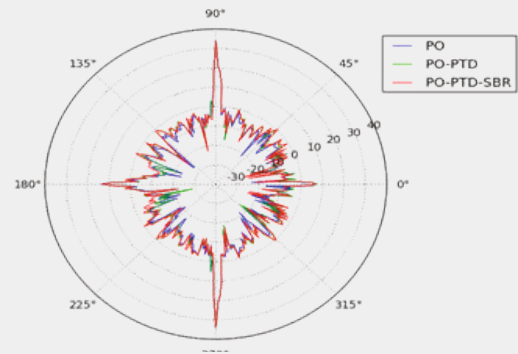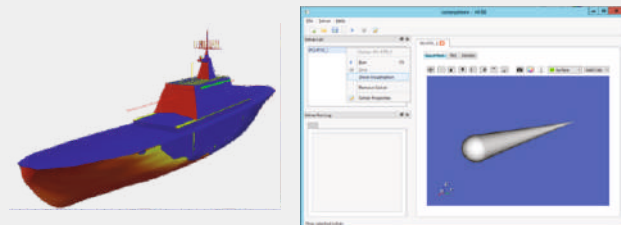
ZMotion Autonomous System Pvt. Ltd.

Name of the Founder:
Mrutyunjay Hegde & Shruthi Dixit

Challenge (DISC / OC):
DISC 1 (Remotely Piloted Airborne Vehicles)

Sector of Innovation:
Loitering Ammunition System

Technology Used:
Autonomous Unmanned Aerial Vehicle with Explosive Warhead

Product Details:
Loitering ammunition system with autonomous flight capability – War head of 1 Kg – Target Range of 40 Km – Endurance of 60 mins – Service Ceiling of 5000m AMSL - Engages target by dive and impact (kamikaze mode) – Recoverable and Reusable if not engaged on target

DISC 5,
OC 2.0 and OC 3.0
Winners

S. No.	iDEX winner	Challenge name	Startup Email ID
1	Nitesh Kumar (Mednaath Technologies Pvt. Ltd.)	Overlapping Percentage of Two 3D Objects and Display of Combined Geometry	nitish.iitrpr@gmail.com
2	Karthikeyan Thangaraj (Spheruler Solutions Pvt. Ltd.)	Overlapping Percentage of Two 3D Objects and Display of Combined Geometry	karthikeyant1729@gmail.com
3	Swetha Amit (Zosh Aerospace Pvt. Ltd.)	Helmet Mount Conformable Antenna	swetha.amit@gmail.com
4	Nandanavanam Sitaramamma (CoreIOT Technologies Pvt. Ltd.)	Helmet Mount Conformable Antenna	vamsi.palukuru@coreiot.co.in
5	Yash Goliya (Suryudey Plastic Electronics Pvt. Ltd.)	Helmet Mount Conformable Antenna	yash.goliya@suryudey.com
6	Roshan Raj (Blurgs Democratizing Aerial Intelligence Pvt Ltd)	Motion Pattern Classification on Online / Active data	roshan.raj@blurgs.com
7	Nuthan Prasanna (Dvizira Pvt. Ltd.)	Motion Pattern Classification on Online / Active data	nuthan@dvizira.com
8	Neeta Trivedi (Inferigence Quotient LLP)	Image Recognition, Target Tracking and Non-Cooperative Collision Avoidance System for UAVs	neeta@inferq.com
9	Dr. Yoganandam Yeleswarapu (Innovation Communications Systems Ltd.)	Miniaturization of Electronics Modules by Use of Low Power Industrial Devices and Ruggedizing Hardware and Software Components	info@icsglobal.biz
10	Karthikeyan Thangaraj (Spheruler Solutions Pvt. Ltd.)	Development of a Bore-Sighting / Alignment System for SU-30MkI Aircraft Sensors, Tray and Weapon Adaptors	karthikeyant1729@gmail.com
11	Krupalu H. Mehta (Parallax Labs)	Development of Artificial Intelligence based Training Modules for Technicians for Su-30MKI Aircraft	krupalu@parallax.co.in

DISC 5 Winners

S. No.	iDEX winner	Challenge name	Startup Email ID
12	Siddharth Bhonge (Cyronics Innovation Labs (OPC) Pvt. Ltd.)	Adaptive Data Rate Burst Modem for Wireless Mobile Ad-Hoc Network	siddharth@cyronics.com
13	Vishwas Ramakrishna Udpikar (SCICOM Software India Pvt. Ltd.)	FM CW Real time RADALT Tester	vishwas.udpikar@scicomsoftware.com
14	Shashank Mutha (ApexPlus Technologies)	FM CW Real time RADALT Tester	shashank@apexplustech.com
15	Aakash Rao (Elmot Alternators Pvt. Ltd.)	Development of Inertial Energy Storage System	aakash@elmotalternators.com
16	AnoopAnand (Altair Infrasec Pvt. Ltd.)	Enhancing UDA	anoop.anand@altair.in
17	Shivaraman Ramaswamy (Big Bang Boom Solutions Pvt. Ltd.)	Non-Lethal Devices for Stopping Vessels at Sea	shiva@bigbangboom.solutions
18	Sarang Bora (Gofloat Technologies Pvt. Ltd.)	Non-Lethal Devices for Stopping Vessels at Sea	sarangbora@gmail.com
19	Ramu Srinivasaiah (Lekha Wireless)	Development of a Private 5G Network for Machine to Machine Communication	ramu@lekhawireless.com
20	Krishna Sirohi	Development of a Private 5G Network for Machine to Machine Communication	ksirohi@iitd.ac.in
21	Aman Virmani (Talos Intelligent Systems)	Miniaturization for Implementation of Mini & Micro Drones and Drone SWARMS	talosintelligent.TIS@gmail.com

DISC 5 Winners

S. No.	iDEX winner	Challenge name	Startup Email ID
22	Satish Nagraja Chandra (Ag Flex Technologies Pvt. Ltd.)	EMI /EMC Shielding for Bridge Window Glasses on Naval Ships	schandra@agflextech.com
23	Anurag Rana (Threye Interactive Pvt. Ltd.)	Development of Part Task Trainer for Mirage 2000 Upgrade Aircraft	anurag@threye.com
24	Sendhil Kumar Krishnan (Aero Tronix Systems Pvt. Ltd.)	Development of Part Task Trainer for Mirage 2000 Upgrade Aircraft	sendhil@aerotronix.in
25	Raghuram Shivram (Pushkala Technology Pvt. Ltd.)	Development of Wide Band HF Modem for Networked secure voice, data & Video Communication	raghuram@pushkala.in
26	Siddharth Bhonge (Cryonics Innovation Pvt. Ltd.)	Development of Wide Band HF Modem for Networked Secure Voice, Data and Video Communication	siddharth@cyronics.com
27	Anwej Alam (Champion Semiconductors Pvt. Ltd.)	Development of Wide Band HF Modem for Networked Secure Voice, Data and Video Communication	champ@championsemi.com
28	Chaxu Mistry	Development of Fast and Economical Cutting Machine for Metal Bars	chaxu@missar.co.in, chaxu_mistry@yahoo.com
29	Naga Venkata Rakesh (Seaconvoy Systems Engineering Pvt. Ltd.)	Active Roll Stabilisation System	rakesh.nnv@seaconvoy.co.in
30	Abhijeet Bokil (Aeron Systems Pvt. Ltd.)	Precision Guided Kit for Mortar Ammunition	abhijeet@aeronsystems.com
31	Sanjay Kumar (Zeus Numerix Pvt. Ltd.)	Precision Guided Kit for Mortar Ammunition	skumar@zeusnumerix.com
32	Anuroop (M/s Cogknit))	Situational Awareness for Mechanised Columns	anuroop@cogknit.com

DISC 5 Winners

S. No.	iDEX winner	Challenge name	Startup Email ID
33	Premanand Balachandran (Aatral)	Augmented Reality / Virtual Reality based Sortie Preparation Aid for Helicopter Pilots	prem.anand@aatralcreations.com
34	Ashok Singhal (Oxygen 2 Innovation Pvt. Ltd.)	Augmented Reality / Virtual Reality based Sortie Preparation Aid for Helicopter Pilots	ashok14615r@gmail.com
35	Nuthan Prasanna (Dvizira Pvt. Ltd.)	Artificial Intelligence based Radio Frequency Spectrum Management	nuthan@dvizira.com
36	Thiyagarajan (Redleaf Technologies Pvt. Ltd.)	Artificial Intelligence based Radio Frequency Spectrum Management	thiyagarajan.d@redleaf.in
37	Amit Raje (Aartech Solonics Limited)	Silent Overwatch for Infantry Combat Vehicles	amitraje@aartechsolonics.com
38	Karandeep Singh (FC Tecnrgy Pvt. Ltd.)	Silent Overwatch for Infantry Combat Vehicles	karandeep@fctecnrgy.com
39	Premanand Balachandran (Aatral)	Augmented Reality (AR) Tool for Technical Type Training and Usage of Smart glasses to assist Technicians	prem.anand@aatralcreations.com
40	Anurag Rana (Threye Interactive Pvt. Ltd.)	Augmented Reality (AR) Tool for Technical Type Training and Usage of Smart glasses to assist Technicians	anurag@threye.com
41	Ashok Singhal (Oxygen 2 Innovation Pvt. Ltd.)	Augmented Reality (AR) Tool for Technical Type Training and Usage of Smart glasses to assist Technicians	ashok14615r@gmail.com

OC 2.0 Winners

S. No.	iDEX winner	Challenge name	Startup Email ID
1	Sunil Prem [Brisk Olive Business Solutions Pvt. Ltd.]	Rapid Foldable Infantry Assault Bridge	sunil.prem@briskolive.com
2	Sunil Gupta [Qnu Labs Pvt. Ltd.]	Quantum Security Keys	sunil@qnulabs.com
3	Nishant Kalbhor [M/S TRESA Energy Pvt. Ltd.]	Axial Flux BLDC Motor	nishant.dreamviewer@gmail.com
4	Binu [M/S Crimson Energy Experts Pvt. Ltd.]	Development Of Machine Algorithms For Maritime Aromaly Detection	binu.jacob@crimsonenergy.in

OC 3.0 Winners

S. No.	iDEX winner	Challenge name	Startup Email ID
1	Rajeuv Govindan [Vikra Ocean Tech Pvt. Ltd.]	Amphibious Crawling Robot	rajeuv.g@vikraoceantech.com
2	Atul Prakash Agarwal [Apt Software Avenues Pvt. Ltd.]	Defender (Data Collection,Collation and Analysis)	atul@aptsoftware.com
3	Saiprasad poyarekar [Pacify Medical Technologies Pvt. Ltd.]	Skin Spray Gun	saiprasad@pacifymedical.com
4	Vighnesh M [Torus Defence]	UGV Designed Modular Platform	taurus.defence@gmail.com
5	RamaKrishna [Hind High Vaccum]	Laser Safety Glasses Safety against Class 3 and Class 4 Lasers	ramakrishna@hhv.in

iDEX Collaborators

TIDES
BUSINESS INCUBATOR

Name of the PI: TIDES BI

Number of Startups supported: 73

Sector Focused/Sector Agnostic: Sector Agnostic

Awards & Recognition: Startups – Log9 Materials awarded most innovative startup; Indi Energy received investment from Mumbai Angels; Fermentech Labs received BIRAC BIG grant.

Name of the PI: CIIE.CO

Website: https://ciie.co/

Incubation Services Offered: Accelerator Programs, Funding support, Mentorship & Advisory, Co-working space.

Number of Startups supported: 5000+ startups supported

Sector Focused / Sector Agnostic: Deeptech & Inclusion

Awards & Recognition: NIDHI - Centre of Excellence (COE) by Department of Science & Technology.

Testimonial: "iDEX is an interesting program that identifies and supports innovative tech startups with Defence applications. We have been privileged to partner in this initiative and be a part of the startup's growth and accelerated journey. We look forward to the transformational changes that these applications and technologies will bring in the coming times."

Name of the PI: IITG, TIC

Number of Startups supported: 28nos*

Sector Focused / Sector Agnostic: Across all Sector

Europe an delegation visit to IITG TIC

Incubatees supported by Oil India Ltd.

IITG TIC innovation competition prize distribution

Incubatee supported by NRL

Mr. Koji Mizuno , Director of CBC Corporation

PM Video Conference with IITG TIC incubatees

NAME OF THE PI: Foundation for Innovation and Technology Transfer (FITT), IIT Delhi

Focused Sectors:
- Healthcare
- Medical Devices
- Deep Tech
- AI, ML
- Defence Technologies
- Green Energy
- Advanced Electronics
- Automotive

Testimonial: Joining hands with the DIO and Ministry of Defence for the astounding iDEX program has proved to be a significant step for FITT to contribute towards making India self-reliant in the Defence sector. It has not only opened up a plethora of opportunities for military entrepreneurs, but it has also engendered a culture of technological co-creation and raised awareness of defence demands in the Indian innovation ecosystem, as well as the potential to produce new solutions based on those needs. FITT is honored to be a part of this initiative by GOI for the growth of our nation.

Name of the PI: Society for Innovation and Development, IISc

Incubation Services Offered:
Dedicated building for Entrepreneurship; ~25,000 Sqft of space. Closed office spaces for each incubatee. Common facilities like Conf Rooms etc.
Access to IISc alumni across the globe
Technical Mentorship by the faculty of IISc
Business Mentorship
Corporate Partnership
Access to various department labs in IISc

Number of Startups supported: 59; 2 (under iDEX)

Sector Focused / Sector Agnostic: Deep Science

Awards & Recognition: N/A

Testimonial: The biggest challenge for startups is to find a product-market fitment. What iDEX provides is a great

platform for startups that solves this problem and at the same time is a huge fillip towards AtmaNirbhar Bharart.

Name of the PI: Forge

Startups supported: One Zero Six (106)

Sector Focused / Sector Agnostic:
Defence, Aerospace & Space
Industrial Digital Transformation
Advanced Manufacturing
Future Cities; Future Mobility
Precision Agriculture
Digital Health Tech
Energy Sustainability & Resources Tech

Awards & Recognition: Emplannedled as Partner Incubator to the following national scale innovation and ventures promotion programs in alliance with government and corporate partners:

Innovations for Defence Excellence (iDEX) by DIO
NIDHI PRAYAS by the Department of Science & Technology (DST)
NIDHI Seed Support Scheme (SSS) by Department of Science & Technology (DST)
NIDHI Accelerator Scheme by Department of Science & Technology (DST)
TIDE 2.0 by Ministry of Electronics and Information TechnologY (Meity)
SASACT (Scheme for Accelerating Startups Around post-COVID Technology opportunities) by Meity
Startup India Seed Fund Scheme by Department for Promotion of Industry and Internal Trade (DPIIT)
Vedanta Spark by Vedanta Resources
City Innovation Exchange (CiX) by Smart Cities Mission, Ministry of Housing and Urban Affairs (MoHUA)
TANII by State Planning Commission, Government of Tamil Nadu.

Testimonial: "iDEX aims to establish and scale 'Path2Procurement Process' by facilitating the accelerated acquisition of military-grade solutions that are developed and qualified by the Indian startups. It has set the foundation for empowering visionary innovators and ambitious entrepreneurs to catalyse indigenous innovation and self-reliance in defence technologies by strengthening India's defence capabilities through technology, innovation, and entrepreneurship. This reformative step has neutralized all the traditional barriers encountered by Armed Forces and DPSUs in limiting the scope of innovation in defence

use cases/products. Solutions being provided by iDEX Innovators have started bridging the gap of innovation and bringing rapid advancement in translating frontier technologies into operational capabilities within the Tris-ervices and DPSUs. By harnessing the operating principles of open innovation, iDEX brings the innovator to co-create with the military user, facilitating an efficient discovery of real needs, challenges and operating constraints. With the Product Management Approach (PMA), iDEX has pioneered a unified framework for managing government funded innovation grants placing product outcomes over technical activities. The iDEX PMA deftly manages risks associated with cost, capabilities, performance, timelines, obsolescence, and self-reliance involved in developing technologically advanced solutions to meet the escalating demands of the military."

Name of the PI: iTIC Foundation, IIT Hyderabad

Number of Startups supported: 85+
Sector Focused / Sector Agnostic:

Awards & Recognition: iTIC incubator at IIT Hyderabad is one of the prominent and recognized Deep tech Incubators to support innovations in India
Startups supported at iTIC Incubator have raised more than 50+ crore follow on funding till date
iTIC Incubator partnered with NMDC to promote the spirit of entrepreneurship and innovation in the country
iTIC Foundation IIT Hyderabad is featured in very popular platforms and global forums

Testimonial: We are privileged to be a partner incubator for iDEX and we are supporting and helping them from a grassroot level to strengthen the Indian defense ecosystem with future technologies and innovations. We appreciate iDEX Ideology and Vision to achieve self - reliance and foster innovation and technology development in Defence and Aerospace and we are happy that we are part of a great Mission of **Aatmanirbhar Bharat.**

Name of the PI: Maker Village

Number of Startups supported: 67

Sector Focused/Sector Agnostic: IoT, AI, Robotics, Automation, Environment, Automotive, Healthcare, Mechatronics, Electronics, Agri-Tech, Edu-Tech, Fin-Tech, Oil & gas, Marine, Aviation, Tele-com, Defence, Energy, Textile, Education, Agriculture, Financial services, Power & Electrical, Industry, Surveillance, Transportation and Logistics etc.

Awards & Recognition:
Promoting IP and Patent Filing: "Incubation Centre of the Year with Prominent IP Culture 2019"
Innovation: "Smart Incubator of the Year – 2020" by India Smart Grid Forum (ISGF)

Testimonial: Maker Village has been associated with DIO's iDEX initiative since 2019. Apart from the world-class fabrication and manufacturing facilities, we also support startups under this initiative with critical business support services for productization and commercialization.

We have also been a recipient of the DPSU Bharat Electronics Limited's CSR funds which we have used to support various activities under this initiative.

We are proud to be associated with the program and be able to support and serve the country in the drive for indigenization in Defence electronics and product innovation.

IIT Bombay

S I N E
Business Incubator

NAME OF THE PI: SINE, IIT Bombay

Number of Startups supported: 188 and 800+ innovators

Sector Focused / Sector Agnostic: Sector Agnostic

Awards & Recognition:
Incubator of Year under Technovation Awards in 2020 by India Electronics and Semiconductor Association (IESA)
Best Incubator Award in 2010 from DST
Selected as Center of Excellence by DST

Testimonial: Opening the doors for innovators with funding support for indigenous technologies, strengthening the government's initiative of making India self-reliant in defence.

Name of the PI: T-Hub Foundation Hyderabad

Number of Startups supported: 1000+

Sector Focused / Sector Agnostic:
 Sector Agnostic
Awards & Recognition The Department of Science & Technology (DST), Government of India, has recognised T-Hub as a Technology Business Incubator (TBI), the first of its kind to receive this recognition outside premier institutes like IITs and IIMs.

Testimonial: We are glad to have collaborated with iDEX that helped accelerate the adoption of new technology innovations in the defense sector of the country. Combining our efforts increases our reach, creates more avenues for startups, and ultimately, delivers value for our economy. This partnership has been a perfect fit for our strategy to support entrepreneurs at every step of their journey.

Name of the PI: IITM Incubation Cell

Number of Startups supported: 244

Sector Focused / Sector Agnostic: Deep Technology

Awards & Recognition: Today, IITMIC incubated start-ups are together valued at over Rs 11,500 crore (based on last investment raised from angel investors/VCs), 106 startups in market generating revenue (Rs 440cr cumulative revenue in FY 2020-21), creating jobs (5200+ direct employment) and over 205 patents filed. Some of our most valued/high growth/impactful startups include Ather Energy, Uniphore, DocsApp, Stellapps, Hyperverge, Planys, Detect, Agnikul, AiBono. These companies are not only transforming the industry/tech environment in India & adding value to society, but now scaling globally.

IITM startups have received wide recognition through prestigious forums including the Economic Times Startup Awards, National Startup Awards (GOI), MIT young Inno-vator, Takeda, Time Next Gen., Aegis Graham Bell Awards etc., and now creating footprints in markets abroad (US, Japan, Netherlands, Japan, Singapore, Philippines, UK, France, Spain, Kenya and Middle East). IITMIC was ranked as India's top incubator by Entrepreneur India magazine and as the country's top emerging Technology Business Incubator by Govt. of India (2017). IITM has been tagged as a haven for startups and institute for innovation by Time of India (2021), Economic Times (2021), ET (2017), Forbes India (2018) & ToI (2019) in their exclusive features. IIT Madras has ranked #1 in the Atal Ranking of Institutions on Innovation Achievements (ARIIA) for 2019 and 2020 by Ministry of Education, GOI. 2019 also marked an eventful milestone, with Hon'ble Prime Minister Narendra Modi visiting IITMRP on 30th Sept, and interacting with 22 startups incubated at IITMIC.

Testimonial: "Planys Technologies has been working with the iDEX team and IITM Incubation Cell for the past six months for the development of an underwater ranging remotely operated vehicle. They are very supportive and receptive to our requirements to further the project's development. The team along with DSR and the Indian Navy also organized our visit to Underwater Naval Ranges at Goa to help us understand the project's background and intricacies."

- Antony Jacob Ashish

Lead, Products and Research, Planys Technologies Pvt. Ltd.

SIIC IIT Kanpur

The Start-up Incubation and Innovation Centre (SIIC), IIT Kanpur, is one of the oldest technology incubators, with a successful track record of exiting notable startups like Curadev Pharma, Geokno, and WeatherRisk Management among others. In last two years, SIIC IITK has been a pioneer in commercializing Covid-19 centric technologies like Swasa N-95 masks, Noccarc V310 ICU Ventilator, oxygen concentrators, oxygen plants etc. The multifaceted, vibrant incubation ecosystem has 100+ startups in the current portfolio who continue to impact lives across the entire pyramid. SIIC has developed the experience base and ecosystem critical in developing early-stage, deeptech start-ups disrupting paradigms across various domains such as agriculture, healthcare, aerospace, energy, water, and education.

Venture Center

Venture Center (registered service mark) is a non-profit company incorporated as Entrepreneurship Development Center hosted by CSIR-NCL, Pune and the first incubator in CSIR. Its mission is to nucleate and nurture technology and knowledge-based enterprises for India. It aims to empower scientists, engineers and others to translate technology and create science-based enterprises/ deep-tech startups.

mach33.aero (An initiative of Social Alpha)

mach33.aero is a multi-stage innovation curation and venture development platform for deep tech ventures in aerospace and defense to address commercial, environmental and social challenges through the power of innovation and entrepreneurship to make India self-sustainable in these sectors of national strategic importance.

mach33.aero is an initiative of Social Alpha. Social Alpha operates a nationwide network of technology and business incubation infrastructure, which includes product innovation labs, venture incubators, grand challenges, accelerator programmes, capital pools and market access mechanisms. Since its inception in 2016, Social Alpha has nurtured more than 150 start-ups including 60+ seed investments.

COO'S LETTER OF GRATITUDE

Vivek Virmani

Chief Operating Officer,
DIO & Planning Officer (G)
Department of Defence Production,
Ministry of Defence

Innovations for Defence Excellence (iDEX), an exemplary initiative by the Ministry of Defence (MoD) encourages innovation in the field of Defence and Aerospace in India. iDEX, under the aegis of Department of Defence Production focusses on creating an innovative and entrepreneurial ecosystem across the length and breadth of India, through its efforts of inculcating the world class products and disruptive technologies in the Armed Forces.

This unique initiative is steadily creating a paradigm shift where budding entrepreneurs are being introduced to the micro-environment of real world challenges faced by our Defence Services.

Since the inception of this scheme, iDEX has grown multi-fold in terms of challenges, winners, success stories, challenge owners and the iDEX team!

This book has gracefully captured the many successes and achievements of iDEX through its startup family and is only the beginning of the numerous accomplishments coming our way. The book is an attempt to commend and celebrate the entrepreneurs who came up with exemplary ideas for problems put forth to them through the Defence India Startup Challenges and Open Challenges.

I would like to congratulate them all and wish them a bright future ahead!

This growth would not have been possible without the support of our visionaries, leaders, advisors, mentors, partners and colleagues. This book is in itself an inspiration for the youth of India working for the nation.

I would like to take this opportunity to extend my heartfelt appreciation and regard for all those who have made possible, the Nodal Officers, the Partner Incubators and the entrepreneurs themselves, who

have worked tirelessly and juggled their busy schedules to become the driving force behind the success of iDEX.

also take this opportunity to thank the Secretary (Defence Production) and Chairman (DIO), Additional Secretary (Defence Promotion), also CEO of DIO, the Joint Secretary (Defence Industries Promotion), also the Additional CEO of DIO and all the members of High Power Steering Committee (HPSC) for their spirited leadership and continuous support to iDEX.

My special words of praise and thankfulness to the core team members for relentlessly supporting the iDEX scheme in word and spirit.

Let's together continue to innovate and build a stronger Atmanirbhar India!

OUR TEAM

Credits

Content Curation :
Mallika B. Rana (Program Executive, DIO)
Samriddh Hada (Program Executive, DIO)

Creative Input :
Mallika B. Rana (Program Executive, DIO)
M.N. Saquib Khan (Program Executive, DIO)

Designed by :
CAB Experiences, A unit of Meraki Communications Pvt Ltd.