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RIPA
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A LANDSCAPE REPORT ON

DEFENSE TECHNOLOGIES

SYNOPSIS

The global defense sector is at a critical juncture, with technologies like AI, robotics, blockchain, IoT, and quantum computing reshaping security strategies. For India, modernizing defense capabilities is urgent to counter evolving threats. This report analyzes emerging technologies such as unmanned systems, hypersonic weapons, advanced materials, and AI in defense, highlighting their potential to enhance operational efficiency and national security. It also explores challenges in implementation and the need for indigenous innovation.

The insights are drawn from the Tech Talk event, “Emerging Technologies Shaping Modern Defence,” organized by IP Bazzaar and RIPA, on January 24, 2025, in New Delhi. The event featured experts like Cmde. Manish Tripathi (Retd), Ex Deputy Asst. Chief of Integrated Defence Staff, Indian Navy; Mr. Sumit Chauhan, CEO, Datopic Technologies; Major General (Dr) Ashok Kumar (Retd), VSM, Director General, Centre for Joint Warefare Studies (CENJOWS); and Prof. Prabhat Ranjan, Vice Chancellor, D Y Patil International University, AVM Rajiva Ranjan VM (Retd), Ex Asst. Chief of Integrated Defence Staff, Indian Air Force; Cmde. (Dr.) Arun Pratap Golaya (Retd), VSM, Indian Navy; Brigadier Rajeev Ohri (Retd), VSM, Indian Army; and Mr. Vivek Venugopal, Executive Director, PwC, who discussed strategic collaborations, supply chain security, and the role of academia. Key topics included AI-powered systems, autonomous robotics, and blockchain for secure communication, emphasizing the need for a future-proof defense infrastructure.

The report concludes with a Tech Zone section, showcasing patented technologies available for licensing, offering opportunities for collaboration. It underscores the importance of academia-industry partnerships, government involvement, and R&D to address challenges like cybersecurity and skilled manpower. This report serves as a roadmap for stakeholders to leverage emerging technologies, ensuring India’s defense readiness in a complex global landscape.

Table Of Contents

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Reaching beyond...

Beyond the usual, beyond boundaries, beyond thought.

Our Company

CMMi Level 5, ISO 9001:2015, ISO 27001:2013 and ISO 27701:2019 certified, Hughes Systique Corporation (HSC) is an award-winning Digital Engineering solutions and services company that specializes in providing complete end-to-end product engineering services ranging from technology & product consulting, architecture, development, managed services in the areas of Travel & Hospitality, Retail, Wireless and Networks, Cloud, Analytics and Security. HSC has its global headquarters in Rockville, MD, USA and India headquarters in Delhi/NCR with development centres in Gurgaon, Noida and Bengaluru, India with best-in-class domain experts, system architects, and engineering teams.

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ORR, Bengaluru, Karnataka
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TECH TALK

The Defence sector worldwide is at a critical juncture, where technological advancements are reshaping how nations approach security. For India, the need to modernize its defence capabilities has become increasingly urgent as global threats evolve. Advanced technologies like artificial intelligence (AI), robotics, blockchain, the Internet of Things (IoT), and quantum computing are not only transforming how defence forces operate but also influencing global military dynamics. As India aspires to become a technological powerhouse, addressing the challenges posed by these rapidly evolving technologies and adapting them for national security is paramount.

IP Bazzaar, in collaboration with Reinforce Intellectual Property Association (RIPA) and NEBULA, organized an impactful roundtable discussion titled "Emerging Technologies Shaping Modern Defence" on January 24, 2025, at the National Productivity Council, Lodhi Road, New Delhi. The roundtable brought together experts from various fields, including industry leaders, policymakers, defence officials, and academia, to discuss how India can harness the transformative power of emerging technologies to enhance its defence capabilities.

The Growing Role of Technology in Defence as geopolitical tensions rise and security challenges become more complex, India is looking to modernize its defence systems through technology-driven solutions. The introduction of AI-powered systems, autonomous robotics, blockchain for secure communication, and IoT for enhanced surveillance and real-time data collection is vital to ensuring India's military is prepared to respond to evolving threats. These advancements are not only focused on improving existing systems but are essential in building a future-proof defence infrastructure capable of withstanding cyber threats, geopolitical conflicts, and technological warfare.

Naveen Coomar moderated the Panel discussions with distinguished panellists with Panel I titled Strategy Field, the panellists included: Cmde. Manish Tripathi (Retd), Ex Deputy Asst. Chief of Integrated Defence Staff, Indian Navy; Sumit Chauhan, CEO, Datopic Technologies; Major General (Dr) Ashok Kumar (Retd), VSM, Director General, Centre for Joint Warefare Studies (CENJOWS); and Prof. Prabhat Ranjan, Vice Chancellor, D Y Patil International University. For Panel II titled Battlefield, the panellists included: AVM Rajiva Ranjan (Retd), Ex Asst. Chief of Integrated Defence Staff, Indian Air Force; Cmde. Arun Pratap Golaya (Retd), VSM, Indian Navy; Brigadier Rajeev Ohri (Retd), VSM, Indian Army; and Vivek Venugopal, Executive Director, PwC.

Prof. Prabath Ranjan's highlighted on India's challenges & opportunities such as :
Heavy reliance on foreign defense technology, gaps in R&D and organizational inefficiencies to innovate. He also suggested that we should take into consideration ethical & policy frameworks such as regulating autonomous weapons to prevent conflicts, ensuring the ethical use of dual-use technologies like quantum computing, addressing job displacement driven by automation, and strengthening global security frameworks.

The discussion concluded with a shared commitment to accelerate efforts to modernize India's defence infrastructure through innovation and strategic collaboration, ensuring the country's security and resilience in the face of evolving global dynamics. An innovative presentations related to the Def tech domain were also presented during the event by Mr. Dhruv Patel, Managing Director of Shivay Fire & Life Safety (India) Pvt. Ltd, & Founder of VFF India and Polaris Solutions Limited, a Def tech company from Israel. Hence, together, through innovation, collaboration, and strategic planning, India can significantly enhance its defence capabilities and ensure national security in an evolving global landscape.

DISCUSSION HIGHLIGHTS

Role of Emerging Technologies: Emerging technologies such as AI, robotics, blockchain, IoT, cybersecurity, and quantum technologies are essential in transforming defence capabilities and ensuring national security.

Challenges in Implementation: Despite the availability of advanced technologies, effective execution remains a challenge due to the lack of skilled manpower and the need for robust infrastructure.

Strategic Collaborations: Strong partnerships between industry, academia, and regulatory bodies are crucial for developing innovative defence solutions tailored to India's unique challenges.

Focus on Indigenous Development: Emphasizing the importance of homegrown technological solutions to reduce dependency on foreign technologies and enhance self-reliance.

Government Involvement: Continuous communication and collaboration between stakeholders and government departments are essential to address policy and implementation challenges.

Supply Chain Security: Ensuring a robust and secure supply chain is vital to safeguarding defence technologies and minimizing vulnerabilities.

Industry-Academia Partnerships: Encouraging deeper collaboration between industry and academia to drive research, development, and innovation in the defence sector.
Role of Academia: Academia should focus on developing cutting-edge technologies, fostering innovation through dedicated research programs, and enhancing collaboration with industry partners.

Consumer Awareness: Raising awareness about the importance of advanced defence technologies and their role in national security among the general public.

SUGGESTIONS FOR ACADEMIA

The industry raised the demand for R&D in the defence technology domain and highlighted the following problem areas in which they wish to collaborate with the academic community:

- Academic institutions should focus on developing innovative technologies that enhance defence capabilities and infrastructure. Technologies such as AI, robotics, blockchain, IoT, and quantum computing can be leveraged to create advanced defence systems and solutions.

- Academic institutions should design user-friendly and effective defence systems that can be easily integrated into existing defence infrastructure. This can raise awareness about the importance of advanced technologies and create a stronger defence against emerging threats.

- Research how to build secure, transparent, and resilient defence supply chains that prevent vulnerabilities and ensure the integrity of defence systems. This involves enhancing traceability and accountability at every point in the supply chain.

- Academic institutions can contribute to the legal and regulatory framework by conducting research on existing defence policies, identifying gaps, and suggesting new policies that address the modern challenges of defence technology.

- Academic institutions should create collaborative research platforms where academia, industry, and government work together to tackle defence technology challenges from multiple perspectives, pooling expertise to create more comprehensive solutions.

- Academic institutions can develop AI-based models that help predict and mitigate defence risks by analyzing patterns and data across various domains. These models can also help prevent potential threats by identifying vulnerabilities.

- Develop academic programs and curricula that focus on teaching students the technologies and strategies needed to enhance defence capabilities and ensure national security, preparing the next generation of professionals for this critical sector.

INDUSTRY CHALLENGES REQUIRING R&D

Limited Indigenous Technology Development

There is a significant reliance on imported technologies, making it imperative to develop home-grown solutions tailored to India's unique defence needs.

Advanced Cybersecurity Measures

As cyber threats continue to evolve, there is an urgent need for advanced cybersecurity solutions that can protect defence infrastructure and sensitive data from sophisticated attacks.

Integration of AI and Robotics

The integration of artificial intelligence and robotics into defence operations presents both opportunities and challenges. R&D is needed to develop AI-powered systems that can enhance operational efficiency and decision-making.

Development of Quantum Technologies

Quantum computing and communication technologies hold the potential to revolutionize defence systems. However, substantial R&D efforts are required to develop and implement these technologies effectively.

Supply Chain Security

Ensuring a robust and secure supply chain is critical to safeguarding defence technologies and minimizing vulnerabilities. This involves developing technologies and processes that enhance traceability and accountability.

Infrastructure for Advanced Technologies

Building the necessary infrastructure to support the deployment and integration of advanced technologies, such as IoT and blockchain, is essential for modernizing defence capabilities.

Limited Indigenous Technology Development

There is a significant reliance on imported technologies, making it imperative to develop home-grown solutions tailored to India's unique defence needs.

Skilled Manpower

There is a pressing need to address the shortage of skilled manpower in the defence technology sector. R&D efforts should focus on developing training programs and initiatives to build a skilled workforce capable of handling advanced technologies.

DELEGATES OF THE EVENT

1. Commodore (Dr) R K Rana, IIT Delhi
2. Dhruv Patel, Shivay Fire & Life Safety India
3. Sharad J Taank, Kridi Enterprises Pvt Ltd
4. Aryan Garg, Aska Equipment Pvt. Ltd.
5. Arun Agarwal, Track Pack Innovations Pvt Ltd
6. Chander S Jeena, Reconnaissance International Ltd
7. Col Prem Rajpurohit, Veteran, Thar Mizu LLP
8. Safaa Mehboob, Livingstone institute of future technologies
9. Rakesh Kumar, HOPE
10. Saumya Rawat, Johnnette technologies Pvt Ltd
11. Mukesh Malik, G K Consulting
12. Col. Virender Kumar, Ex Indian Army
13. Priyank Garg, IAN Alpha Fund
14. Sanjeev Singh, PR Mantra
15. Aishwarya Parikh, Strat News Global
16. Pravash Dey, NEBULA Accelerator
17. Vikas Kumar, Times of India
18. Sanket Rastogi, Times of India
19. Vimal Kumar Varun, DSIR
20. Rishabh Kaushik, Indyhaat
21. Dr. Shashwat Sharad, Exom Biopharma
22. Dr. Pankaj Kumar, NLU Assam
23. Dr. K Prabhu, Sree Balaji Medical
24. Praveen Sasidharan Nair, Deloitte

Organizing Team

Naveen Coomar	Lalit Ambastha	Shruthi Kaushik	Dr. Medha Kaushik
Keshav Kr. Jha	Sana Saifi	Rahila Khan	Sarfaraz Afzal
Vishnu Saini	Ankit Kumar	Sidhatri Gauba	Prashant K Haldar
Gaurav Tiwari	Rahul Gupta	Banti Kumar	Jyoti Bisht

IP BAZZAAR
WHERE MIND MEETS MARKET

TECH TALK™

(A Roundtable Discussion)

RIPA
POWERING INDIGENOUS INTELLECT

EMERGING TECHNOLOGIES SHAPING MODERN DEFENCE

Friday, 24th January 2025
New Delhi

Industry Partners

HUGHES SYSTIQUE™

LIFE LINE

SHIVAY
Fire & Life Safety (INDIA) Pvt. Ltd

Spectralx

Trackpack INNOVATION

IOTA
International Optical Technologies Association
Formerly known as IHMA

Academia Partners

Indian Institute of Technology Bhilai

D Y PATIL INTERNATIONAL UNIVERSITY
AKURDI PUNE

NLUJA

SREE BALAJI MEDICAL COLLEGE & HOSPITAL
AIM ASPIRE INSPIRE

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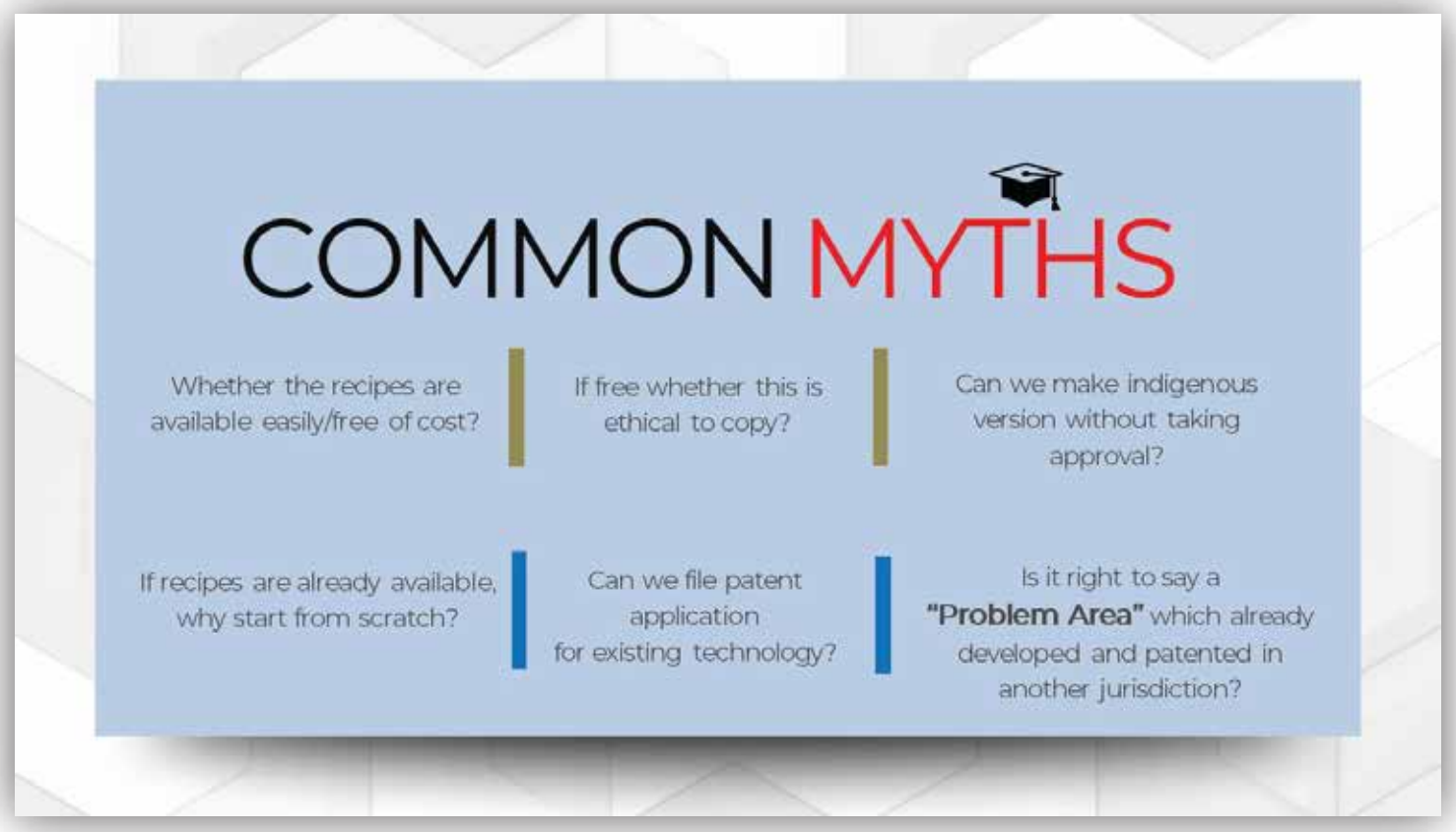
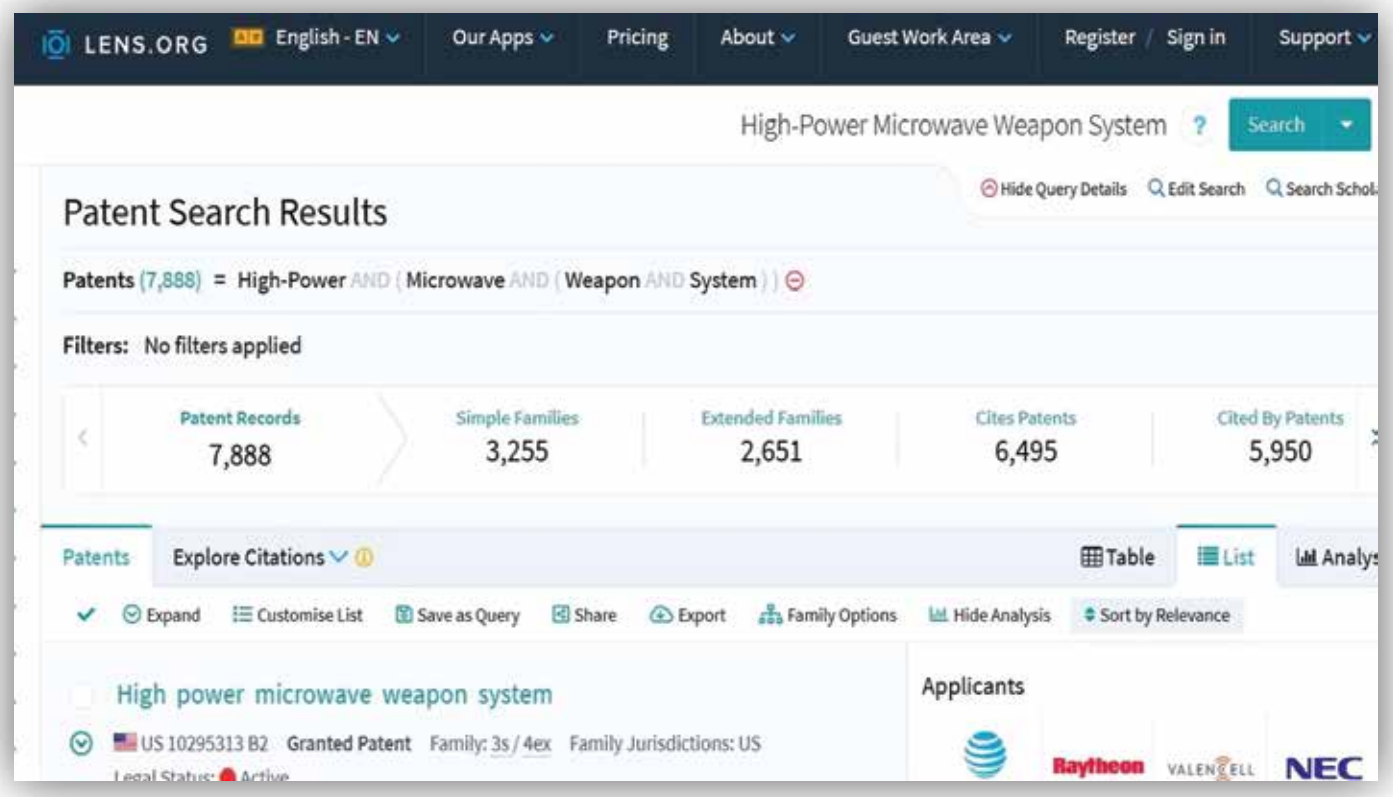

COMMON MYTHS
Whether the recipes are available easily/free of cost?
If free whether this is ethical to copy?
Can we make indigenous version without taking approval?
If recipes are already available, why start from scratch?
Can we file patent application for existing technology?
Is it right to say a "Problem Area" which already developed and patented in another jurisdiction?


iDEX Innovations for Defence Excellence
PM Awardee
INNOVATIONS FOR DEFENCE EXCELLENCE (iDEX)
DEFENCE INNOVATION ORGANISATION (DIO)
LAUNCHES
ADITI 3.0
Search
Timeline
03 December, 2024 17:00 PM
Detailed Description of Challenges
PDF
Click here to download pdf
Grants Upto
Up to Rs.25 crore
Challenge
Challenge #1


CHALLENGE
Design and Development of High-Power Microwave Weapon System capable of neutralizing swarm of Autonomous Aerial Vehicles (AAVs), Autonomous Combat Aerial Vehicles (ACAVs) and Autonomous Surface Vehicles (ASVs) at range of ≥ 5 km.
The High-Power Microwave weapon system should enable scalable power output, without significant change in architecture, thereby ensuring engagement at varying ranges.
HACKATHON
MARATHON
iDEX CHALLENGE
OUTREACH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English - EN
Our Apps
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High-Power Microwave Weapon System
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Patent Search Results
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Edit Search
Patents (7,888) = High-Power AND (Microwave AND (Weapon AND System))
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Patent Records 7,888
Simple Families 3,255
Extended Families 2,651
Cites Patents 6,495
Cited By Patents 5,950
Patents
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Share
Export
Family Options
Hide Analysis
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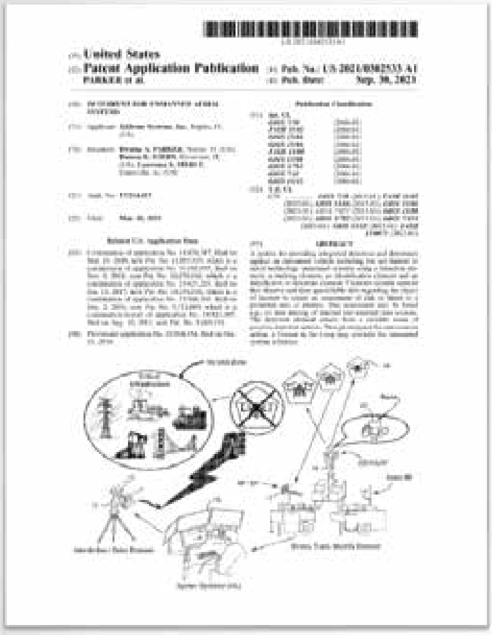
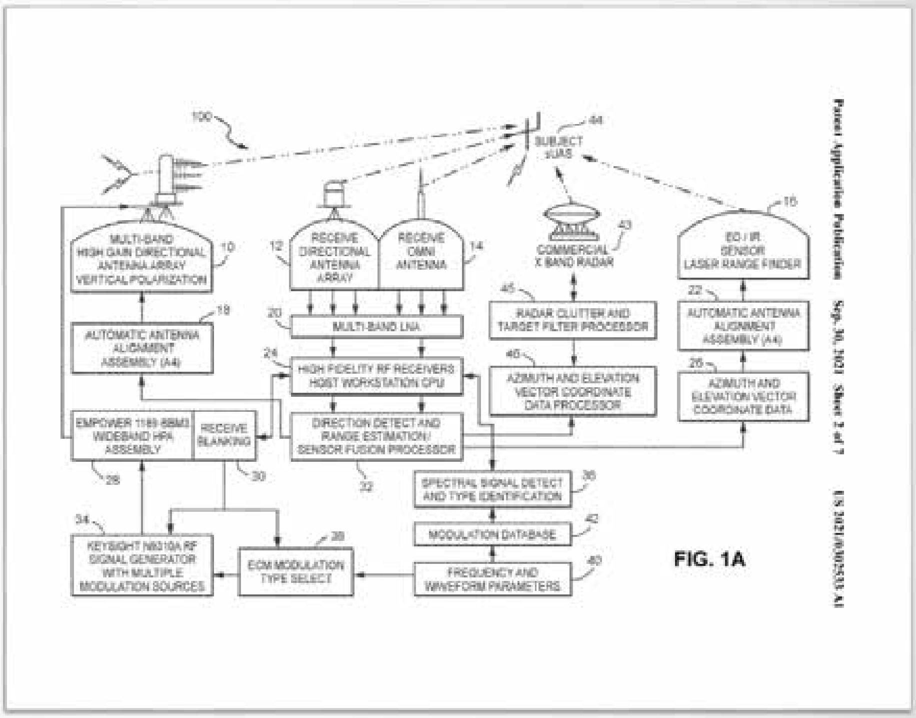
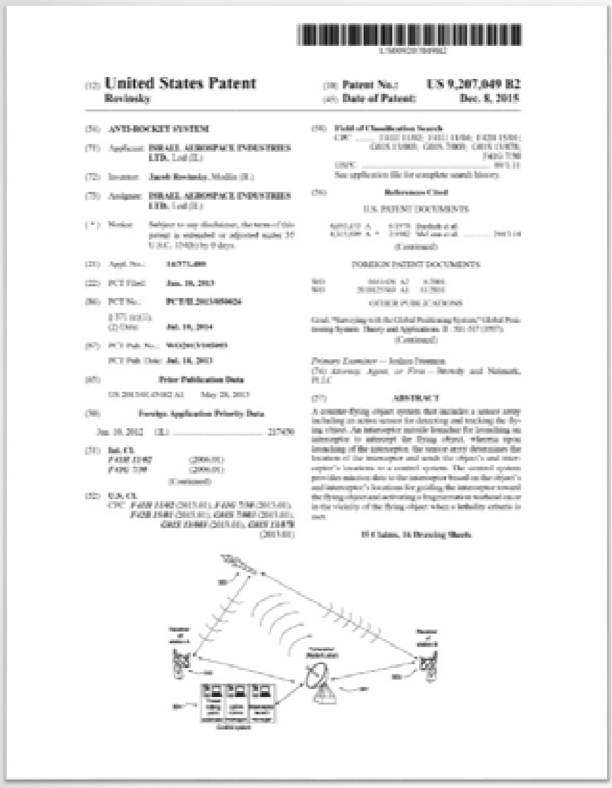
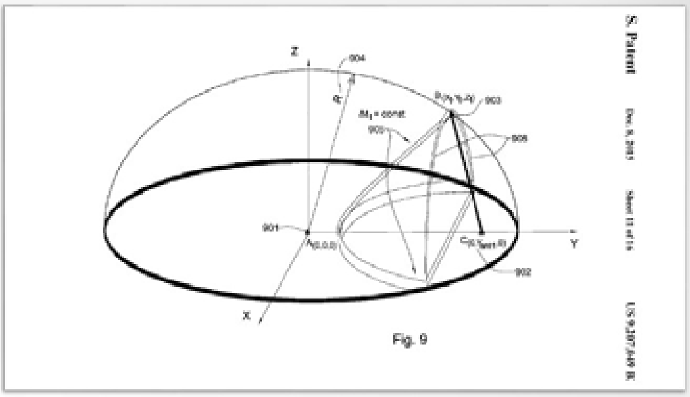
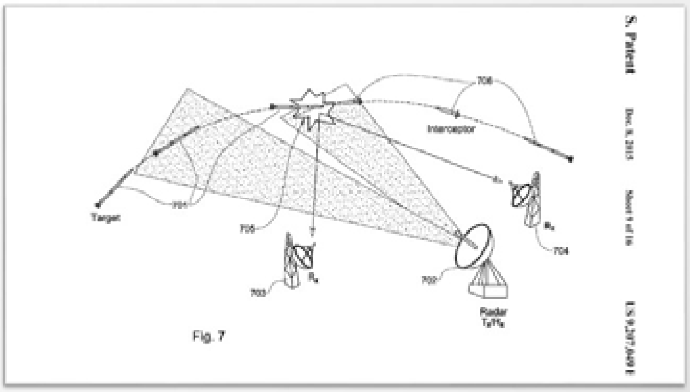
High power microwave weapon system
US 10295313 B2 Granted Patent Family: 3s / 4ex Family Jurisdictions: US
Legal Status: Active
Applicants
Raytheon
NEC

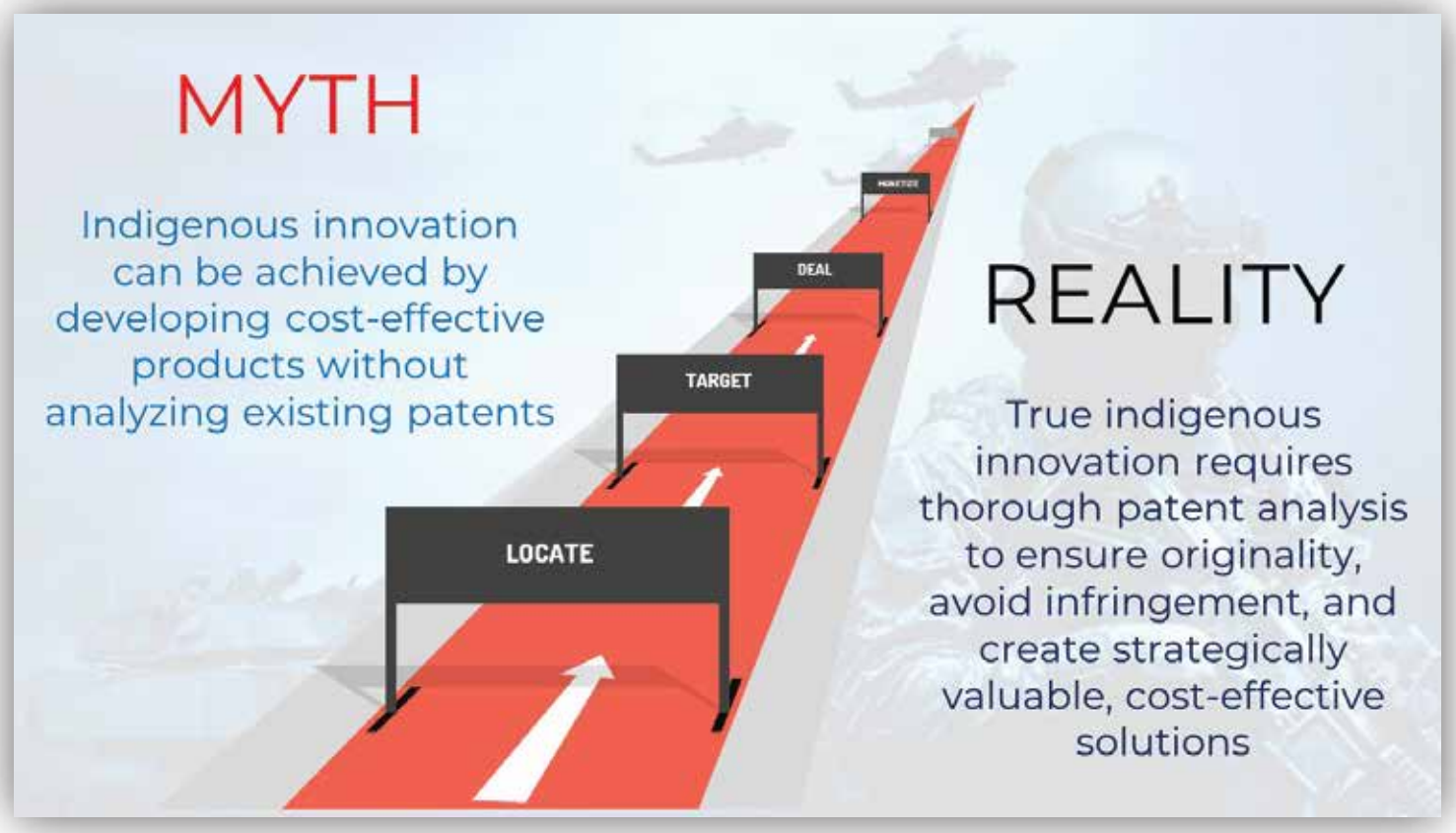

United States
Patent Application Publication
PARKER et al.
Pub. No.: US 2021/0302533 A1
Pub. Date: Sep. 30, 2021




United States Patent
Rovinsky
Patent No.: US 9,207,049 B2
Date of Patent: Dec. 8, 2015
ANTI-ROCKET SYSTEM






MYTH
Indigenous innovation can be achieved by developing cost-effective products without analyzing existing patents
DEAL
TARGET
LOCATE
REALITY
True indigenous innovation requires thorough patent analysis to ensure originality, avoid infringement, and create strategically valuable, cost-effective solutions


BETTER APPROACH
Integrate Patent Analytics in R&D
Encourage Technology Landscaping
Collaboration with Industry and Academia
Build Patent Literacy in Teams
Strengthen Technology Readiness Assessment
Adopt a Long-Term Innovation Vision

PATENT LANDSCAPE REPORT ON

EMERGING TECHNOLOGIES IN DEF-TECH

Data Source: Questel Orbit
Date Range: Since 01/01/2020

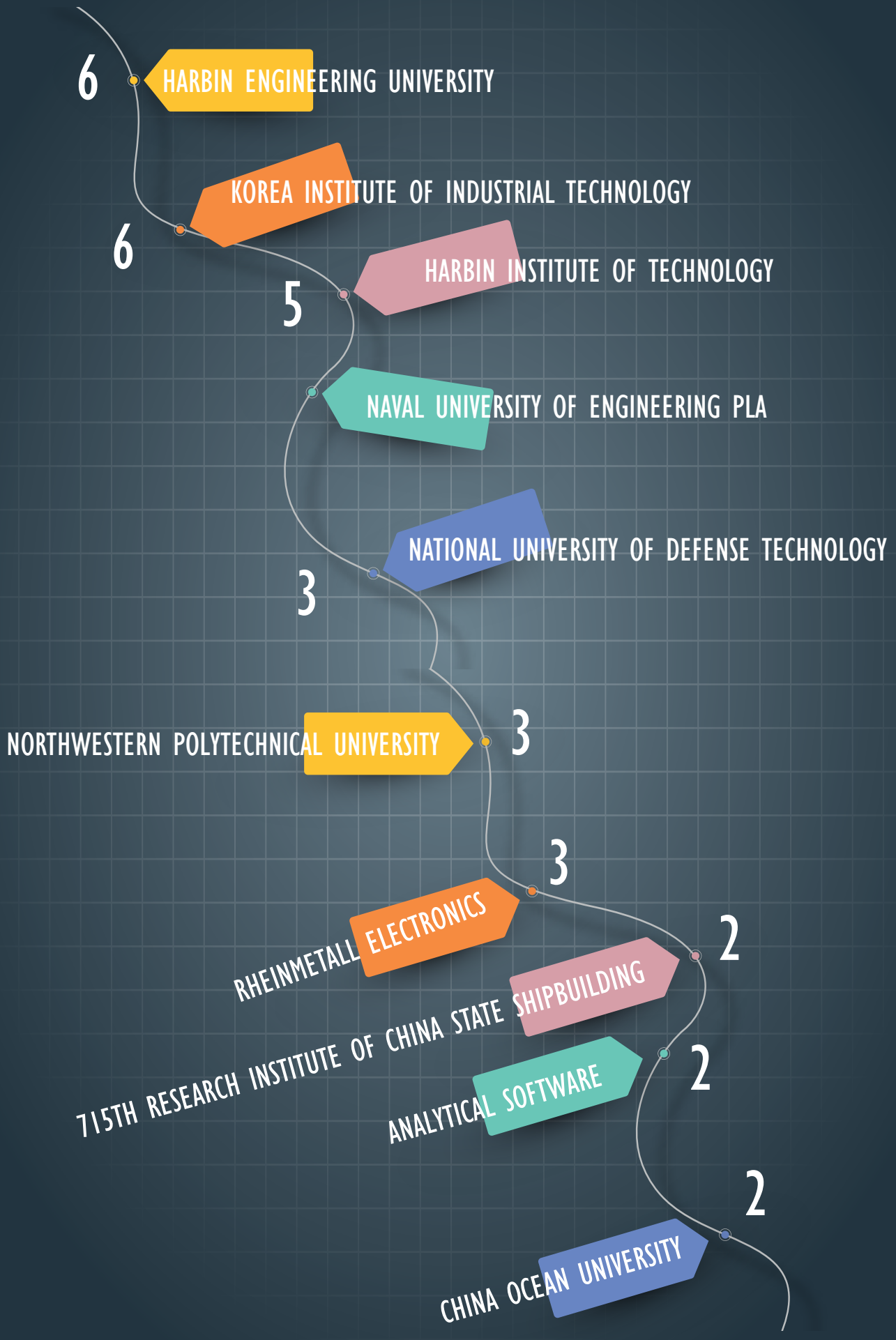
UNDERWATER AND MARITIME TECHNOLOGIES

Underwater and Maritime Technologies are crucial in modern defense strategies, enhancing security in oceans and waterways. Submarine stealth advancements, such as soundproof coatings and ultra-quiet engines, make submarines almost invisible to detection systems, providing a significant edge in underwater missions. Autonomous underwater systems, including drones and robotic vehicles, are revolutionizing tasks like surveillance, reconnaissance, and mine detection, reducing risks to human operators. Meanwhile, advanced sonar technologies enable precise detection and tracking of underwater objects and threats, ensuring improved situational awareness and quicker response times. These technologies not only strengthen naval capabilities but also play a crucial role in protecting trade routes and coastal regions. By combining innovation and automation, underwater and maritime technologies are shaping the future of global defense, ensuring safety and preparedness in an increasingly complex security landscape.

PATENT STATISTICS

WORLDWIDE PATENT FILING TIME-LINE

TOP APPLICANTS



PATENT LANDSCAPE

NOTABLE INNOVATIONS

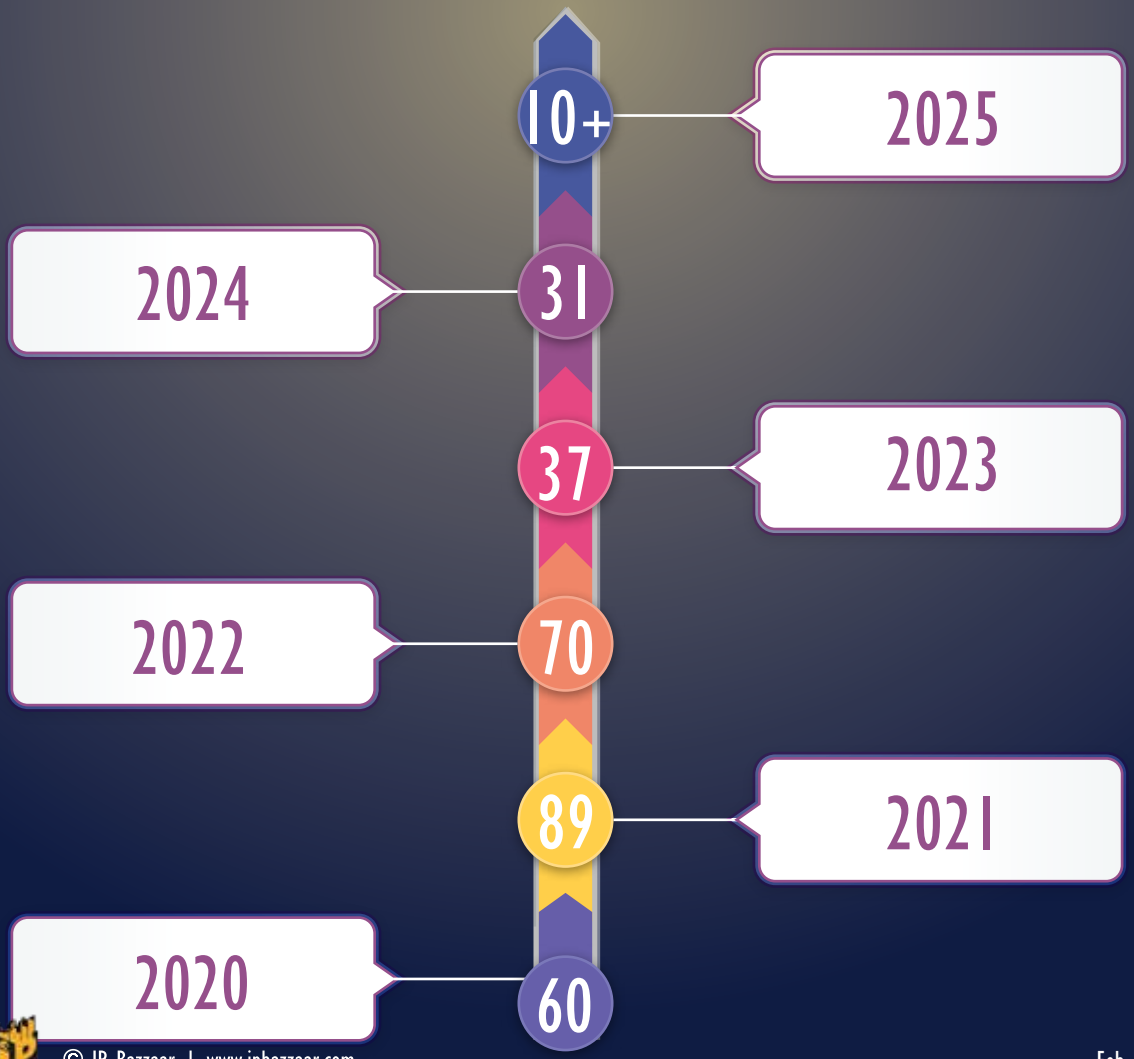
Patent Application	Priority Date	Title	Assignee
IN202441035054	2024-05-03	Detection Of Underwater Mines From Sensor Data using IoT,ML And Web Technology	Vidyavardhaka College of Engineering
IN202441063668	2024-08-23	Homeostatic Flying Hovercraft: Efficient And Durable Solutions for Military and Rescue Mission	Sri Sairam Engineering College
CN118520627	2023-02-17	Underwater Combat Effectiveness Evaluation Method Based on Complex Sound Propagation Environment	Harbin University of Science & Technology
DE102023002571	2023-06-24	Apparatus And Method for Controlling Autonomous Underwater Vehicles	Bundesrepublik Deutschland Bundesamt Fuer Ausruestung Informationstechnik & Nutzung Der Bundeswehr
CN115598648	2022-11-01	Sonar Defense Alarm System Suitable for Seabed Bottom-Supported Detection Equipment	Beijing Startest Tec

ROBOTICS AND SWARM TECHNOLOGIES

Robotics and Swarm Technologies are transforming modern defense by enabling faster, smarter, and more efficient operations. Coordinated autonomous operations allow swarms of drones or robots to work together seamlessly, sharing information and executing complex missions like surveillance or search-and-rescue in real time. Logistics is being revolutionized as robotic systems and drone swarms streamline supply delivery, medical evacuations, and equipment transport, even in hostile or remote areas. In combat roles, swarms of robots and drones can overwhelm adversaries, perform precision strikes, or provide real-time intelligence while minimizing risks to human soldiers. These advancements are not only enhancing operational efficiency but also reshaping battlefield strategies, offering unprecedented levels of adaptability and effectiveness in modern warfare. By integrating robotics and swarm technologies, defense systems are becoming smarter, safer, and more responsive to the challenges of the future.

PATENT STATISTICS

WORLDWIDE PATENT FILING TIME-LINE



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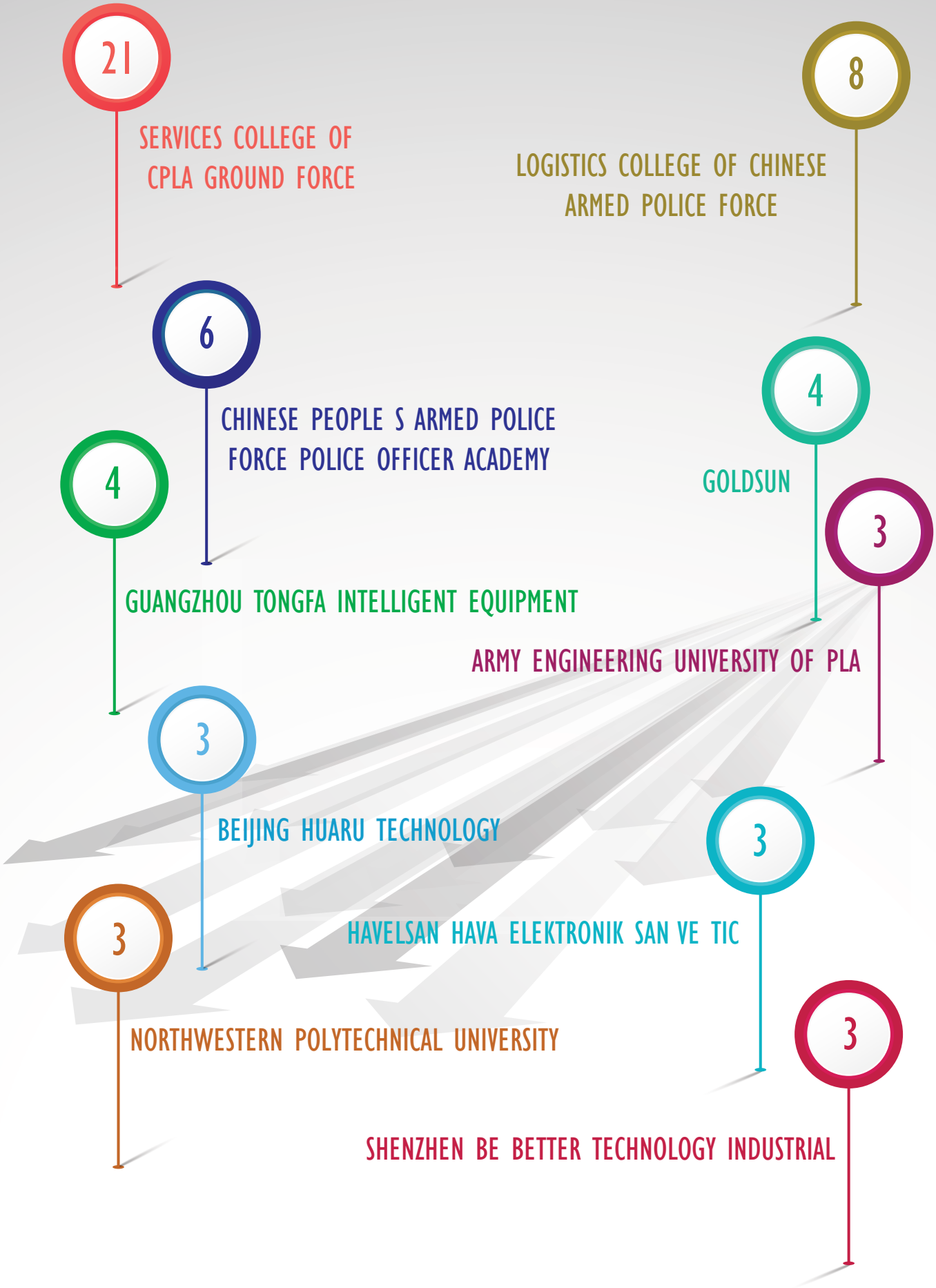

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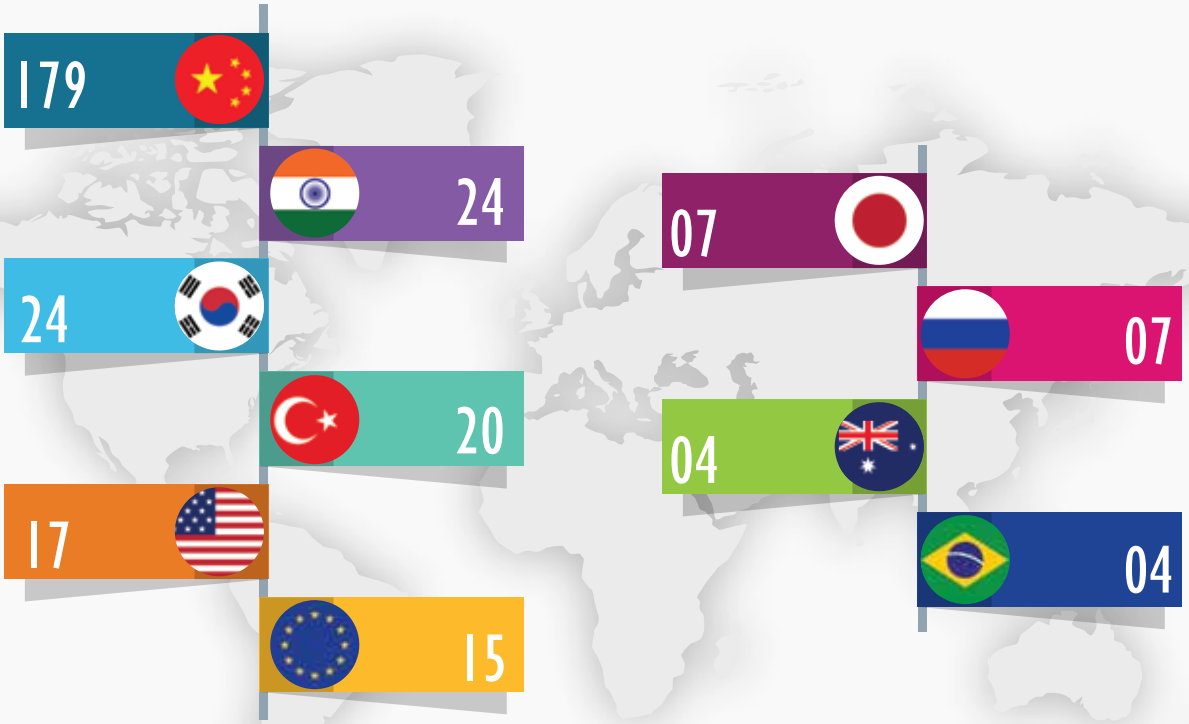


NOTABLE INNOVATIONS

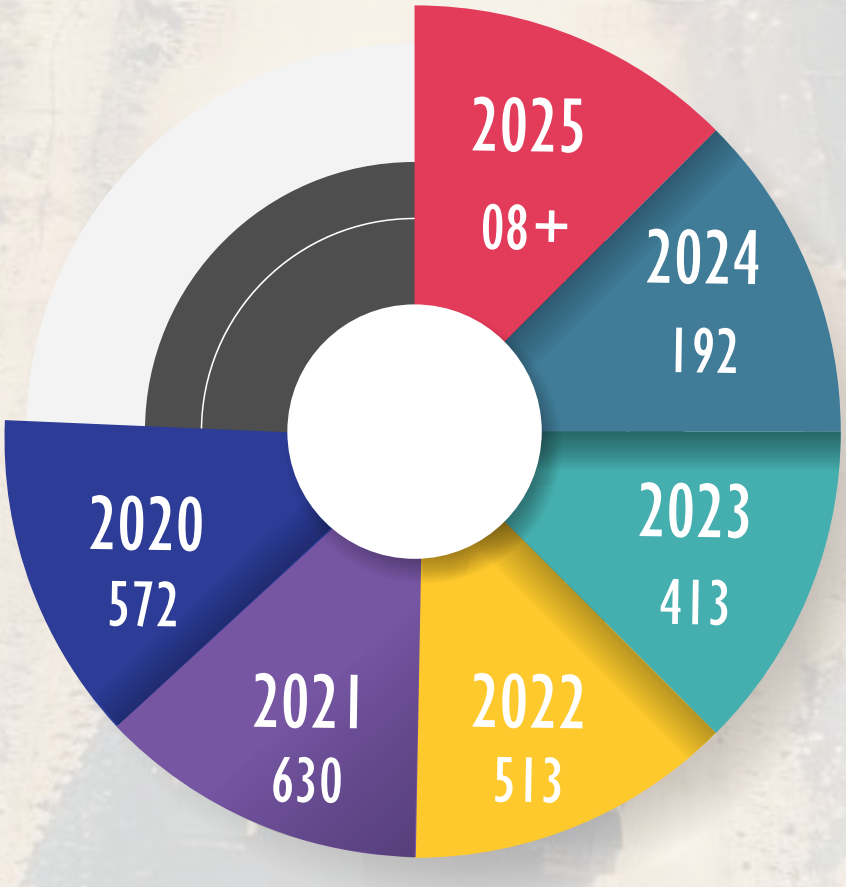
Patent Application	Priority Date	Title	Assignee
IN202441090408	2024-11-20	Multi-Agent Co-Ordination System with the Ability of Swarm Behavior Implementation	Ganduri Krishna Vamshi Kothakota Jagadish Pathri Bhargav Prajwal
IN202441094105	2024-11-30	Autonomous and Intelligent Swarm Robots	Dayananda Sagar College of Engineering
US12055951	2022-03-01	High Fidelity Teammate State Estimation for Coordinated Autonomous Operations in Communications Denied Environments	Rockwell Collins
CN114043476	2021-11-04	Swarm Robot Control Method Based on Particle Swarm Algorithm Under Rejection Environment	Tongji University
CN216361960	2021-11-29	Military Logistics Management System	Cetech Electronic & Technology

ADVANCED ARMORED VEHICLES

Advanced Armed Vehicles are redefining modern warfare with cutting-edge technology and superior protection. Tanks now feature next-generation composite armor and advanced firepower, enabling them to dominate the battlefield with enhanced durability and precision. Infantry Fighting Vehicles (IFVs) combine mobility and firepower, providing infantry troops with robust support while engaging in combat. They are equipped with advanced sensors and weaponry, ensuring effectiveness in diverse terrains. Armored Personnel Carriers (APCs) focus on troop transport, offering next-generation armor and active protection systems to shield soldiers from explosive threats and attacks. Active Protection Systems (APS) are vital in these vehicles, designed to detect and neutralize incoming projectiles like rockets or anti-tank missiles. These systems significantly enhance vehicle survivability. Together, these vehicles bring increased versatility, protection, and firepower to modern militaries, ensuring dominance in ever-evolving combat scenarios. Their integration into defense strategies represents a leap forward in ground-based operations.

PATENT STATISTICS

WORLDWIDE PATENT FILING TIME-LINE



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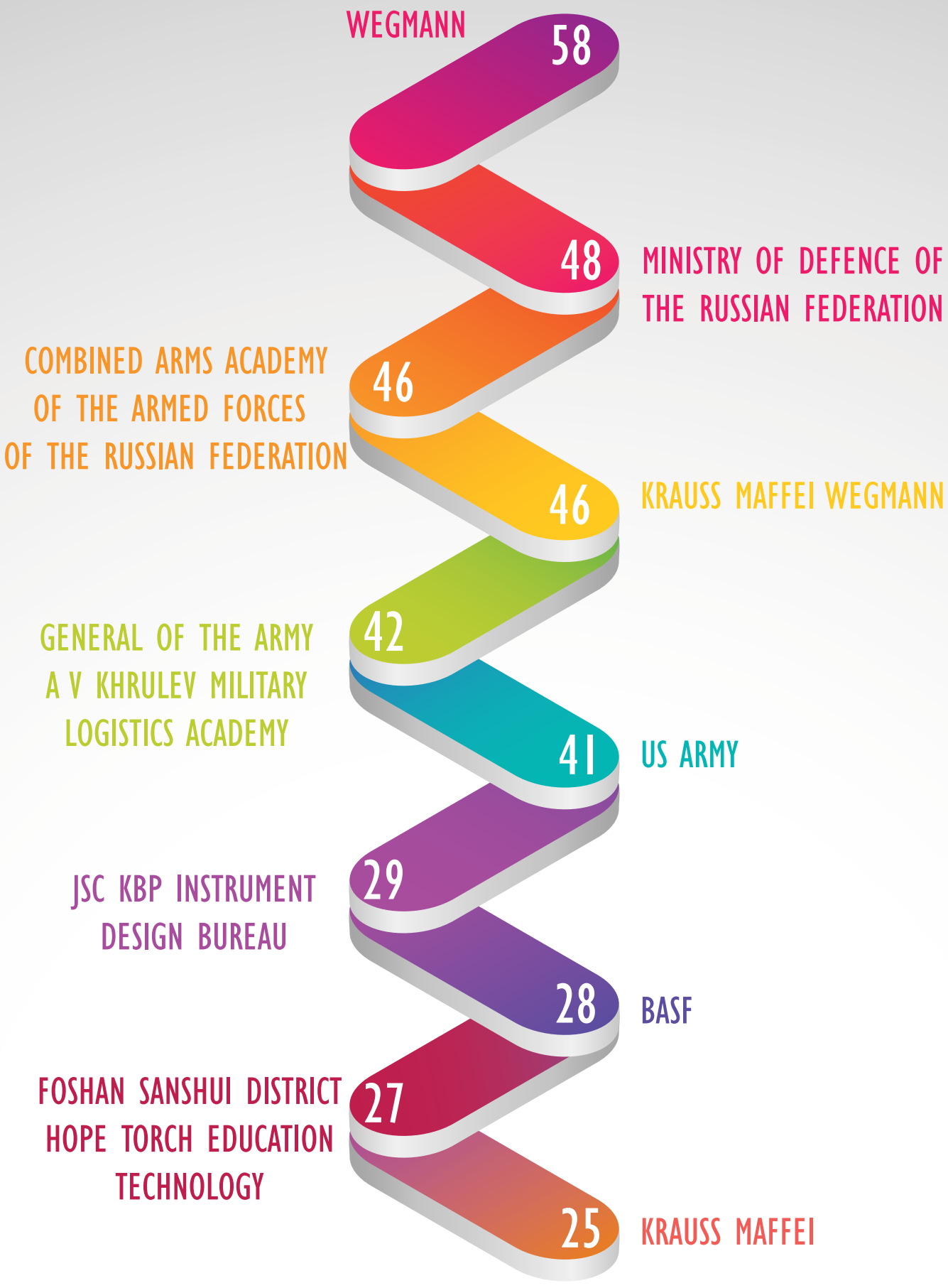

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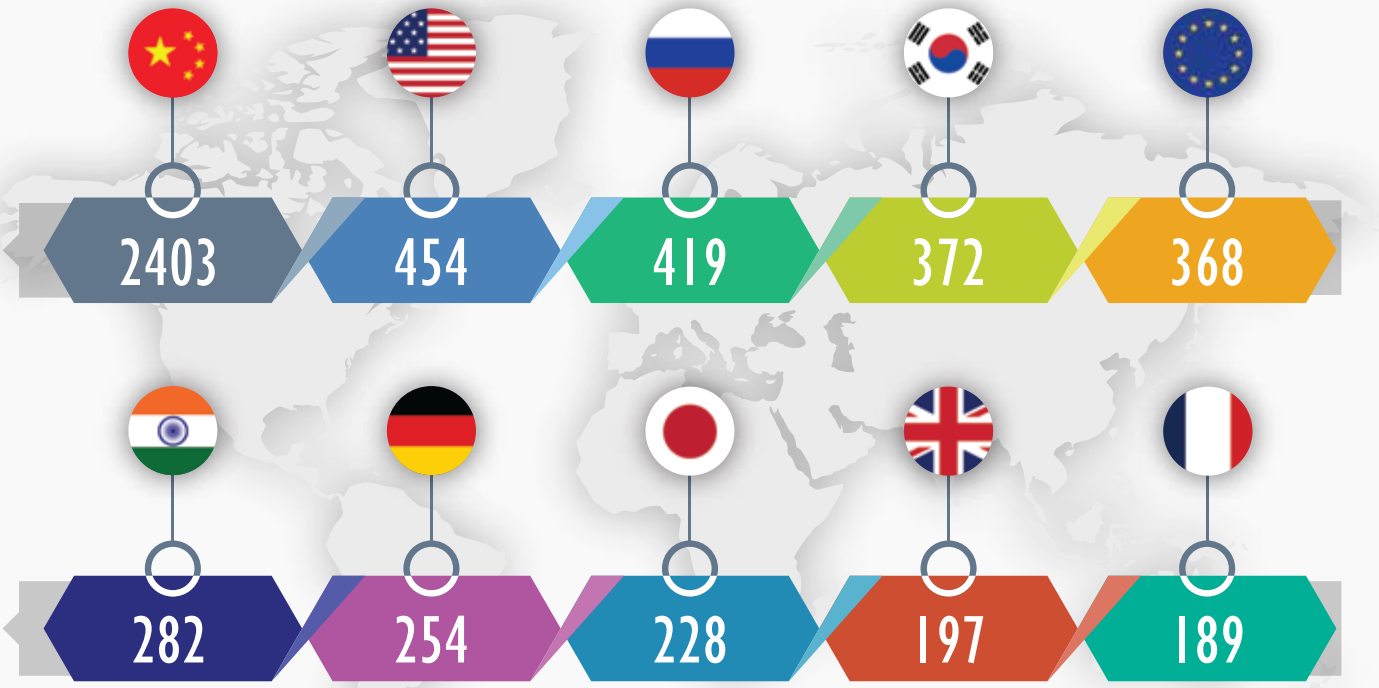


NOTABLE INNOVATIONS

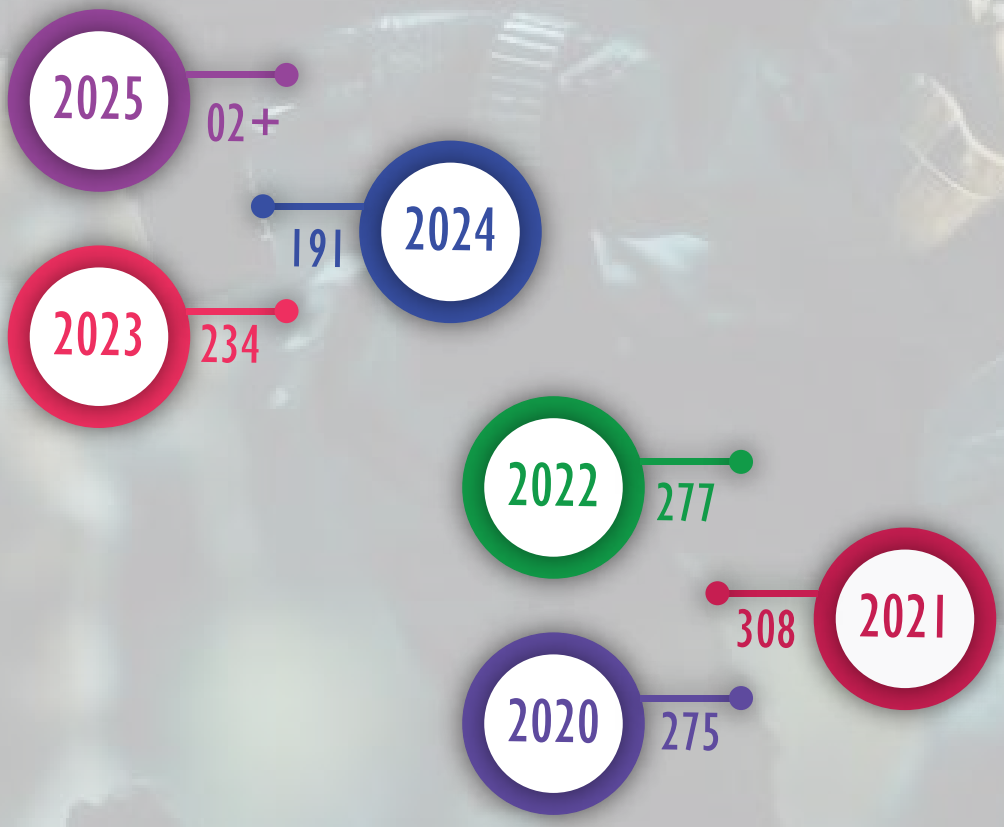
Patent Application	Priority Date	Title	Assignee
RU227054	2023-12-03	Combat Vehicle	Omsk Transport Engineering Plant
RU2771840	2021-02-05	Dynamic Simulator for Education and Training of Armored Transporter Combat Crew	Jsc Tulatochmash
RU210956	2021-10-21	On Board System for Individual Protection of Aircraft from Exposure to Man-Portable Air Defense Systems	Stella K
KR10-2103842	2019-10-02	Traffic Modeling Apparatus of Next Generation Naval Combat Management System	Hanwha Systems
US11982516	2019-12-10	Movable Protection Device for Military Vehicles with a Distance-Active Protection System	Knds Deutschland

SOLDIER SYSTEMS AND WEARABLE TECHNOLOGIES

Soldier and Wearable Technologies are revolutionizing the way modern armies operate, enhancing performance, protection, and communication. Smart helmets are equipped with advanced sensors, heads-up displays, and communication systems, providing soldiers with real-time information and improving situational awareness. Exoskeletons are wearable suits that amplify the soldier's strength and endurance, reducing fatigue and allowing for heavier loads to be carried with ease. Body armor has advanced significantly, with lightweight, yet highly durable materials offering superior protection from bullets, shrapnel, and explosives, while maintaining comfort and mobility. Integrated communication systems enable seamless connection between soldiers, commanders, and various units, ensuring constant coordination and faster decision-making on the battlefield. These wearable technologies are transforming the soldier into a more capable and efficient force, enhancing both individual performance and overall mission success.

PATENT STATISTICS

WORLDWIDE PATENT FILING TIME-LINE



TOP APPLICANTS

15 HANWHA SYSTEMS

ASPEN AEROGELS 12

11 BEIJING UNIVERSITY OF TECHNOLOGY

NORTHWESTERN POLYTECHNICAL UNIVERSITY 10

09 SGCC - STATE GRID CORPORATION OF CHINA

NANJING UNIVERSITY OF SCIENCE & TECHNOLOGY 08

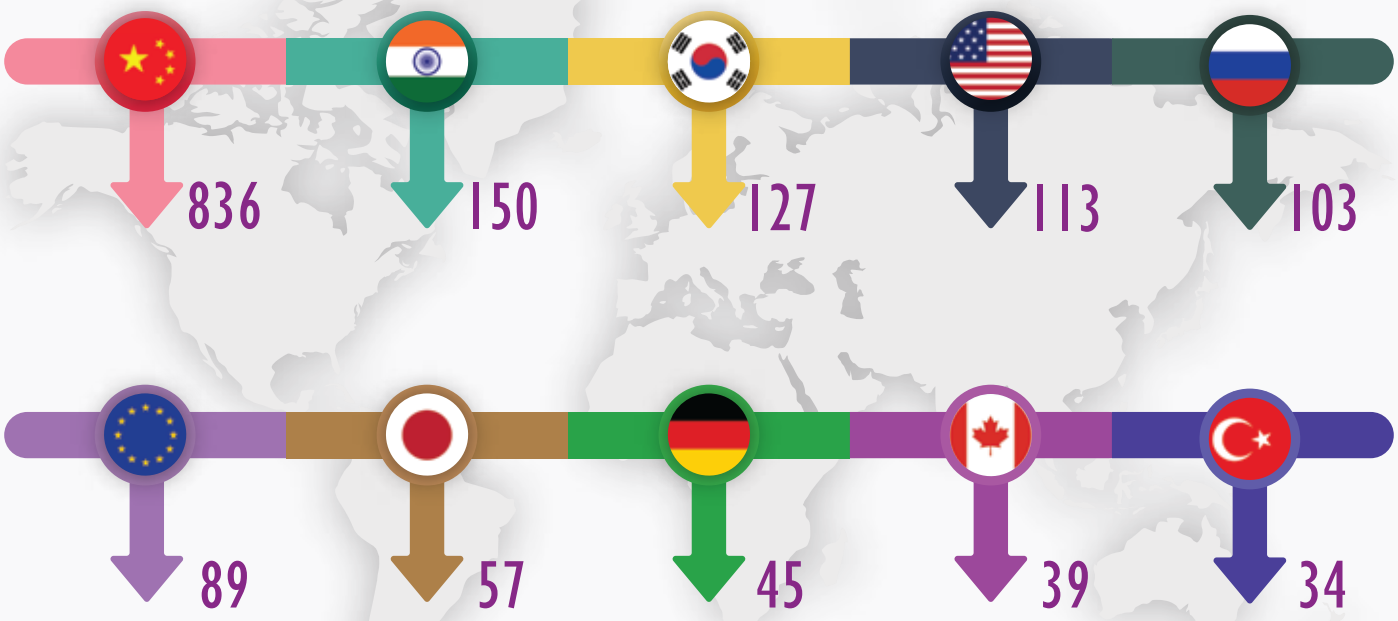
07 NATIONAL UNIVERSITY OF DEFENSE TECHNOLOGY

QUALCOMM 07

06 KOREA INSTITUTE OF INDUSTRIAL TECHNOLOGY

MINISTRY OF DEFENCE OF THE RUSSIAN FEDERATION 06

PATENT LANDSCAPE



NOTABLE INNOVATIONS

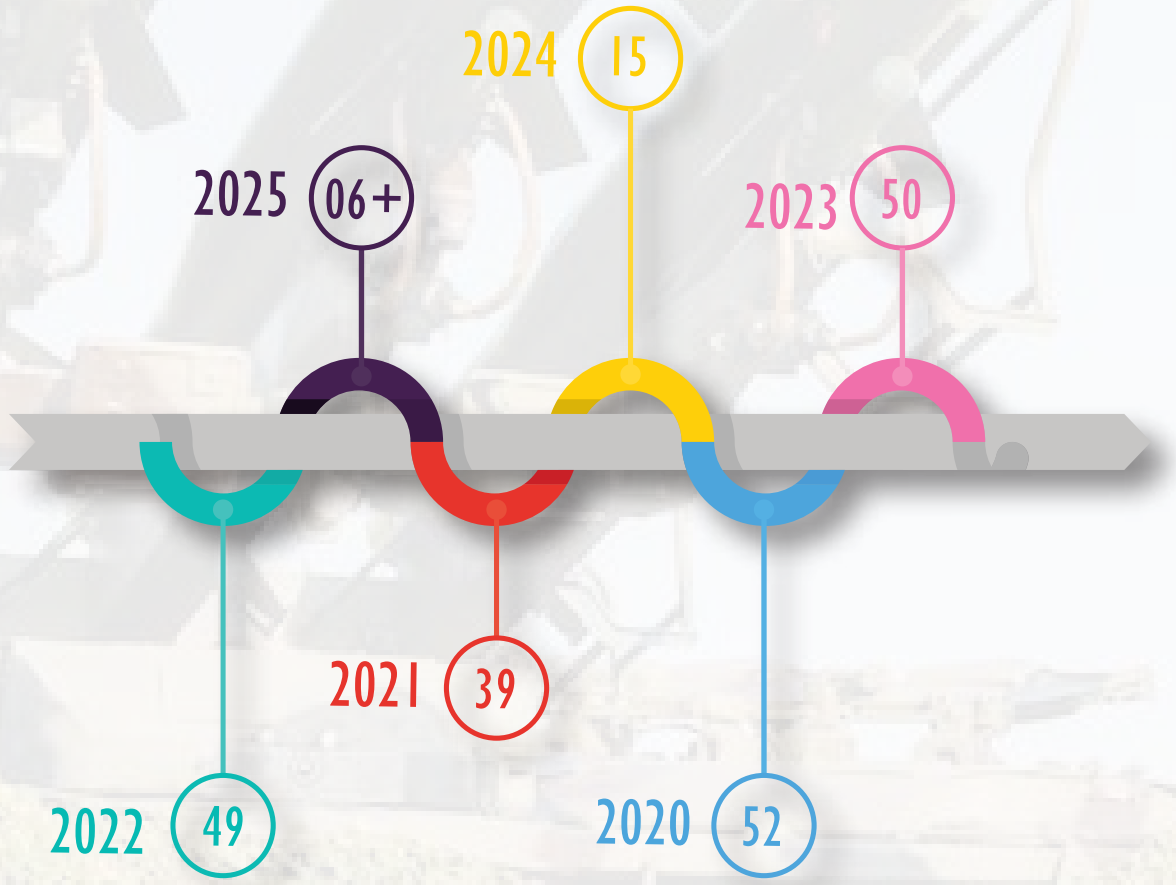
Patent Application	Priority Date	Title	Assignee
CN118456393	2024-06-03	Digital Individual Soldier Weight-Reducing Maneuvering Combat Exoskeleton Suit	Chengdu Jingzhan Electronic Technology
IN202441048905	2024-06-26	System And Method of Iot-Enhanced Military Body Armor Integrated with AI Smart Assistant	Sowmya B J
TR202102628	2021-02-24	Military Body Armor with AI	Ismail Eren Uruc
KR10-2300964	2020-06-01	Apparatus And Method for Processing Military Data in the Communication System and System Thereof	Hanwha Systems
US12029272	2020-07-16	Military or Combat or Other Helmet Smart Intelligent Visor	Jj1 Holdings

SMALL ARMS AND PRECISION MUNITIONS

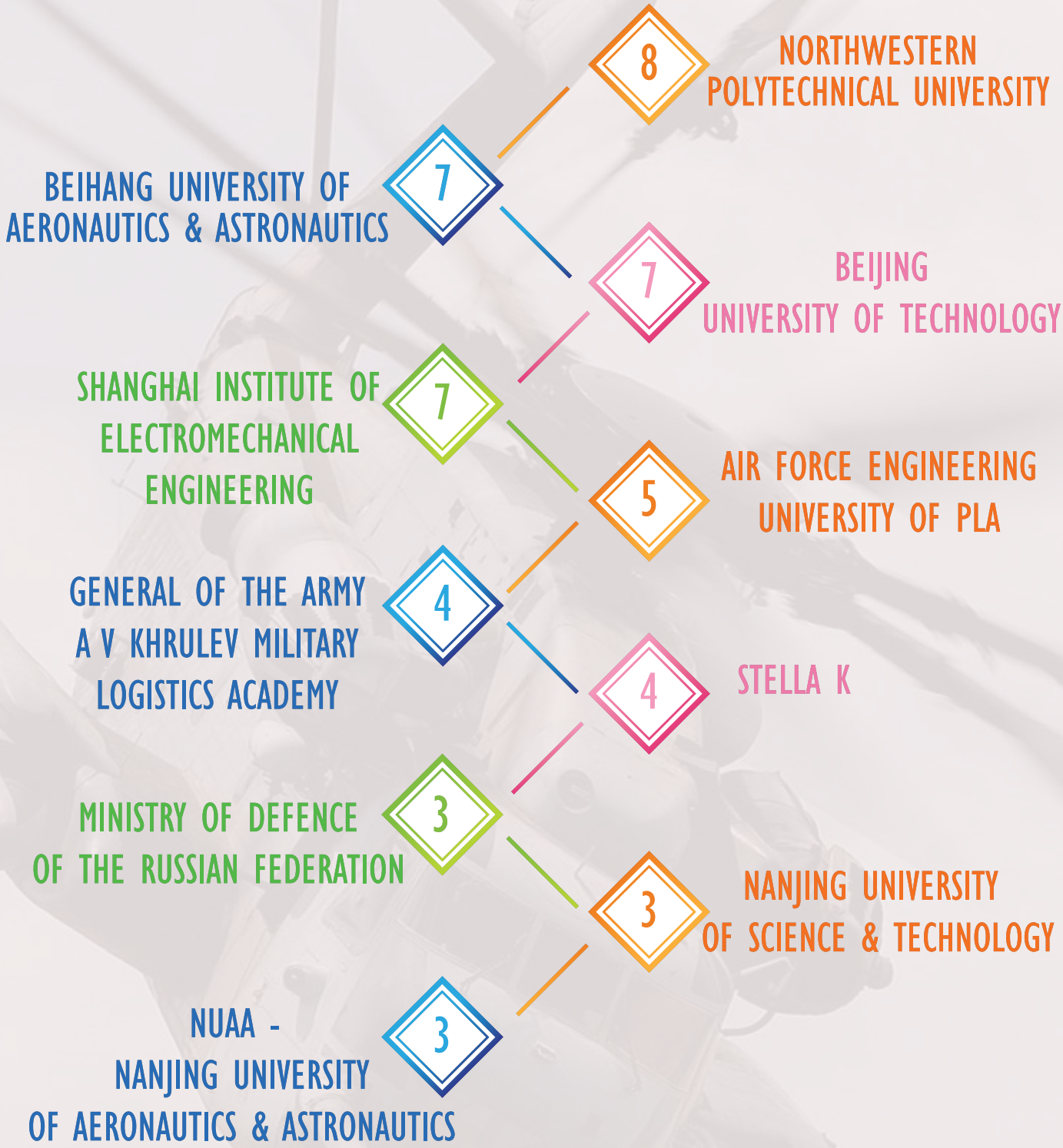
Small Arms and Precision Munitions are enhancing the effectiveness of modern ground forces, providing superior firepower and accuracy. Small rifles, including assault rifles and sniper rifles, have evolved with improved ergonomics, accuracy, and adaptability, allowing soldiers to engage targets with greater precision in various combat scenarios. Guided grenades offer a leap in explosive capabilities, with smart targeting systems that enable more accurate impacts, even against moving or well-protected targets. Portable missile systems with precision targeting capabilities allow infantry units to take out armored vehicles, aircraft, and other high-value targets from a distance, with advanced guidance systems ensuring pinpoint accuracy. These innovations in small arms and munitions allow soldiers to engage targets more effectively, making modern combat more precise and strategic. Together, they enhance operational success and minimize collateral damage, providing ground forces with powerful tools for a variety of battlefield conditions.

PATENT STATISTICS

WORLDWIDE PATENT FILING TIME-LINE



TOP APPLICANTS



PATENT LANDSCAPE

NOTABLE INNOVATIONS

Patent Application	Priority Date	Title	Assignee
CN118857014	2024-07-10	Portable Air Defense Missile Informatization Combat Supporting System and Working Method Thereof	Shanghai Institute of Electromechanical Engineering
CN117558182	2023-12-08	Individual Portable Antitank Missile Simulation Equipment and Simulation Method Thereof	Beifang Information Holding Research Institute
CN217844908	2022-08-16	Military Sniper Rifle Field Combat Box	Taizhou Huayi Special Equipment
CN115655011	2022-10-31	Portable Air Defense Missile, Low-Firing-Angle Warning Device Thereof and Using Method of Low-Firing-Angle Warning Device	Shanghai Institute of Electromechanical Engineering
CN110864590	2019-11-22	Portable Image-Seeking Missile Seeker Target Locking Device and Method	Xi An Aerospace Propulsion Institute

MINE COUNTERMEASURES AND EXPLOSIVE DETECTION

Mine Countermeasures and Explosive Detection technologies are crucial for protecting people in dangerous areas. Ground Penetrating Radar (GPR) helps find mines and hidden explosives by sending signals into the ground and detecting objects that could pose a threat. This tool helps locate dangers before they can harm anyone. Robotic EOD (Explosive Ordnance Disposal) units are robots designed to safely handle and neutralize explosives without putting people in harm's way. These robots can remove or destroy bombs from a distance, keeping soldiers and civilians safe. Chemical sensors are also used to detect dangerous chemicals or explosives in the air, alerting teams to threats like roadside bombs or chemical weapons. Together, these technologies make it possible to detect and neutralize threats more safely, reducing the risk of injury and saving lives in areas where explosives are a constant danger.

PATENT STATISTICS

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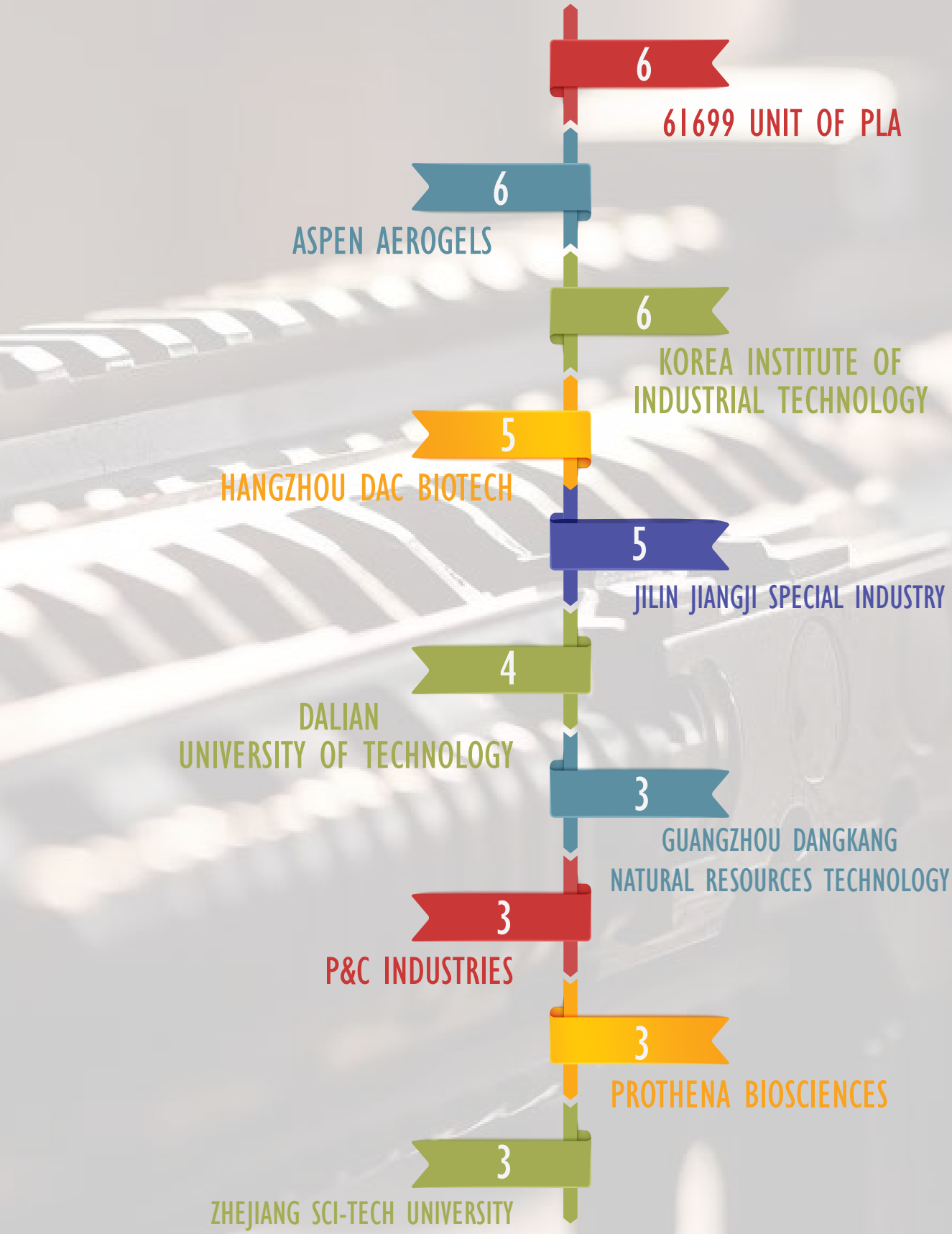

PATENT LANDSCAPE

NOTABLE INNOVATIONS

Patent Application	Priority Date	Title	Assignee
CN114230532	2012-12-21	Triazole Derivative, Fluorescent Sensor Based on Material and Application of Triazole Derivative in Detection of Chemical Warfare Agent	Jilin University
CN215728874	2021-09-27	Tunnel Self-Propelled Double-Frequency Ground Penetrating Radar	Nanjing Yanq
WO2023/035119	2021-09-07	Method and System for Extracting Hyperbolic Wave from Ground Penetrating Radar Image	Qingdao University of Science & Technology
KR10-2401266	2020-11-20	Chemical, Biological, and Radiological Sensor Network System for Small Military Bases	Radarnspace
CN110988113	2019-07-09	Chemical Warfare Agent Sensor and Preparation Method Thereof	Tianjin Sino German University of Applied Sciences

LOGISTICS AND SUPPLY CHAIN TECHNOLOGIES

Logistics and Supply Chain Technologies are transforming the way military forces manage resources and ensure readiness. Autonomous resupply vehicles are used to transport supplies, such as food, ammunition, and equipment, without the need for human drivers. These vehicles can navigate difficult terrains, delivering goods to troops in remote locations, reducing the risk to personnel. 3D printing of spare parts allows for on-demand production of critical components in the field. This technology reduces the need to carry large inventories, as parts can be printed directly at the point of use, saving time and resources. Mobile repair stations are equipped with tools and equipment to fix damaged vehicles, electronics, or machinery on-site. These stations help minimize downtime and keep military operations running smoothly, even in the most challenging environments. Together, these technologies improve efficiency, speed, and flexibility in military logistics and supply chain management.

PATENT STATISTICS

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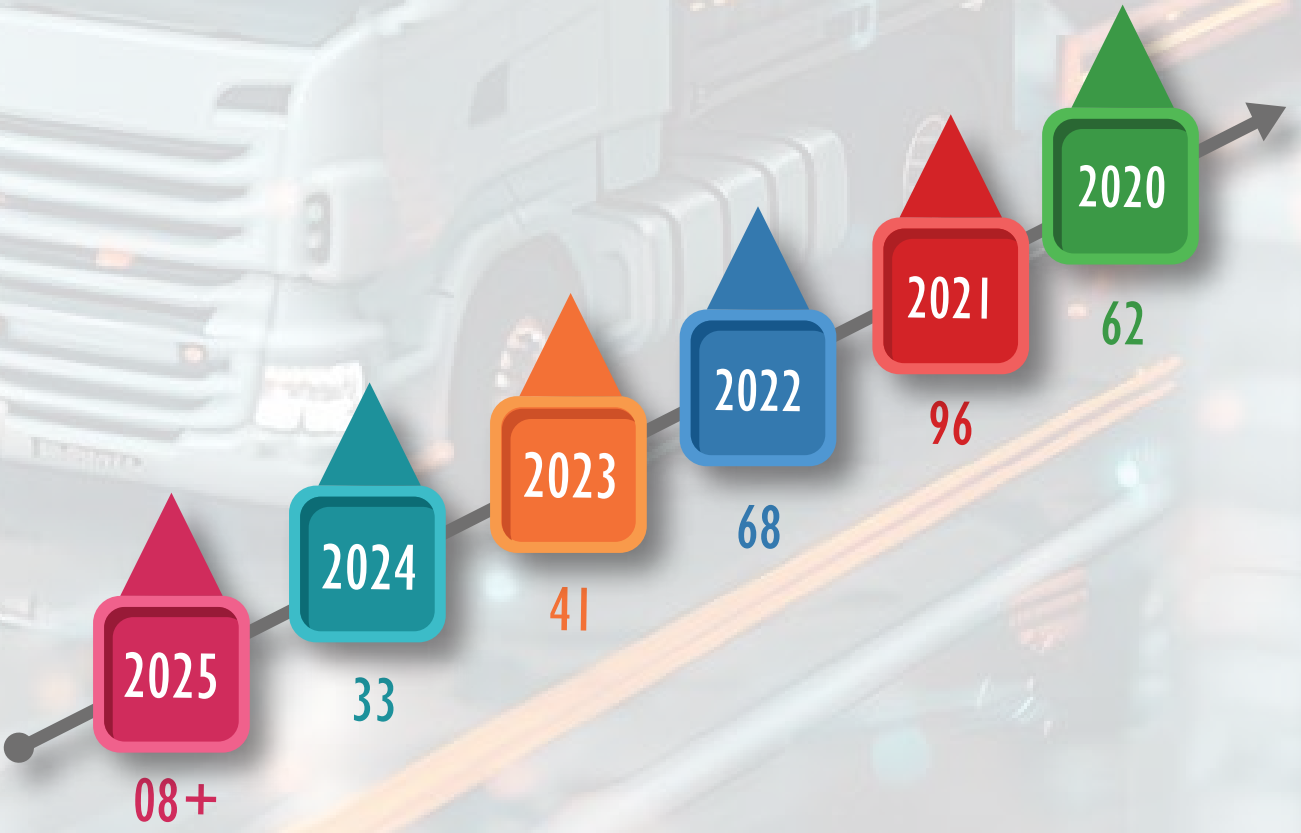

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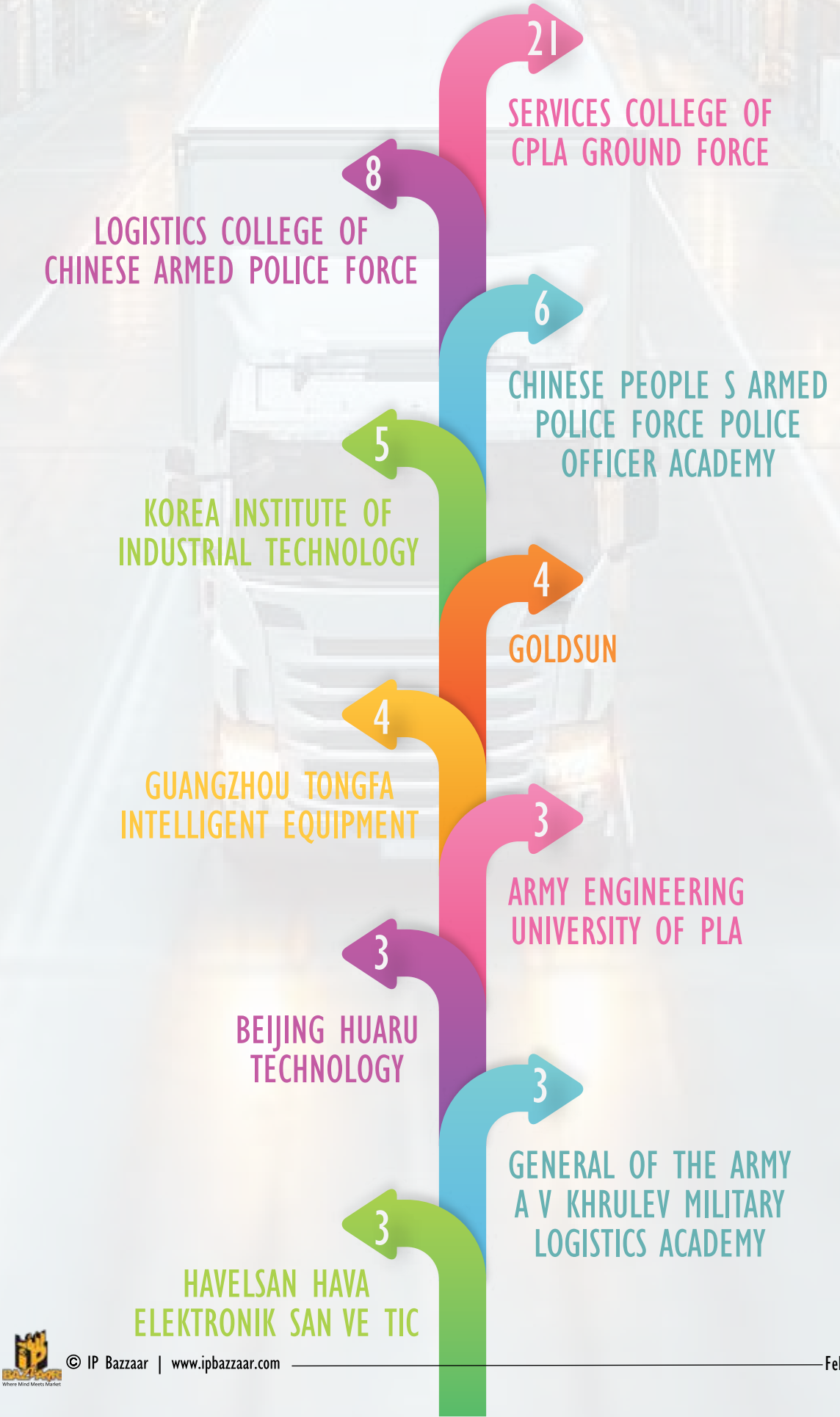

PATENT LANDSCAPE

NOTABLE INNOVATIONS

Patent Application	Priority Date	Title	Assignee
RU2802656	2023-04-03	Way to Increase the Survivability of a Mobile Car Repair Shop	Biryukov S
CN115680330	2023-01-04	Military Logistics Self-Supply System	Zhang Ying
RU2775888	2020-10-05	Mobile Technical Service Station for Weapons, Military And Special Equipment In The Arctic Zone of the Russian Federation	General Of The Army A V Khrulev Military Logistics Academy
CN112132512	2020-09-21	Logistics Control System Based on Unmanned Aerial Vehicle	Cetc Special Mission Aircraft System Engineering
IN202021029758	2020-07-13	Military Logistics System: Vajra-Thunderbolt-L (Logistics)	New Horizon

ADVANCED MEDICAL SUPPORT SYSTEMS

Advanced Medical Support Systems are enhancing care for soldiers on the battlefield, improving both diagnosis and treatment. Portable diagnostic tools allow medics to quickly assess injuries or illnesses in the field, providing essential information for immediate treatment or evacuation decisions. These tools include handheld devices for imaging, blood testing, and vital signs monitoring. Autonomous medical evacuation systems are designed to quickly transport injured personnel to safety without the need for human involvement. Drones or robotic vehicles are often used to carry injured soldiers from the battlefield to medical facilities, minimizing response time and reducing the risk to medical staff. Wearable health monitors track soldiers' vital signs, such as heart rate, temperature, and oxygen levels, providing real-time data to medics and commanders. These devices help identify health issues early, ensuring faster intervention. Together, these technologies improve survival rates and reduce the impact of injuries in combat zones.

PATENT STATISTICS

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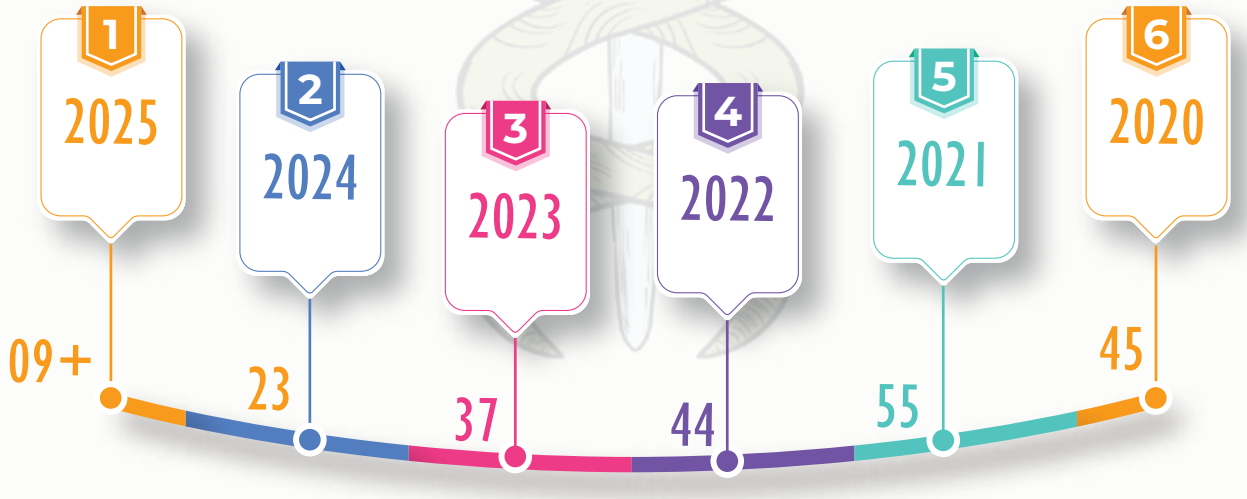

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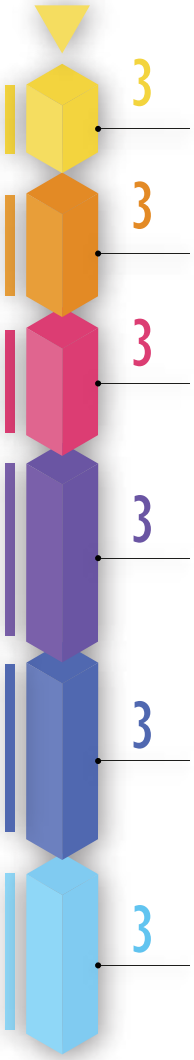


3 AMERICAN 3B SCIENTIFIC

3 ASPEN AEROGELS

3 BLUECHER GES MIT BESCHRAENKTER HAFTUNG

3 NAVAL UNIVERSITY OF ENGINEERING PLA

3 PEOPLE S LIBERATION ARMY AIR FORCE MILITARY MEDICAL UNIVERSITY

3 PROTHENA BIOSCIENCES

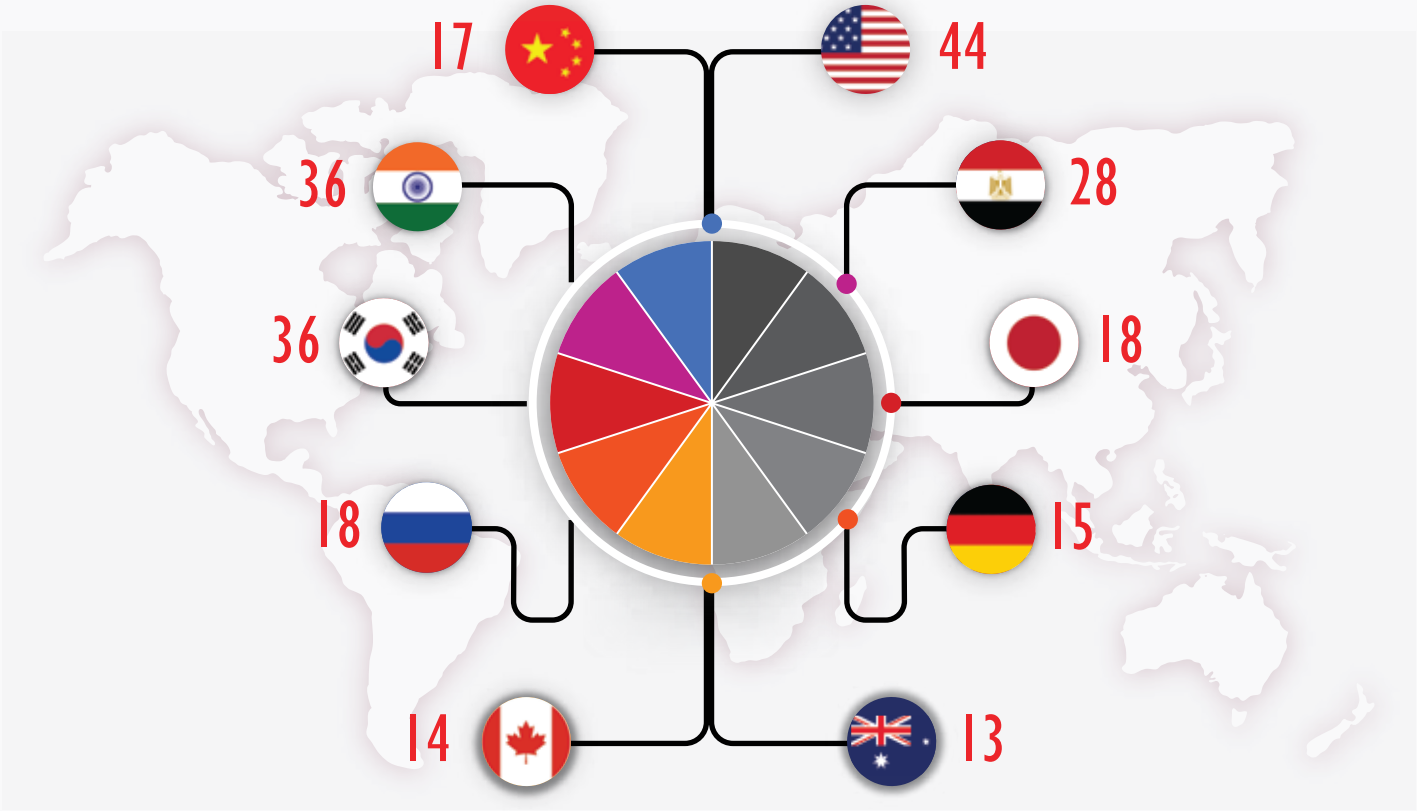
SIXTH MEDICAL CENTER OF PLA GENERAL HOSPITAL 3

ZOLL MEDICAL 3

8TH MEDICAL CENTER OF CHINESE PLA GENERAL HOSPITAL 2

ARMY MEDICAL UNIVERSITY OF THE PLA 2

PATENT LANDSCAPE



NOTABLE INNOVATIONS

Patent Application	Priority Date	Title	Assignee
IN202441047502	2024-06-20	Wstak : Wearable Situational and Tactical Awareness Kit	Vidyavardhaka College of Engineering
RU2819380	2023-10-17	System of Emergency Evacuation and Transportation of Injured and Cargo	Saint Petersburg State Institute of Technology
CN115054045	2022-05-09	Army Medical Guard Multifunctional Comprehensive Action Support and Use Method	Peoples Liberation Army Air Force Military Medical University
CN215606315	2021-07-15	Novel Portable Medical Kit For Combat	Chinese Peoples Armed Police Force Police Officer Academy
CN111839983	2020-08-24	Medical Operation Fixing and Supporting Head Support Device	University Of Shanghai for Science & Technology

CAMOUFLAGE AND STEALTH TECHNOLOGIES

Camouflage and stealth technologies play a key role in modern military operations, helping forces remain undetected in hostile environments. Adaptive camouflage systems change the color and pattern of a soldier's gear or vehicle to match the surrounding environment, making them blend in more effectively and reducing visibility to enemies. Stealth coatings are applied to vehicles, aircraft, and vessels to absorb radar signals and reduce detection by radar systems, making them less visible to enemy sensors. These coatings help military assets avoid detection while performing high-risk missions. Additionally, noise reduction technologies are used to reduce the sounds emitted by vehicles, aircraft, and equipment, preventing enemies from detecting them through sound. By controlling both visual and auditory signatures, these technologies enhance the ability to carry out operations covertly and effectively, ensuring tactical advantage and improving survival rates in challenging combat situations.

PATENT STATISTICS

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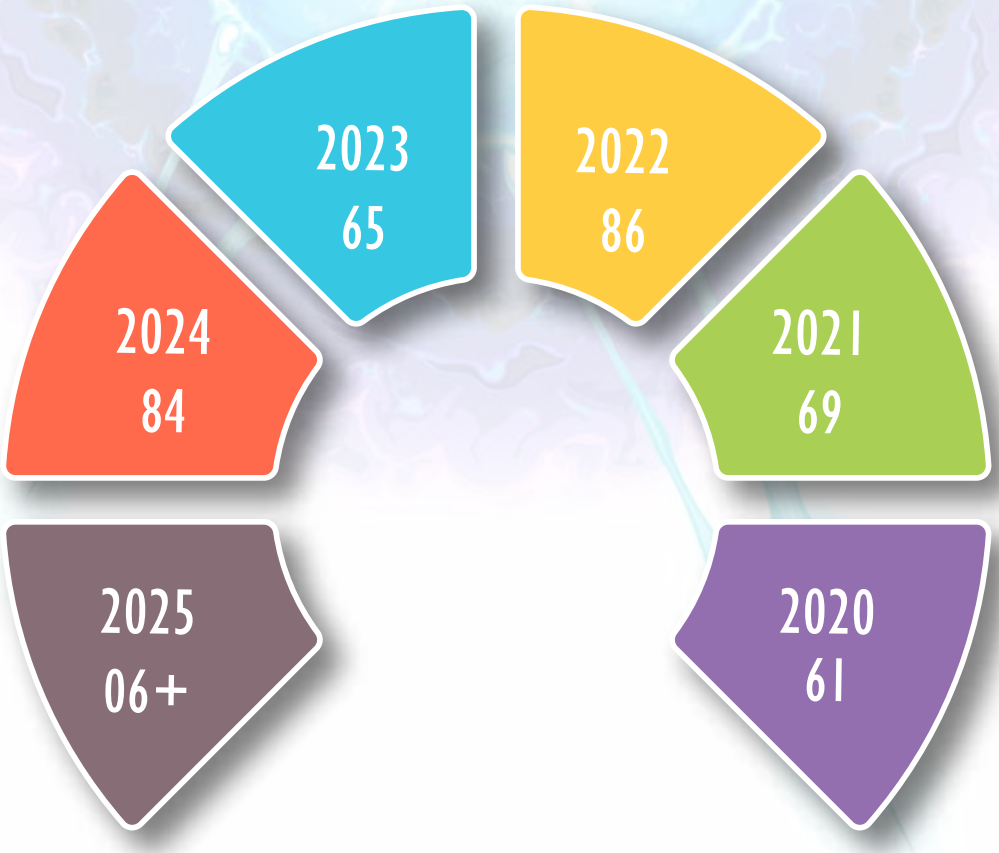

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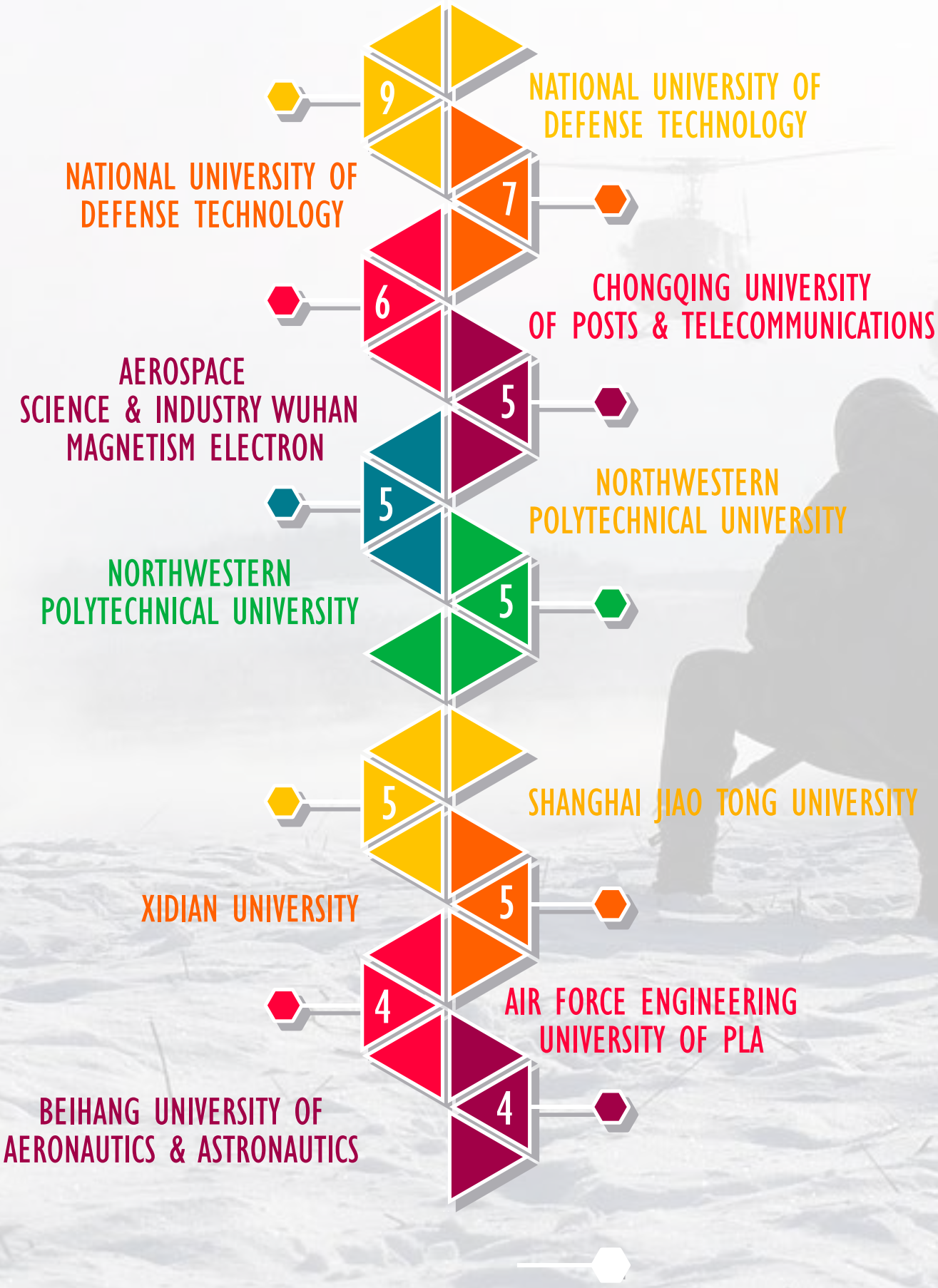

PATENT LANDSCAPE

NOTABLE INNOVATIONS

Patent Application	Priority Date	Title	Assignee
CN118773926	2024-06-11	All-Weather Infrared Stealth Material and Preparation Method and Application Thereof	National University of Defense Technology
CN118374800	2024-08-18	Electromagnetic Stealth Coating And Preparation Method Thereof	Nanjing University of Posts & Telecommunications
CN116043572	2022-10-24	Hyperspectral Infrared Camouflage Coating and Application Thereof	Suzhou Hongxu New Material Technology
CN115139621	2022-03-29	Visible Light, Infrared and Radar Comprehensive Stealth Inflatable Mobile Hangar and Preparation Method Thereof	Hunan Boom New Mat
CN214950891	2021-06-25	Military Camouflage Sneaking Suit	Changshu Institute of Technology

BLOCKCHAIN TECHNOLOGY

Blockchain Technology is becoming an important part of defense systems, offering secure, transparent, and efficient solutions for military operations. By creating a digital ledger, blockchain ensures that sensitive data, like military communications or supply chain information, is safely stored and cannot be tampered with. It can help prevent cyber-attacks by making it difficult for unauthorized parties to alter records. Supply chain management in defense can be greatly improved with blockchain, as it tracks the movement of supplies, ensuring they reach the right destination without fraud or error. Additionally, smart contracts in blockchain allow for automatic, secure transactions without the need for intermediaries, making operations faster and reducing the risk of corruption. Overall, blockchain in defense enhances security, transparency, and efficiency, making it a powerful tool for modernizing military operations and protecting critical data.

PATENT STATISTICS

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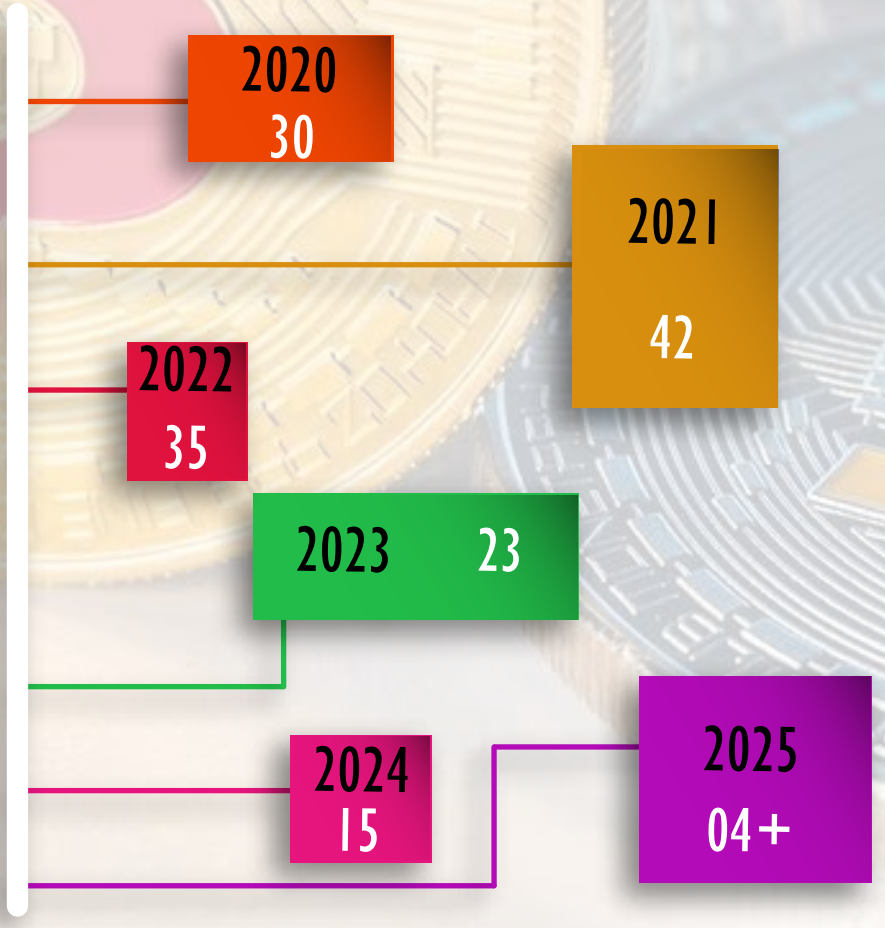

TOP APPLICANTS

2 BECKETT COLLECTIBLES HOLDINGS

2 BEIJING QUNLING ENERGY RESOURCES TECHNOLOGY

2 CHANGSHA ZICHEN TECHNOLOGY DEVELOPMENT

2 CHINESE PEOPLE S ARMED POLICE FORCE ENGINEERING UNIVERSITY

2 CHINESE PEOPLE S ARMED POLICE FORCE POLICE OFFICER ACADEMY

2 CONQUER YOUR ADDICTION

2 ECONIC TECHNOLOGIES

2 FOLLMANN

2 HUNAN JUNCHENG TECHNOLOGY

2 JIANGSU QUNLING ENERGY TECHNOLOGY

PATENT LANDSCAPE

NOTABLE INNOVATIONS

Patent Application	Priority Date	Title	Assignee
IN202411039821	2024-05-22	Ethereum Blockchain Technology enabled Drone Delivery System	Manipal University Jaipur
IN202441014492	2024-02-28	Quantum Secured Military Communication Networks with Blockchain Integrity	KKR KSR Institute of Technology & Sciences
CN112235368	2020-09-29	Rfid Equipment Management System Based on Alliance Block Chain	Chinese Peoples Armed Police Force Engineering University
IN202011002478	2020-01-20	Smart Military Equipment Logistic System using Blockchain Technology	Ashok Kumar Pradhan
KR10-2148452	2019-01-30	System For Security Network using Blockchain and Driving Method Thereof	K Friends

DIRECTED ENERGY WEAPONS

Directed Energy Weapons (DEWs) are the upcoming transformative technology that can be adapted into modern defense systems, to be precise in neutralizing numerous threats with much speed and cost efficiency. High-Energy Lasers disable or destroy enemy targets from drones, missiles, and any other vehicle or machinery with very high accuracy and negligible collateral damage. Microwave Weapons emits high-frequency radiation to affect electronic equipment, and communications disrupt threats without hurting personnel. Particle Beam Technologies, which deploy streams of charged particles to damage targets at the atomic level, hold tremendous destructive potential, although they are still largely experimental. DEWs offer significant advantages, such as ammunition and reduced engagement time, making them ideal highly effective against fast-moving and evasive targets. The integration of these advanced systems enhances defensive and offensive capabilities, ensuring protection in warfare conditions.

PATENT STATISTICS

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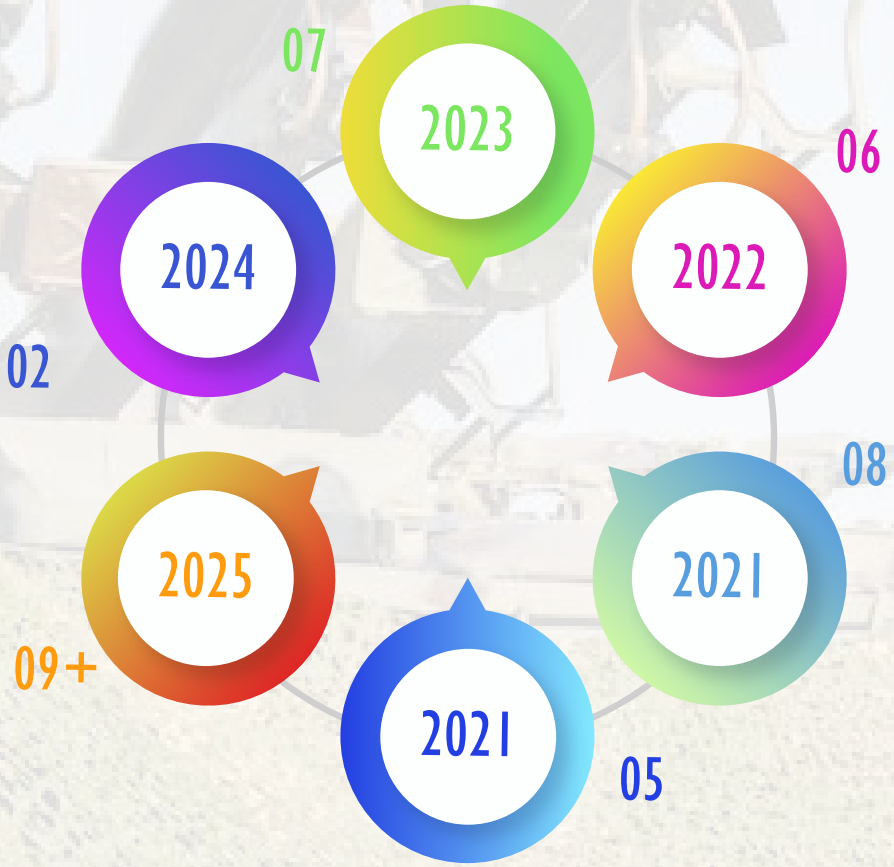

TOP APPLICANTS

PATENT LANDSCAPE

NOTABLE INNOVATIONS

Patent Application	Priority Date	Title	Assignee
US20240118059	2023-10-05	Wstak : Wearable Situational and Tactical Awareness Kit	Vidyavardhaka College of Engineering
WO2024/177693	2023-10-06	High Energy Laser Defense Weapon System With Automated UAS Detection and Classification Functionality	Kord Technology
CN115479504	2022-10-31	Defense Method for Charged Particle Beam Weapon	Aerospace Science & Industry Microelectronics System Institute
CN112766775	2021-01-27	Method For Evaluating Contribution Rate Of Microwave Weapon in Anti-AircraftBack-Guidance System of Naval Vessel	Naval University of Engineering PLA
US11342721	2019-05-08	Beam Director For High-Energy Laser (HEL) Weapon	Raytheon

UNMANNED AND AUTONOMOUS SYSTEM

Unmanned and Autonomous Systems plays a pivotal role in modern defense strategies by enhancing operational efficiency and reducing human risk in potentially dangerous circumstances. Unmanned Aerial Vehicles (UAVs) are extensively used for intelligence, surveillance, reconnaissance, and precision strike missions, offering real-time situational awareness and reduced troop exposure. Drones, ranging from tactical to strategic categories, offer adaptability in missions such as border patrol and combat support. Unmanned Ground Vehicles (UGVs) support a wide range of defense tasks, including logistics, route clearance, and explosive ordnance disposal, ensuring continuity in operation in high-risk environments. Autonomous capabilities in these systems improve decision-making, speed, and mission success rates while minimizing human intervention. Their integration into defense strategies ensures enhanced battlefield effectiveness, force protection, and mission success in dynamic operational conditions.

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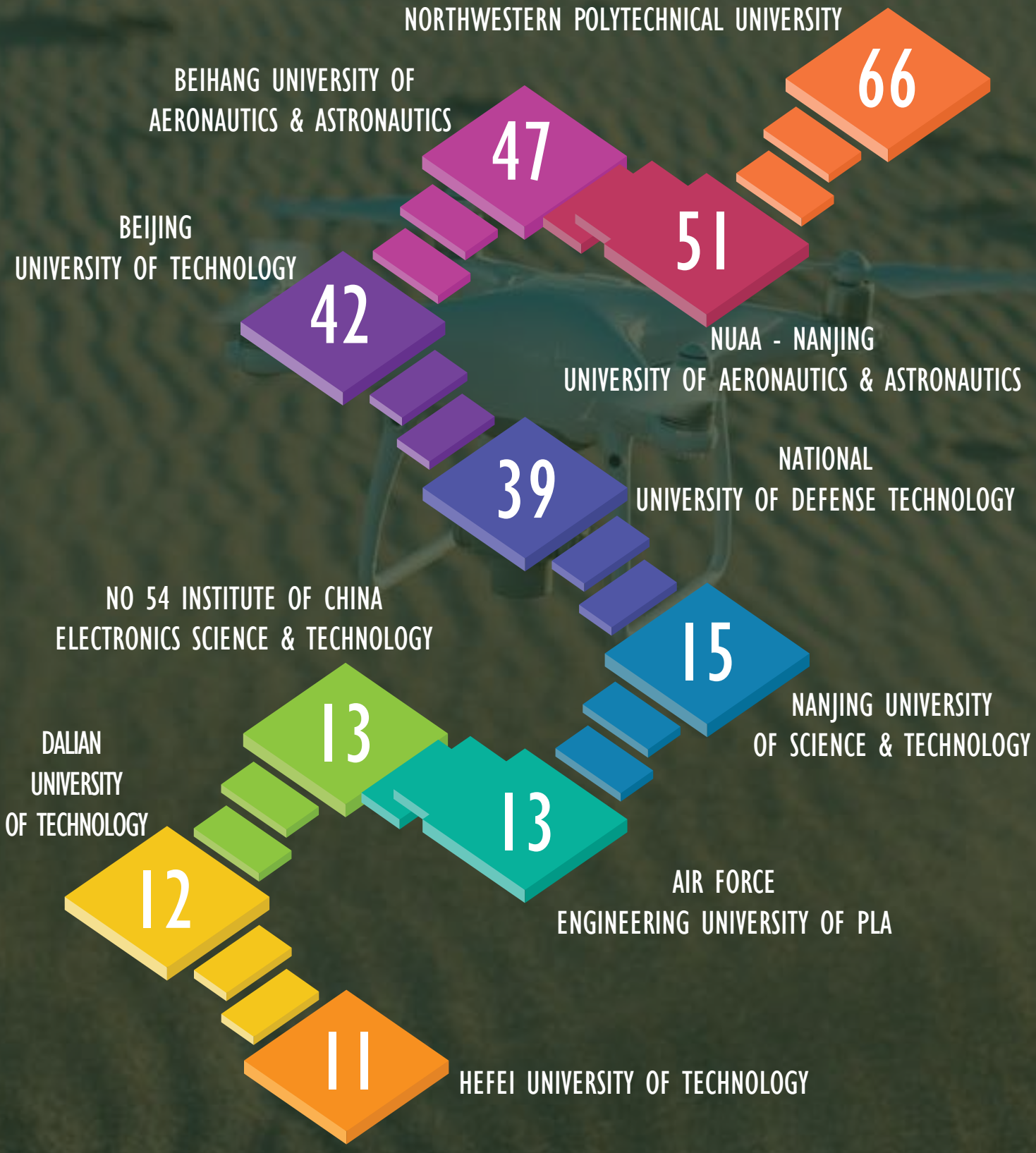

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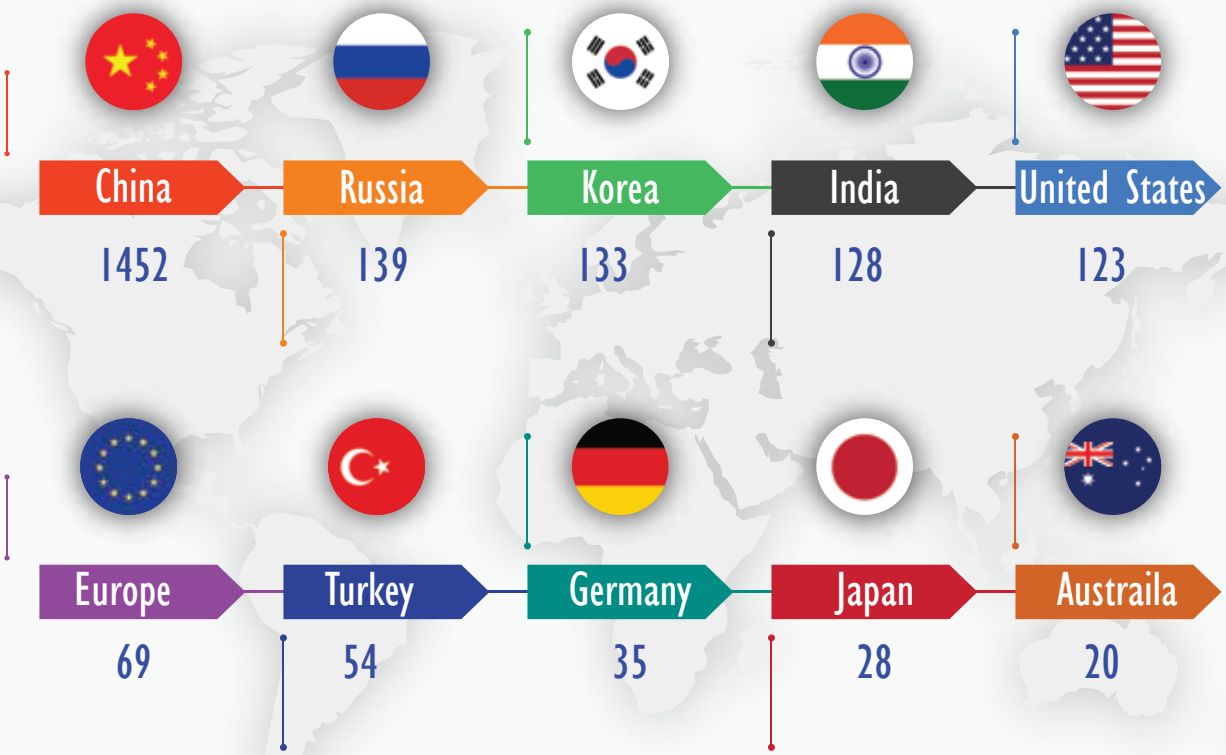

NOTABLE INNOVATIONS

Patent Application	Priority Date	Title	Assignee
KR10-2712713	2022-04-12	Unmanned Aerial Vehicle For Military Defense And Method Of Performing The Same	Coder
IN202241076976	2022-12-29	Spider Drone With Anesthesia For Defence	Cambridge Institute Of Technology, Bengaluru
CN210083538	2019-04-02	Defensive Special Unmanned Aerial Vehicle	Xiamen Lingshi Tianxun Technology
KR10-2205957	2018-10-30	Flight control system of unmanned aerial vehicle and flight control method of unmanned aerial vehicle using it	Inha Technical College Industry Academic Cooperation Foundation
CN111859816	2020-08-03	Unmanned aerial vehicle cluster air combat decision-making method combining mimicry physical method and DDQN	Nuaa - Nanjing University Of Aeronautics & Astronautics

ARTIFICIAL INTELLIGENCE (AI) IN DEFENSE

Modern defense strategies are revolutionized by artificial intelligence (AI), which improves operational decision-making, threat assessment, and situational awareness. Autonomous Combat Systems equipped with AI can independently perform tasks such as target identification, threat neutralization, and precision engagement, thereby minimizing the human intervention and maximizing the efficient execution of mission. AI driven Threat Prediction and Analysis Systems enhance defense capabilities by processing large volumes of data sets to identify emerging threats, enabling pre-emptive measures and risk mitigation. Additionally, AI powered Decision Support Systems assist commanders by providing real-time insights, optimizing resource allocation, and improving strategic planning in dynamic operational conditions. The integration of AI in military operations strengthens battlefield effectiveness, accelerated response times, and ensures mission success, all while minimizing risks to personnel and assets in complex and high-risk scenarios.

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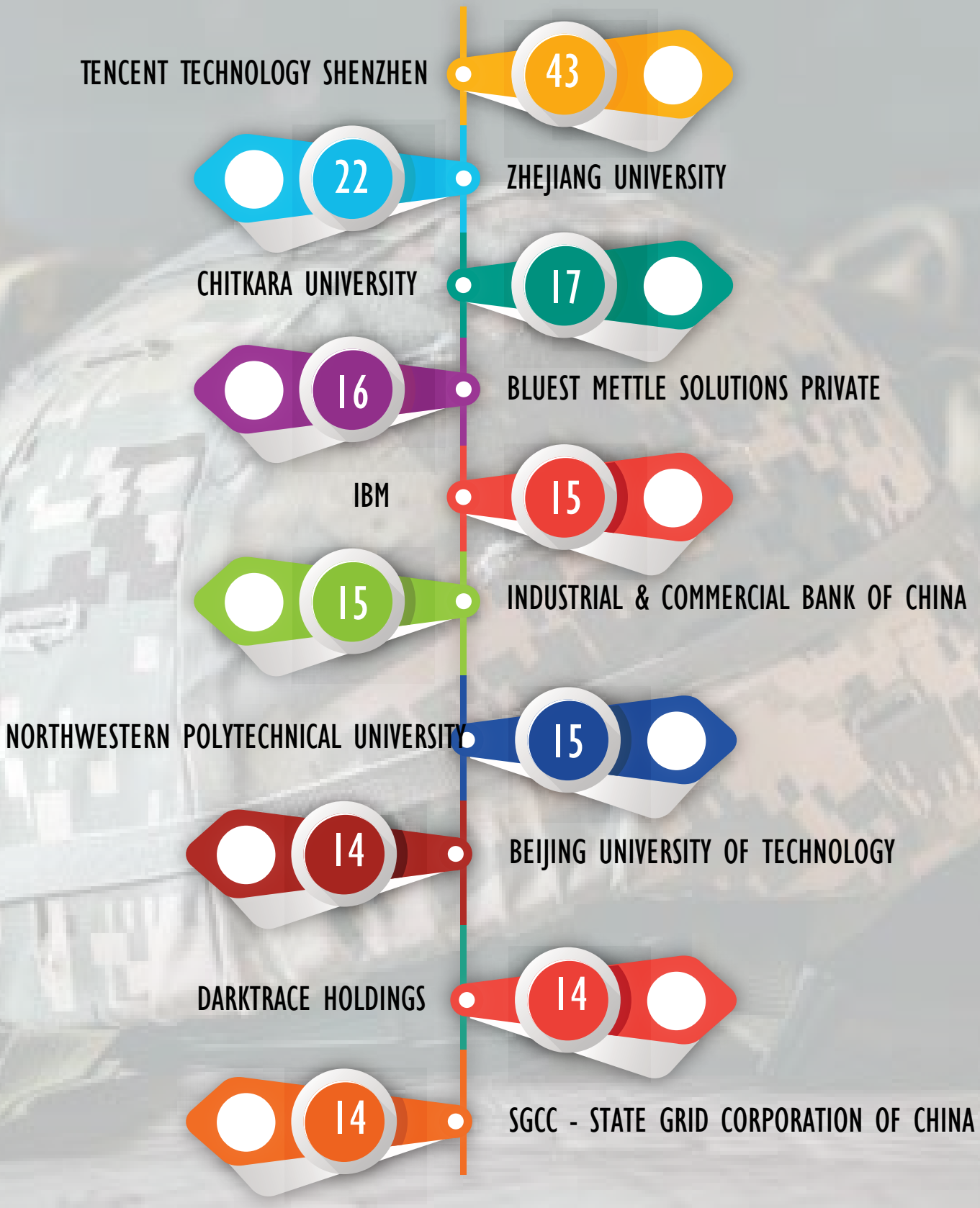

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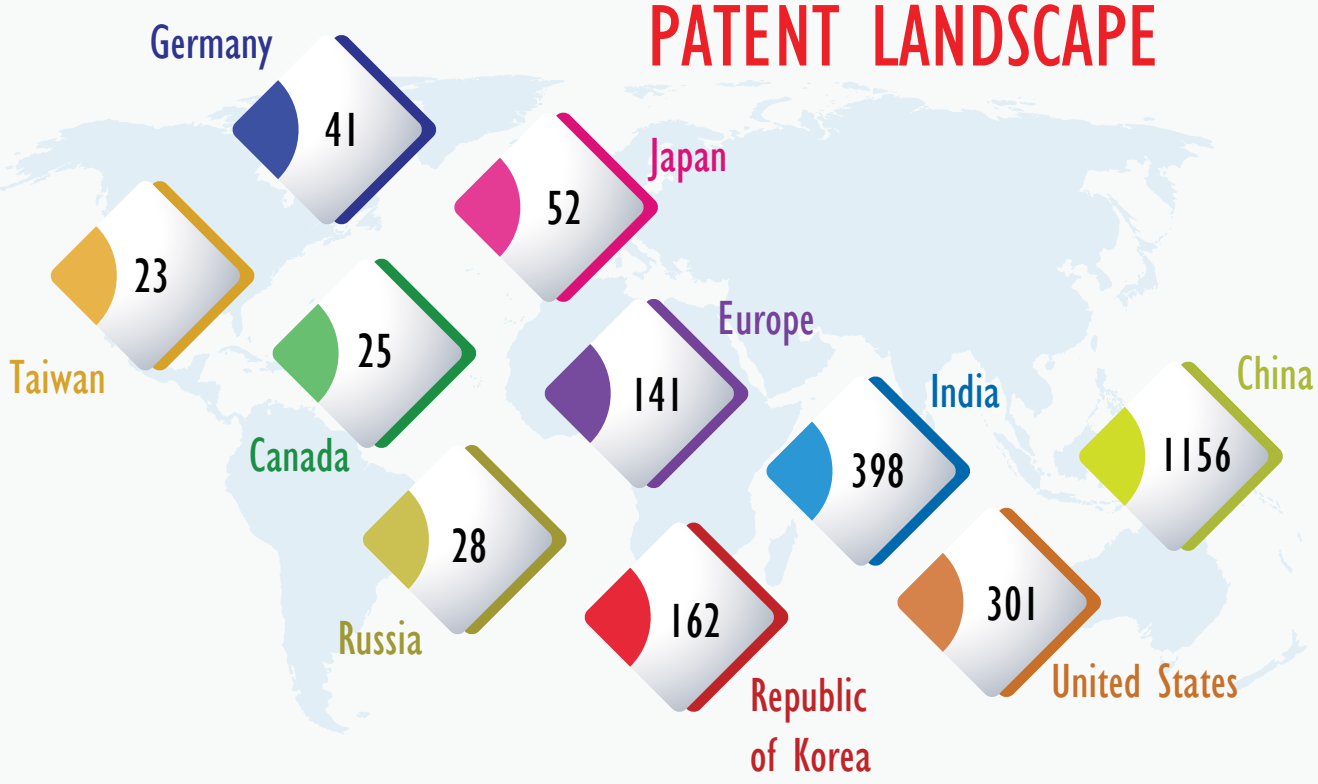

NOTABLE INNOVATIONS

Patent Application	Priority Date	Title	Assignee
CN119210761	2024-08-13	Attack Trapping Method And System Based On Network Attack Surface Self-Adaptive Conversion	Beijing Aerospace Wanyuan Science & Technology
CN116662989	2023-08-01	Security Data Analysis Method And System	Shenzhen Olym Information Security Techology
IN202421085323	2024-11-07	Intelligent Botnet Detection And Mitigation System Using Machine Learning For Enhanced Network Security	Pwar Bharat Ramdas
CN116245442	2022-12-26	Military Artificial Intelligence Application System	Beijing Shenzhou Zhihui Technology
KR102228621	2020-04-28	Method And Apparatus For Combat System Based On Artificial Intelligence	Lig Nex1 Osan College Industry Academic Cooperation

CYBERSECURITY AND QUANTUM COMPUTING

Advancements in cybersecurity and quantum computing are reshaping the modern defense system by fortifying digital infrastructure and enhancing security frameworks. Advanced Cyber Defense Mechanisms involves using advanced encryption, AI, machine learning, and threat intelligence to detect, prevent, and mitigate cyber threats ensuring the integrity of critical defense networks. Zero trust architecture ensures continuous authentication, while secure communication systems protect sensitive information. By utilizing the core principles of quantum mechanics Quantum Cryptography achieves unparalleled levels of security. This advanced cryptographic technique ensures that any sort of attempt to intercept or alter data is instantly determined. Furthermore, Quantum sensors offers improved detection capabilities by using the unique qualities of quantum particles, such entanglement and superposition, to identify even the smallest changes in physical variables, such as gravitational forces, magnetic fields, and time. This allows for enhanced capabilities in navigation, surveillance, and communication and strengthening of defense strategies against high-risk environments.

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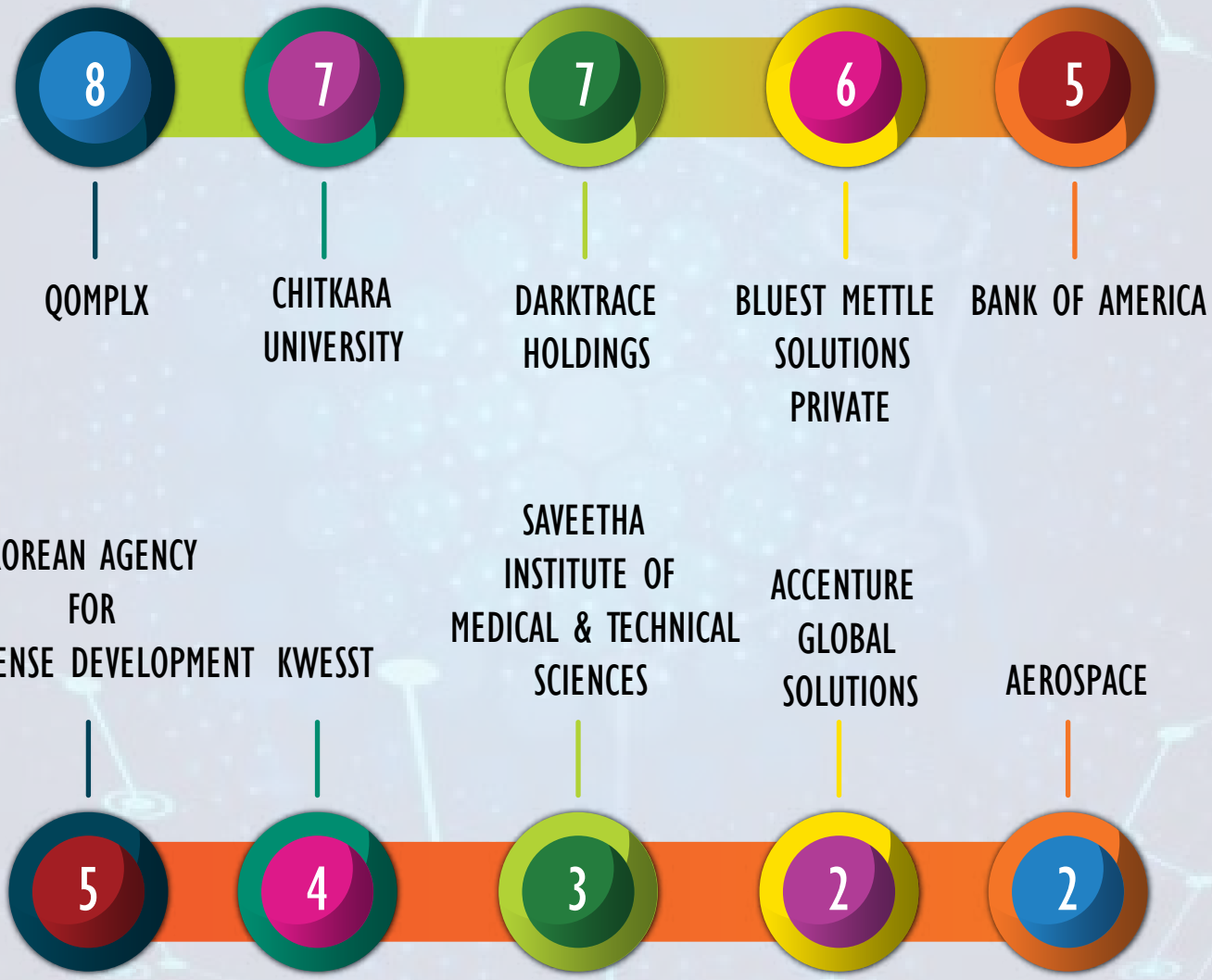

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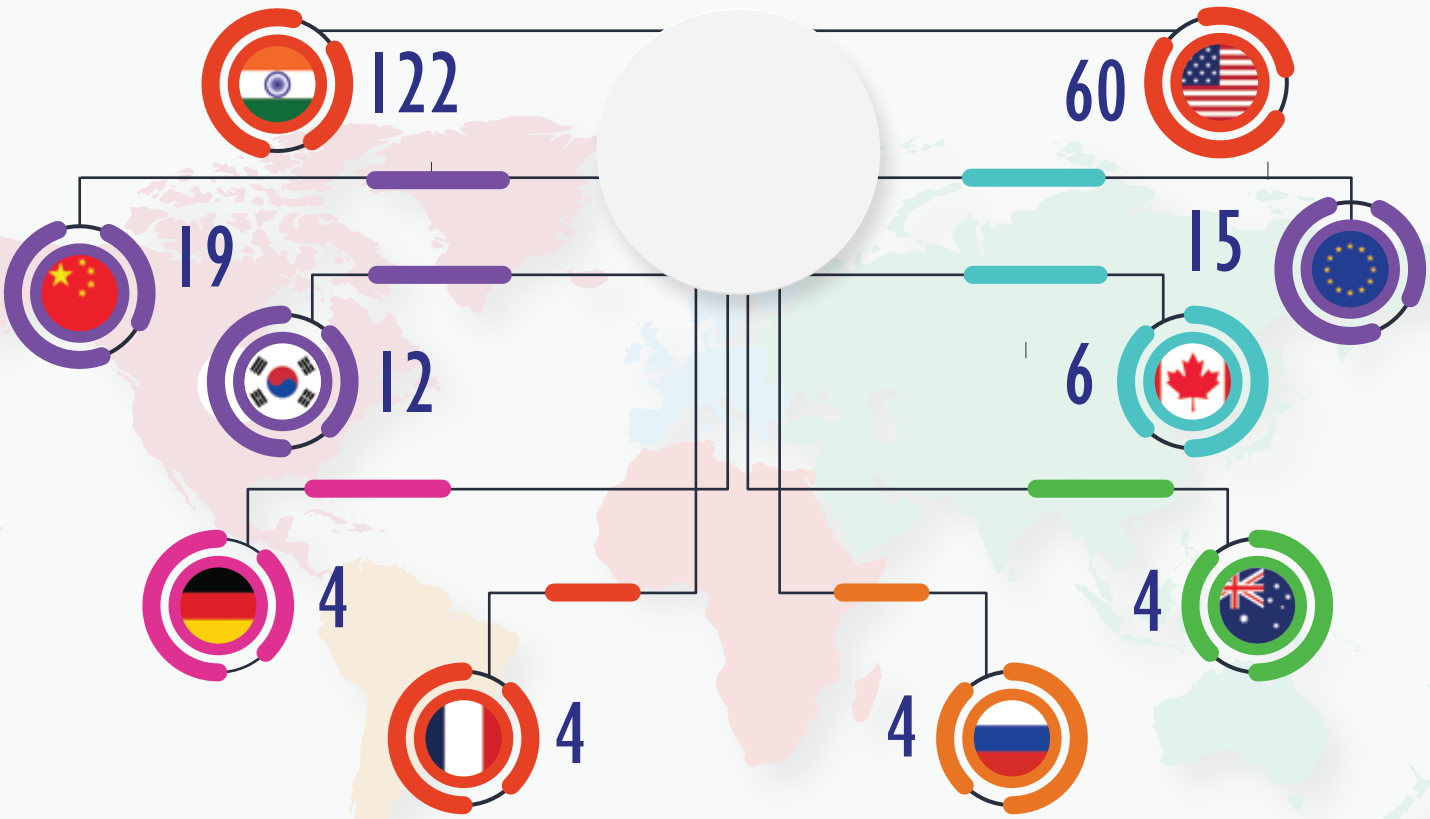

NOTABLE INNOVATIONS

Patent Application	Priority Date	Title	Assignee
IN202431073335	2024-09-27	Advanced Cybersecurity System for Real-Time Threat Detection and Mitigation	JIS College of Engineering
IN202441091493	2024-11-24	Graphic Tool System for Modelling Virtual Scenarios for Cyber Defense Exercises	Saveetha Engineering College
IN202431095860	2024-12-05	Asset Lifecycle and Cyber Defense System for Asset Management and Cyber Security	Kalinga Institute of Industrial Technology University
WO2021/216163	2021-02-01	AI-Driven Defensive Cybersecurity Strategy Analysis and Recommendation System	Qomplx
US20210211456	2020-01-02	Device, Method and Non-Transitory Tangible Machine-Readable Medium for Testing a Cyber Defense Mechanism of a Device under Test	Institute for Information Industry

HYPERSONIC TECHNOLOGIES

The rapid advancement of hypersonic technologies is redefining the future of defense as it delivers unprecedented speeds exceeding Mach 5, accuracy, and agility in warfare. The Hypersonic Glide Vehicles (HGVs) are launched into the upper atmosphere and then glide back to earth at hypersonic speeds, thus making them impossible to track and intercept. Hypersonic Cruise Missiles (HCMs) make use of scramjet engines, ensuring hypersonic speed throughout the journey, hence amplifying its efficacy and range. These have important tactical advantages, such as being evasive of traditional missile defense systems, along with the ability to deliver payloads rapidly over great distances. The Hypersonic Interceptor System is being developed to detect and track incoming hypersonic threats and neutralize them in real time. The system relies on advanced sensors, predictive algorithms, and precision guidance technologies that ensure effective interception during high-risk scenarios.

PATENT STATISTICS

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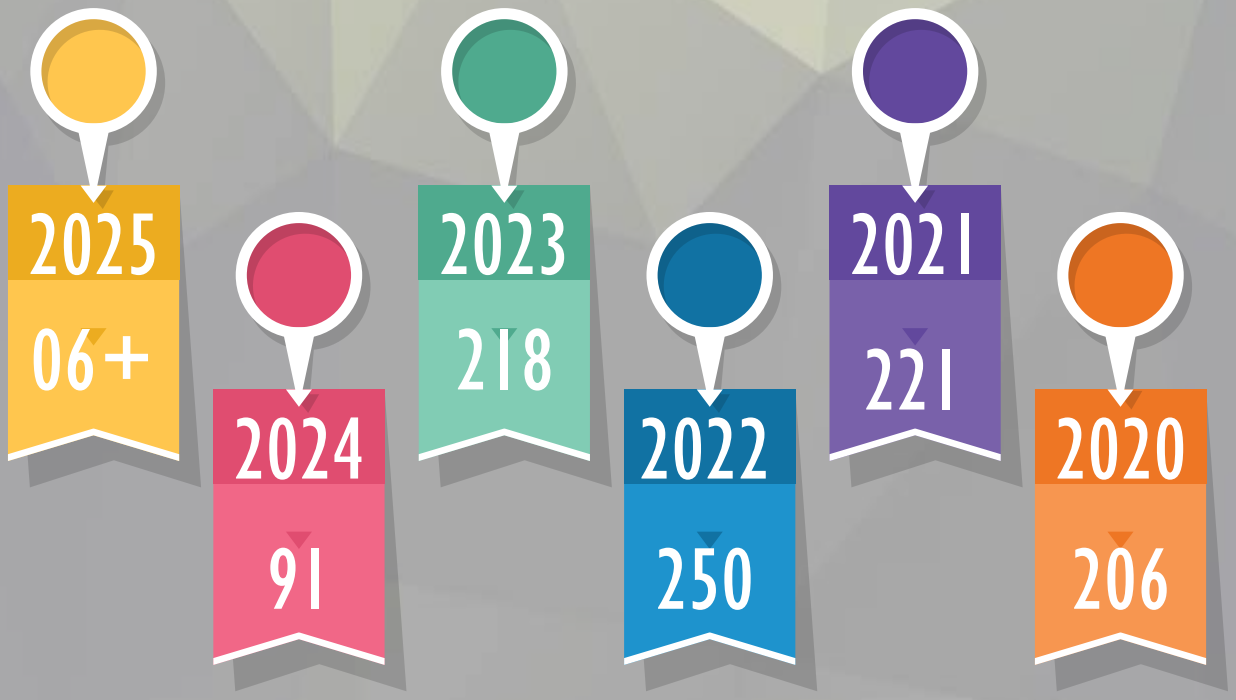

TOP APPLICANTS

65 NORTHWESTERN POLYTECHNICAL UNIVERSITY

38 BEIJING UNIVERSITY OF TECHNOLOGY

29 AIR FORCE ENGINEERING UNIVERSITY OF PLA

26 BEIHANG UNIVERSITY OF AERONAUTICS & ASTRONAUTICS

24 SHANGHAI INSTITUTE OF ELECTROMECHANICAL ENGINEERING

15 NUAA - NANJING UNIVERSITY OF AERONAUTICS & ASTRONAUTICS

14 GENERAL OF THE ARMY A V KHRULEV MILITARY LOGISTICS ACADEMY

14 NATIONAL UNIVERSITY OF DEFENSE TECHNOLOGY

12 NAVAL UNIVERSITY OF ENGINEERING PLA

11 NANJING UNIVERSITY OF SCIENCE & TECHNOLOGY

PATENT LANDSCAPE

NOTABLE INNOVATIONS

Patent Application	Priority Date	Title	Assignee
US12117271	2023-03-09	Hypersonic Missile Defense System	US Air Force
IN202341021464	2023-03-25	Twin Missile Carriage Pylon for Combat Aircraft	Hindustan Aeronautics
CN114840019	2022-04-15	Aircraft Real-Time Penetration Trajectory Generation Method and System	Beihang University of Aeronautics & Astronautics
CN113987772	2021-10-20	Fixed-Distance Warfare Cooperation Method for Blocking Damaged Hypersonic Speed Target Along Track	Shanghai University of Engineering Science
RU2797976	2021-11-22	Anti-Aircraft Missile System	3rd Central Research Institute of The Ministry of Defence of The Russian Federation

ADVANCED MATERIALS AND MANUFACTURING

Advanced Materials and Manufacturing Technologies are reshaping defense capabilities by enhancing durability, efficiency, and operational readiness. 3D Printing of Spare Parts in defense technology revolutionizes logistics and by allowing for rapid, on-demand production of critical components. This technology reduces the need for extensive inventories and minimizes downtime, as spare parts can be manufactured on-site or near the point of need. Stealth Materials in defense technology are designed to enhance the survivability of military assets by minimizing their detectability. These materials can evade radar through absorption or deflection of radar waves, thereby making the object less detectable by the radar system. Thermal camouflage materials are designed to regulate heat signatures to help objects blend into the environment to avoid infrared detection. High-strength alloys and nanomaterials advance defense technology through enhanced durability, strength, and lightness. They improve military equipment's performance and resilience, crucial for maintaining strategic advantages.

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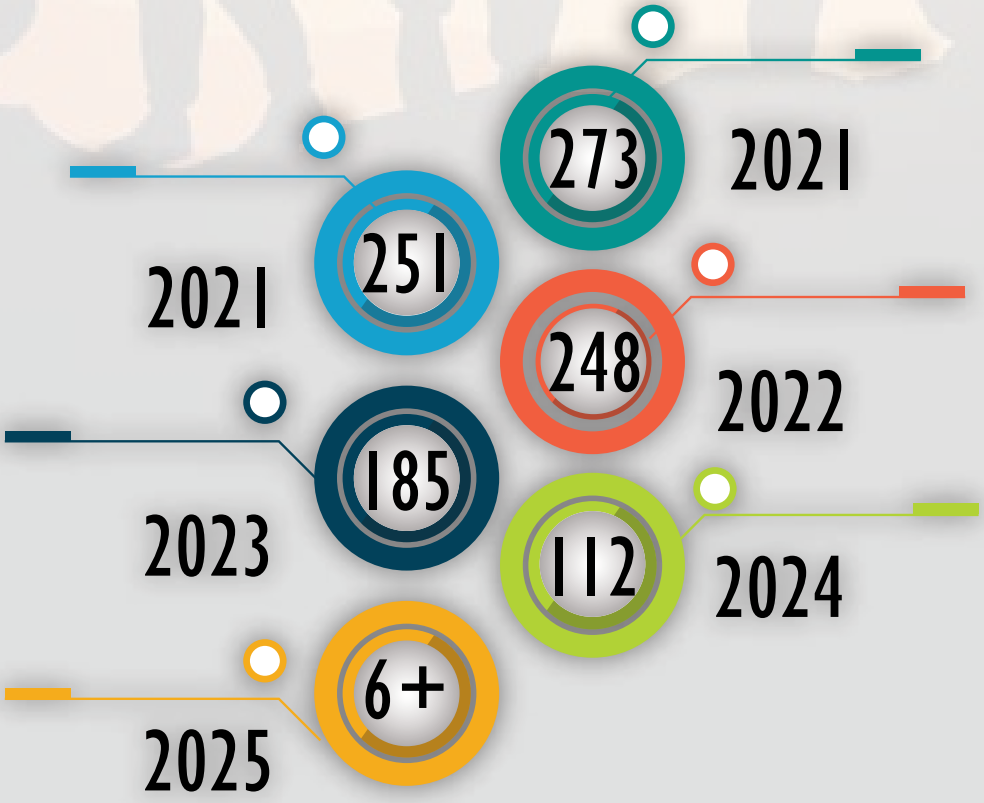
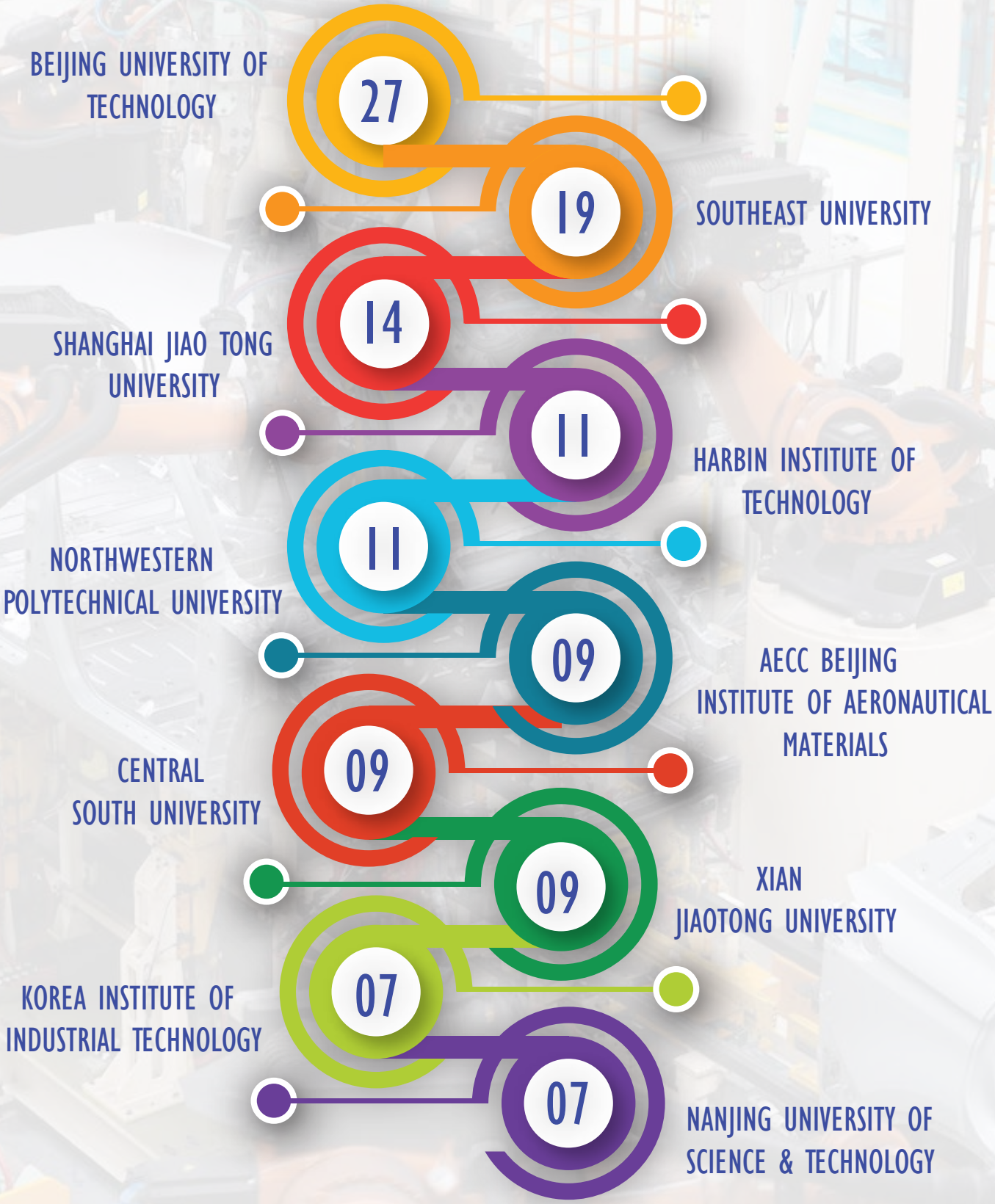


TOP APPLICANTS



PATENT LANDSCAPE

NOTABLE INNOVATIONS

Patent Application	Priority Date	Title	Assignee
CN118295055	2024-04-03	Visible Yellow Infrared Stealth Material and Preparation Method Thereof	Shanghai Jiao Tong University
CN118773926	2024-06-11	All-Weather Infrared Stealth Material and Preparation Method and Application Thereof	National University of Defense Technology
CN116688884	2023-04-04	Polyurethane Microcapsule Internally Packaged with Liquid, Vegetation Environment-Oriented Hyperspectral Stealth Material as well as Preparation Method and Application of Vegetation Environment-Oriented Hyperspectral Stealth Material	Ningbo Institute of Materials Technology & Engineering, Chinese Academy of Sciences
CN115627383	2022-10-14	3D Printing Micro-Region Gradient Structure HighEntropy Alloy/Titanium and Titanium Alloy Composite Material And Preparation Method and Application Thereof	Southeast University
WO2022/262103	2021-06-15	Microcapsule Having Both Infrared and Radar Stealth, Preparation Method Therefor and Application Thereof	Nantong University

SMART CONNECTIVITY AND INTERNET OF MILITARY THINGS

Smart Connectivity and Internet of Military Things (IoMT) are transforming the modern defense systems by integrating secure 5G Networks, edge computing and IoT devices. Secure 5G Networks provide fast, reliable, and encrypted communication, enabling real-time data sharing across military units. Edge computing processes data closer to the source, reducing latency and enhancing situational awareness in critical missions. The IoMT ecosystem connects various military assets, including drones, vehicles, and sensors, allowing seamless coordination on the battlefield. This interconnected network ensures efficient decision-making, improved threat detection, and enhanced operational security. By leveraging these technologies, defense forces can achieve superior battlefield intelligence, faster response times, and a robust cybersecurity framework. Smart Connectivity in defense is reshaping warfare, making operations more efficient, autonomous, and resilient against evolving threats in warfare conditions.

PATENT STATISTICS

WORLDWIDE PATENT FILING TIME-LINE

TOP APPLICANTS

PATENT LANDSCAPE

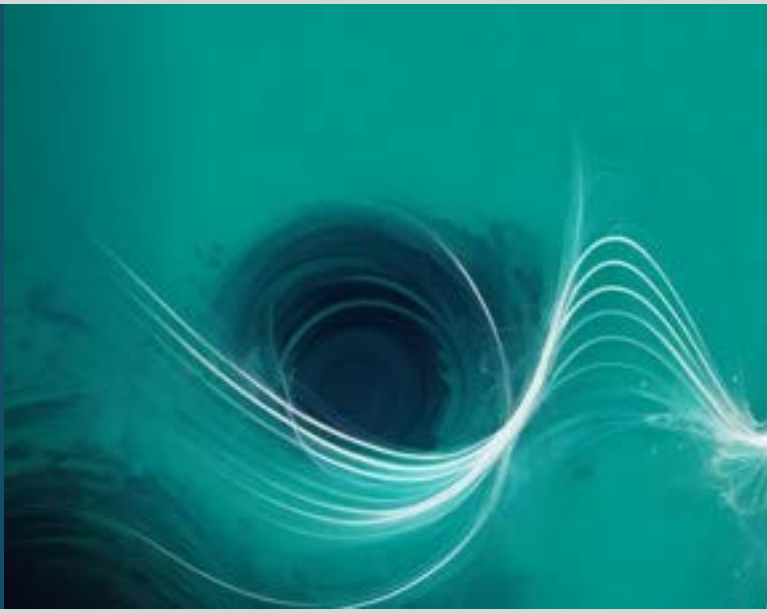
NOTABLE INNOVATIONS

Patent Application	Priority Date	Title	Assignee
IN202341038459	2023-06-05	Border Protection System and Weapon Activation using IoMT	Gandhiraj Prasanna
IN202241048824	2022-08-26	Next Generation System on Chip (Soc) With IIoT Suitable For 5G Network	Balamurugan V Narmadha R Nisha Sahaya Anselin A Vedanarayanan V
CN113470294	2021-06-30	Intelligent Anti-Unmanned Aerial Vehicle Early Warning System and Method Based On 5G Network	Qinhuangdao Qingrui Intelligent Electronic Equipment
US20230171596	2021-11-29	Military Trusted Interworking Function To Integrate IP Tactical Nodes Into a 5G Network	Rockwell Collins
CN114286389	2021-12-28	Heterogeneous Network Convergence System For Military and Marketing 5G Application	Casic Intelligent Operations & Information Safety Institute Wuhan

TECH ZONE

TECHNOLOGIES AVAILABLE FOR LICENSING

TURBULENT FLOW OPTIMIZATION



TECH INTRO

The technology focuses on improving control strategies to prevent oscillatory instabilities in turbulent systems. It works by analyzing the flow of the system, identifying critical dynamics that leads to instability, and disrupting these critical dynamics to prevent the system from becoming unstable. This helps in controlling and stabilizing the turbulent flow system.

PROBLEMS ADDRESSED

- Incoherent Turbulent Fluctuations
- Intermittent Pressure Oscillations
- Lack of Instability Dynamic Identification
- Limited Dynamic Analysis
- No Optimized Control
- Oscillatory Instabilities

TARGET AUDIENCE

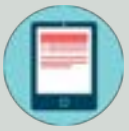
- Aerospace Industry
- Automation Industry
- Defense & Military
- Power Sector

Enhanced Turbulent Flow

Critical Dynamics Computation

Lyapunov Exponent Fields

Oscillatory Instability Controls



Integrated Measuring Device

Computer Executable Instructions

IP Status

- Granted in India

Available For

- Exclusive & Non-Exclusive License

Tech Status

- Technology Validated

ENHANCED BLOCK CHAIN SCALABILTY

TECH INTRO

The invention describes a block chain system for block operation, combining pre-computed states from succeeding blocks with current transactions. This helps in obtaining a state for storage in a next succeeding block. Then a consensus protocol is used to finalize the transactions, making the system more efficient and scaling up computation in block chains.

PROBLEMS ADDRESSED

- State Validation Delays
- Verifier's Dilemma
- Consensus Phase Inefficiencies
- Empty Block Creation
- Complex Transaction Validation
- Block Propagation Latency

TARGET AUDIENCE

- Banking and Finance
- Defense & Military
- Logistics and Transportation
- Cloud Computing Industry
- Healthcare Sector
- Food Industry

TECH FEATURES

Parallel State Computation

Pre-computed Block States

Consensus Mechanism Integration

Post-validation Time Optimization

Dynamic Transaction Validation

Token-based Transaction Handling

Proof-of-work Optimization

Height-based Block Management

IP Status

Granted in India and USA

Available For

Exclusive & Non-Exclusive License

Tech Status

Technology Validated

ELECTRONIC DETECTOR FOR EXPLOSIVES

TECH INTRO

The technology provides a cutting edge-solution for detecting explosives, offering a versatile tool for security applications. It combines innovative design with advanced detection methods for enhanced safety and reliability.

PROBLEMS ADDRESSED

- Complex System
- Low Sensitivity
- Inaccurate Detection
- Bulky in Size
- High Heat Conductivity
- Expensive System

TARGET AUDIENCE

- UAV Manufacturing Industry
- Defense and Military
- Agriculture Sector
- Disaster Management

TECH FEATURES

Simple Construction

Reliable and Accurate

Easy to Operate

Portable System

Shock Resistance

Scalable

Cost Effective

IP Status	Available For	Tech Status
Granted in India	Exclusive & Non-Exclusive License	Technology Validated

SHOCK WAVE RESISTANT SHIELD

TECH INTRO

The technology introduces an advanced shield with enhanced protective performance, designed to safeguard structures from the devastating effects of blast and shock waves. The shield minimizes the potential damage to the protected structure and enhances protection without adding excessive weight.

PROBLEMS ADDRESSED

- Lack of Air Gap Feature
- Heavy Assembly Weight
- Limited Shock Absorption
- Multiple Panels Required
- Difficult Panel Handling

TARGET AUDIENCE

- Defense & Military
- Automotive Sector
- Security Industry

TECH FEATURES

Shock Wave Resistance

Wave Absorption Air-gap

Metal Foam Panel

Ceramic Reinforcement Layer

Compensation of Parasitic Errors

Metallic or Polymeric Truss

Front and Rear Adherence

Glass Fibre Polymer Panels

IP Status

Granted in India

Available For

Exclusive & Non-Exclusive License

Tech Status

Technology Validated

OCTOCOPTER WITH SUPERIOR STRENGTH

TECH INTRO

The technology introduces an advanced octocopter drone primarily constructed using AISI 304 (1.4301) stainless steel, a high quality material known for its exceptional corrosion resistance, durability and mechanical strength. The material enhances drone's performances and longevity in diverse operating conditions.

PROBLEMS ADDRESSED

- Lack of Structural Strength
- Excess Drone Weight
- Rough Landings
- Limited Working Area

TARGET AUDIENCE

- UAV Manufacturing Industry
- Defense and Military
- Agriculture Sector
- Disaster Management

TECH FEATURES

Enhanced Strength

Lightweight Design

Integrated Flight Controller

Smart Sensors and Camera

Enhances Working Area

Laser Cutting Method

IP Status	Available For	Tech Status
Granted in India	Exclusive & Non-Exclusive License	Technology Validated

TRAINING SIMULATION SYSTEM

TECH INTRO

The technology introduces a training simulation system that provides comprehensive training for defense and law enforcement, enhancing tactical proficiency, strategic responses, performance evaluation.

PROBLEMS ADDRESSED

- Lack of Training
- Inappropriate Strike Location
- Risk of Fatal Injuries
- Performance Evaluation Gap

TARGET AUDIENCE

- Defense and Military
- Law Enforcement Sector
- Security Training Industry

TECH FEATURES

- Real Time Simulation
- Skill Training
- Performance Evaluation System
- Realistic Environment

IP Status	Available For	Tech Status
Granted in India	Exclusive & Non-Exclusive License	Technology Validated

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tech@ipbazzaar.com
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LOCOMOTION ASSISTING SHOE

TECH INTRO

The invention introduces a footwear including shoes, and boots, designed to reduce effort and enhance performance in various motions. It integrates force-carrying mechanisms to manage energy during dorsiflexion and plantar flexion. An elastomeric zone acts as a spring to assist the Achilles tendon, optimizing walking, running, hiking, and jumping motions.

PROBLEMS ADDRESSED

- Lack of Comfort
- Foot Motion Restrictions
- Poor Ankle Support
- Low Durability

TARGET AUDIENCE

- Defense & Military
- Law Enforcement Agencies
- Healthcare Industry
- Sports Industry
- Fitness Industry

TECH FEATURES

Extra Comfortable

Ease Foot Motion

Reduces Ankle Stress Drastically

Increased Motion Efficiency

Increased Performance

IP Status

- Granted in India and USA

Available For

- Exclusive & Non-Exclusive License

Tech Status

- Technology Validated

+91-6359777555

tech@ipbazzaar.com

www.ipbazzaar.com

PORTABLE AND BULLETPROOF RESCUE COVER

TECH INTRO

The invention describes a foldable, bulletproof shield engineered to ensure the safe rescue of hostages and protection of special forces during emergencies and shootouts.

PROBLEMS ADDRESSED

- Lack of Portability
- Limited Protection
- Slow Deployment
- Multi-Directional Vulnerability
- Inadequate Coverage

TARGET AUDIENCE

- Defense Sectors
- Law Enforcement
- Emergency Rescue Units
- Security Industries
- Tactical Equipment Suppliers

TECH FEATURES

Compact & Foldable Design

Bulletproof & Fire-Resistant

Customizable & Modular Panels

Rapid & Tool-free Assembly

Water/UV Resistance

Mobile & Easy to Carry

IP Status

- Granted in India

Available For

- Exclusive & Non-Exclusive License

Tech Status

- Technology Validated

CONVERTIBLE PROTECTION SHIELD

TECH INTRO

This invention introduces an armour system that can be converted into an adjustable protection shield, providing a customizable cover that reduces weight and enhances tactical utility.

PROBLEMS ADDRESSED

- Lack of Adaptability
- Heavy Equipment
- Limited Functionality
- Inflexible Coverage
- Reduced Mobility
- Inadequate offensive/defensive options

TARGET AUDIENCE

- Law Enforcement Agencies
- Military Forces
- Emergency Response Teams
- Riot Units
- Security and Defense Manufacturers

TECH FEATURES

- Customizable Shield Coverage
- Modular & Multipurpose Design
- Lightweight & Portable
- Multi-threat Protection
- Convertible for offensive/defensive Use
- Accessory Compatibility

IP Status

- Granted in India

Available For

- Exclusive & Non-Exclusive License

Tech Status

- Technology Validated

+91-6359777555 tech@ipbazzaar.com www.ipbazzaar.com

BIOMETRIC IDENTIFICATION SYSTEM

TECH INTRO

The technology offers a portable biometric identification system, enabling secure and reliable authentication across various sectors, ensuring compatibility with existing databases and producing lawful evidence for authorized users.

PROBLEMS ADDRESSED

- Bulky in Size
- Lack of Accessibility in Remote Areas
- Incompatible with Databases
- No Court Admissibility

TARGET AUDIENCE

- Maternity Wards in Hospitals
- Law Enforcement Agencies
- Defense and Military
- Aviation Industry

TECH FEATURES

Portable Biometric Identification

Compatible with Existing Databases

Secure Access Mechanism

Authorized User Functionality

Evidence Admissible in Court

IP Status
Granted in India

Available For
Exclusive & Non-Exclusive License

Tech Status
Technology Validated

BALLISTIC SHIELDING SYSTEM

TECH INTRO

The technology introduces a ballistic shielding system designed for immediate deployment in rescue and vigilance situations, providing protection from both the front and side sections, as well as top edge.

PROBLEMS ADDRESSED

- Deployment Difficulties
- Limited Protection
- Limited Mobility
- Bulky in Size
- Short Life Span

TARGET AUDIENCE

- Defense and Military
- Police Security
- Disaster Management Industry
- Law Enforcement Sector

TECH FEATURES

Rapid Deployment

All-round Protection

Easy Portability

Inbuilt Locking Mechanism

Enhanced Gripping

User-friendly

IP Status	Available For	Tech Status
Granted in India	Exclusive & Non-Exclusive License	Technology Validated

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IOTA

International Optical Technologies Association

Formerly known as IHMA

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AUTHENTICITY

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QUALITY

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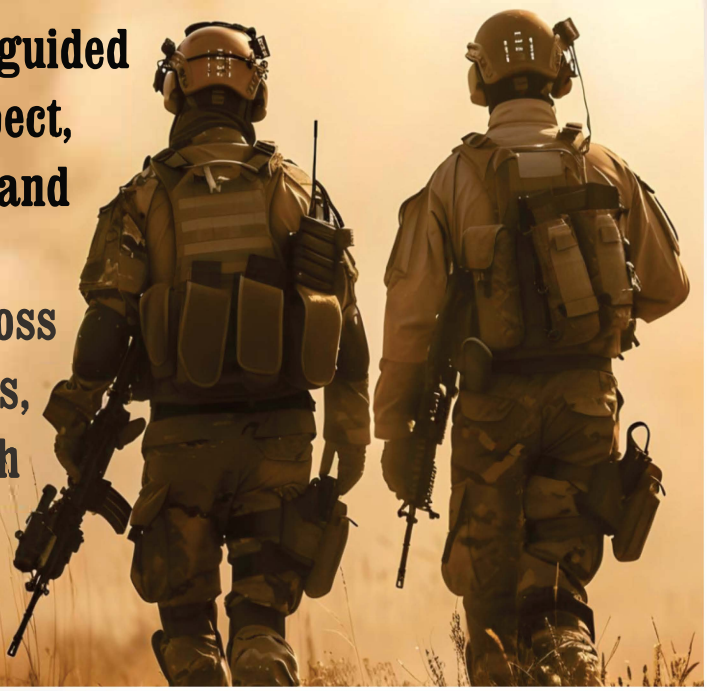

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