RIPA
POWERING INDIGENOUS INTELLECT

A LANDSCAPE REPORT ON

ANTI-COUNTERFEIT TECHNOLOGIES

BAZLAAR
Where Mind Meets Market

IHMA

MARK OF
AUTHENTICITY

MARK OF
INTEGRITY

MARK OF
QUALITY

MARK OF
RELIABILITY

MARK OF
SECURITY

The IHMA is made up of over 80 of the world's leading hologram companies who actively cooperate to maintain the highest professional, security and quality standards in support of their customers.

It was founded in 1993 to represent the interests of hologram manufacturers and the hologram industry worldwide. It is dedicated to promoting the interests of the hologram industry worldwide and to helping users achieve their commercial, aesthetic and authentication objectives through the effective use of holography.

IHMA membership confers authenticity and credibility on companies that join – all of which are rigorously vetted and adhere to a strict Code of Practice governing standards, business ethics, customer service, respect for and protection of customers' and each others' intellectual property.

The IHMA is a not-for-profit membership organisation registered in the UK, liability limited by guarantee.

Membership is open to all Optical Variable Device (OVD) suppliers. For more information, membership benefits, and the procedure for joining the IHMA, please visit **www.ihma.org**.

www.IHMA.ORG

TECH TALK

The counterfeit goods market remains a significant threat to India's economy, affecting nearly every industry, from consumer products to pharmaceuticals, electronics, and more. This parallel economy not only undermines brand integrity and trust but also poses risks to consumer safety and contributes to financial losses for businesses and the government. As India aspires to become the third-largest global economy, tackling the counterfeit economy has never been more urgent.

A recent Tech Talk roundtable on "Handling Counterfeit Economy" was organized by IP Bazzaar in support of the International Hologram Manufacturers Association (IHMA) and Reinforce Intellectual Property Association (RIPA) on September 28, 2024, at the National Productivity Council, New Delhi. Experts, industry leaders, government officials, and stakeholders gathered to address this pressing issue. During the event, participants shared insights into the challenges associated with combating counterfeiting, including the rise of sophisticated technologies used by counterfeiters and the global reach of counterfeit goods.

The roundtable highlighted the need for a collaborative approach, where government regulations, industry innovations, and academic research come together to form a robust strategy against counterfeit goods. Participants emphasized the role of technology, such as blockchain, AI, and IoT, in identifying and tracking fake products. There was consensus on the importance of educating consumers about the dangers of counterfeit products and strengthening enforcement mechanisms across supply chains.

Prof. Jitendra K. Das, Director General, FORE School of Management, moderated the panel discussion titled "Bridging Knowledge: Collaborative Dialogue for Handling the Counterfeit Economy" with panelists including Shri Ajai Kumar Srivastav, Ex-Director (Technical), Security Printing & Minting Corporation of India Ltd. (SPMCIL), Mr. Pramod Gokhale, Group CIO, Mankind Pharma, Dr. Amit K. Dinda, Research Director, Amrita Vishwa Vidyapeetham, Prof. Tanweer Alam, Additional Director, Indian Institute of Packaging, Sh. Chandar S Jeena, Regional Director, Reconnaissance International, and Sh. Naveen Coomar, President, RIPA.

The discussion concluded with a shared commitment to accelerate efforts against the counterfeit economy, urging both the industry and academia to work closely to ensure India's economic growth remains resilient against this growing threat. An innovative technology related to the anti-counterfeit domain was also presented during the event by Sense Original Technologies Pvt. Ltd. Hence, together, through innovation, collaboration, and strategic planning, India can significantly reduce the impact of counterfeiting and protect its industries and consumers.

IP BAZZAAR®

WHERE MIND MEETS MARKET

TECH TALK™

HANDLING COUNTERFEIT ECONOMY

(A Roundtable Discussion)

In Association With

Industry Partners

IHMA International Hologram Manufacturers Association

The Manipal Group — Manipal Technologies Limited

TPI

GOPSONS PAPERS PVT. LTD.

PLUG n RIDE

FERMISH CLINICAL TECHNOLOGIES PVT.LTD.

Academic Partners

AMRITA VISHWA VIDYAPEETHAM — AMRITA RESEARCH CENTER DELHI

IICHS SEMCH

NLUJA

Knowledge Partners

PATENT WIRE — Where Inventions Live Long

RIPA

Legacy Partner

IndyHAAT — Legacy Continued

DELEGATES OF THE EVENT:

1. Mohammed Saalim, Founder and Director, Sense Original Technologies Pvt. Ltd.
2. Jitendra Singh, Business Development Manager, Sense Original Technologies Pvt. Ltd.
3. Harish Joshi, Global Head, Strategy & Portfolio, Propix
4. Dhiraj K Nayak, Associate Business Head, Manipal Technologies Ltd.
5. Shobhit Arora, Managing Director, Giriraj Foils Pvt. Ltd.
6. Dinesh Thakur, Director-Sales & Marketing, Kridwinn Innovations Pvt. Ltd.
7. Nand Lal Sharma, Director, Inter Films India Pvt. Ltd.
8. Vishwanathan, Oberthur
9. Mukesh Goel, Director, Gopsans Papers Ltd.
10. Asif Siddiqui, VP Business Development in Licensing, Mascot Health Series Pvt. Ltd.
11. Ram Kumar, G. M. Sales, Mascot Health Series Pvt. Ltd.
12. Arun Agarwal, Director, Track Pack Innovations LLP
13. Amrit Kumar Garg, Director-Operations, ASAR
14. Mohammed Shamim Alam, Segment Manager-Labels & Packaging, HP India Sales Pvt. Ltd.
15. Amitabh Srivastava, Auditor, FSSAI
16. Ankit Mahajan, Sr. Manager, Vacmet India Ltd.
17. Amit Srivastava, Vice President, American Express (India) Pvt. Ltd.
18. Zafar Equbal, Founder & CEO, Plug N Ride Motors Pvt. Ltd.
19. Mohit Mahajan, Director, Center for New Product Development
20. Dr. Dara Ajay, Head TTO, IIT Madras
21. Dr. Sudip Mukherjee, Assistant Professor, IIT-BHU
22. Dr. K Prabhu, Sree Balaji Medical College and Hospital
23. Dr. Nirmalsinh A Herma, Assistant Professor, Shri K. P. Shah Law College, Jamnagar
24. Prof. Dipak G Parmar, DPIIT IPR Chair Professor, Saurashtra University
25. Dr. C. R. Savaliya, Research Assistant IPR, Saurashtra University
26. Parth Udaykumar Sejpal, CEO, Saurashtra University
27. Urvi Kanabar, Operation Assistant, SUSEC
28. Sandeep Kaushik, Marketing Head, Indyhaat

Organizing Team Members

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

DISCUSSION OUTCOMES

1. Role of the Labelling and Hologram Industry: The labelling and hologram industry plays a critical role in the fight against counterfeiting. Technologies such as barcodes, RFID, IoT devices, and AI tools are essential in combating counterfeit goods and ensuring product authenticity.
2. Challenges in Implementation: Despite existing anti-counterfeit measures and policies, effective execution remains a significant challenge due to the lack of skilled manpower. This gap hinders the full potential of these measures.
3. Consumer Awareness: A lack of consumer awareness about counterfeiting contributes to its proliferation. Advanced technologies are often not easily understood by the general public, making it difficult for consumers to identify authentic products.
4. Product Development and Supply Chain Security: It was noted that anti-counterfeiting tools must be integrated at various stages of product development, particularly in sensitive industries such as pharmaceuticals and medical devices. Additionally, creating a robust and secure supply chain is essential to minimizing the impact of counterfeiting.
5. Industry-Academia-Regulatory Collaboration: A strong partnership between industry, academia, and regulatory bodies is crucial to developing effective anti-counterfeiting solutions. Collaborative efforts can drive innovation and enhance the overall anti-counterfeit landscape in India.
6. Government Involvement: Government representatives highlighted that the counterfeit economy persists across various sectors, including currency, products, ID documents, and patent infringement, despite the existence of a legal framework. Continuous communication between stakeholders and government departments is essential to addressing these challenges.
7. Need for Cross-Sector Collaboration: Panelists stressed the importance of collaboration among all stakeholders, including brand managers and marketing teams, who must be educated on advanced tools and techniques for combating counterfeiting. India has the potential to develop cutting-edge anti-counterfeiting mechanisms, but proactive measures are necessary to achieve this goal.
8. Responsibility of Product Manufacturer: The roles and responsibilities of brands were also underlined during the event, emphasizing that brands must run awareness campaigns for the consumers about the security features used by them on their products to counter the counterfeiting issue.
9. Inclusion of Anti-Counterfeiting in Academic Curriculum: It was emphasized that anti-counterfeiting must be incorporated into academic programs. Aligning the mindset of both industry and academia is crucial to fostering collaboration and creating effective solutions.
10. Urgent Need for Industry-Academia Collaboration: The discussion concluded with a consensus on the urgent need for deeper collaboration between industry and academia. This partnership is required to address the challenges and opportunities within the anti-counterfeit sector and to align research with industry needs, thereby enhancing India's innovation landscape in this domain.

These key insights provide a clear path forward for tackling the counterfeit economy in India, underscoring the importance of collaborative efforts, advanced technologies, and robust implementation strategies.

SUGGESTIONS FOR ACADEMIA

The industry raised the demand for R&D in the anti-counterfeiting 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 strengthen product authentication and tracking across industries. Barcodes, RFID, IoT sensors, and blockchain can be leveraged to create unique, tamper-proof identifiers for products, allowing for real-time tracking throughout the supply chain.
- Academic institutions should design user-friendly verification systems that empower consumers to easily check the authenticity of products. This can raise public awareness and create a stronger consumer defense against counterfeit goods.
- Research how to build secure, transparent supply chains that prevent counterfeit goods from infiltrating the system. This involves enhancing traceability and ensuring accountability at every point in the supply chain.

- Academic institutions can contribute to the legal and regulatory framework by conducting research on existing anti-counterfeiting policies, identifying gaps and suggesting new policies that address the modern challenges of counterfeiting.
- Academic institutions should create collaborative research platforms where academia, industry, and government work together to tackle counterfeiting issues from multiple perspectives, pooling expertise to create more comprehensive solutions.
- Academic institutions can develop AI-based models that help predict counterfeit risks by analyzing patterns and data across various industries. These models can also help prevent counterfeit products from reaching the market by identifying vulnerabilities.
- Develop academic programs and curricula that focus on teaching students the technologies and strategies needed to combat counterfeiting and enhance supply chain security, preparing the next generation of professionals for this critical issue.

INDUSTRY CHALLENGES REQUIRING R&D

Smart Materials or Embedded Sensors for Tampering Detection	Local Random Image Transformation for Anti-counterfeit and Encryption
DNA Tags Sprayed, Stitched, or Embedded in Leather	Integration of DNA Storage and DNA Computing with Blockchain Technologies
Smart Sensors and RFID Tags for Real-time Product Monitoring	Polyfluorene Based Polymer with Green Fluorescence
DNA-Based Marking to High-value Goods	Unclonable Quantum Markers or Quantum Cryptography for Ultra-secure Product Tagging
AI Predicting Future Counterfeiting Hotspots	Perovskite Nanoparticles for High-Resolution Color Displays and Anti-counterfeiting
Diamond-Based Material for Fingerprint Authentication	Anti-Counterfeiting Security Seal

Integrating Biometric Authentication Features into Anti-counterfeit Measures, such as Fingerprints, Retinal Scans, or other Unique Human Characteristics

THE MANIPAL GROUP

BUSINESS. VALUES.

Manipal Technologies Limited

Manipal Technologies Limited (MTL) is revolutionizing security for Government bodies & private companies, across industries and geographies, by combining advanced security printing with innovative physical and digital technologies. MTL provides comprehensive authentication and traceability solutions that fortify supply chains, enhance brand images, and prevent counterfeiting.

Key solutions provided by MTL in the space of anti-counterfeiting –

High Secure Labels & QR Codes

- Print Secure Features- Overt, Covert, Forensic security features
- In house Master Origination and Hologram Production with 30+ features.
- Secure and Non-copiable Inks
- Tamper Evident substrates
- GLOBAL STANDARD and Non-cloneable QR CODES

Smart Phone Module

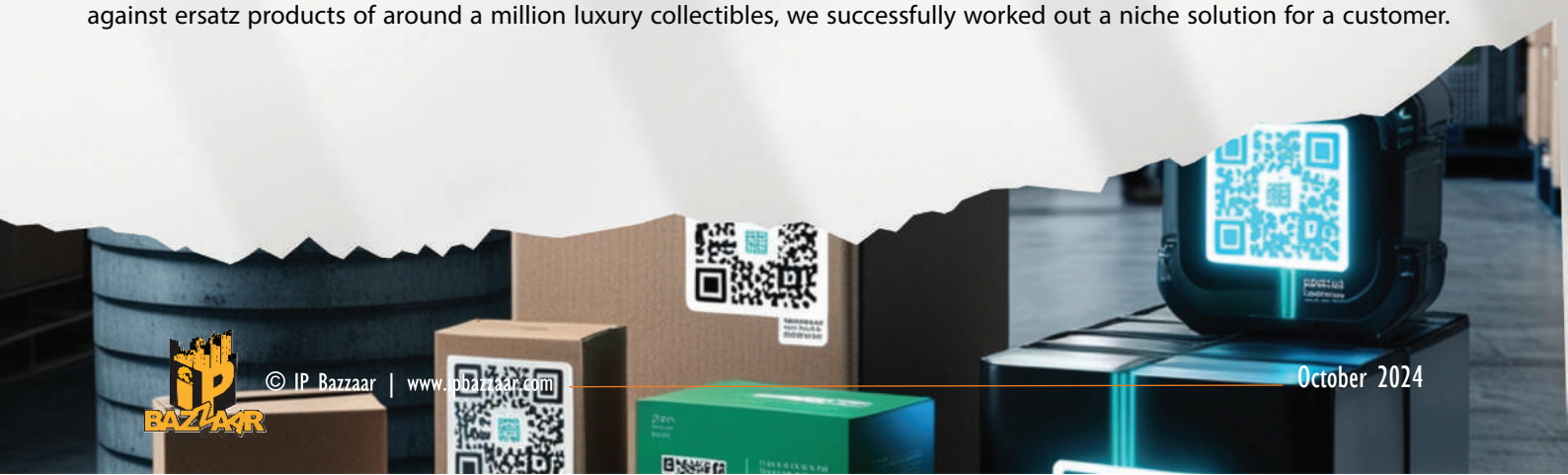
- Product authentication with a simple scan of 1D/2D barcodes
- Monitoring product movement across channels through Track & Trace Application
- Custom Reports, workflows, and feedback mechanisms

iValidator Track & Trace Web module

- Production-to-purchase tracking for better visibility & control across the supply chain
- Comprehensive Process Management (indenting, production, wastage, aggregation, product movement)
- Actionable intelligence from authentication activities by consumers
- Product promotion through loyalty schemes & feedback collection

MTL not only provides standard solutions for common counterfeiting problems like packaging replication, stock diversion, supply chain leakages etc., but also contrives customized solutions for use-case specific problems. Utilizing strong security printing services, MTL supports niche and special initiatives, ensuring that government services reach their intended benificiaries. MTL's solutions are particularly effective to ensure the credibility and safety of agro/ food products; protect cultural identity of traditional & geographical indicator-based products; and ensure that public distribution and subsidy services, as a part of niche & special initiatives, reach intended beneficiaries in a streamlined way.

Our rich experiences have gone a long way to bring-in an indomitable expertise in this domain. One of our solutions has secured 50+ billion products for a customer, and thereby ensured a year-on-year revenue growth of 20% in lieu of the revenue leakages earlier. To ensure safe consumption, we secured around 70 million products for an FMCG customer. 3+ million product tags given by us, have successfully secured the production and procurement inventories of one of our customers. 1+ million of our print tokens have helped one customer to boost their brand loyalty & partner management program. To fight against ersatz products of around a million luxury collectibles, we successfully worked out a niche solution for a customer.



ANTI COUNTERFEIT TECHNOLOGIES OVERVIEW

COUNTERFEIT ECONOMY

31%	Apparel INR 3,72,000 Cr	25%	Automobile Parts INR 1,50,00 Cr
20%	Pharmaceuticals INR 40,000 Cr	20%	Electronics INR 1,60,00 Cr
28%	FMCG INR 3,60,000 Cr	20%	Alcohol & Tobacco INR 70,000 Cr
20%	Footwear INR 30,000 Cr	30%	Cosmetics INR 24,000 Cr

*Disclaimer: All figures are approximate

**INR 1 Cr = 12 Million USD

Source: ASPA-CRISIL REPORT, 2022

COUNTRY STATUS

IN LAST 10 YEARS

CHINA	US	INDIA
PATENT FILED	PATENT FILED	PATENT FILED
31,189	3,417	946

INNOVATION STATUS

IN LAST 10 YEARS

PATENT FILED

36,912

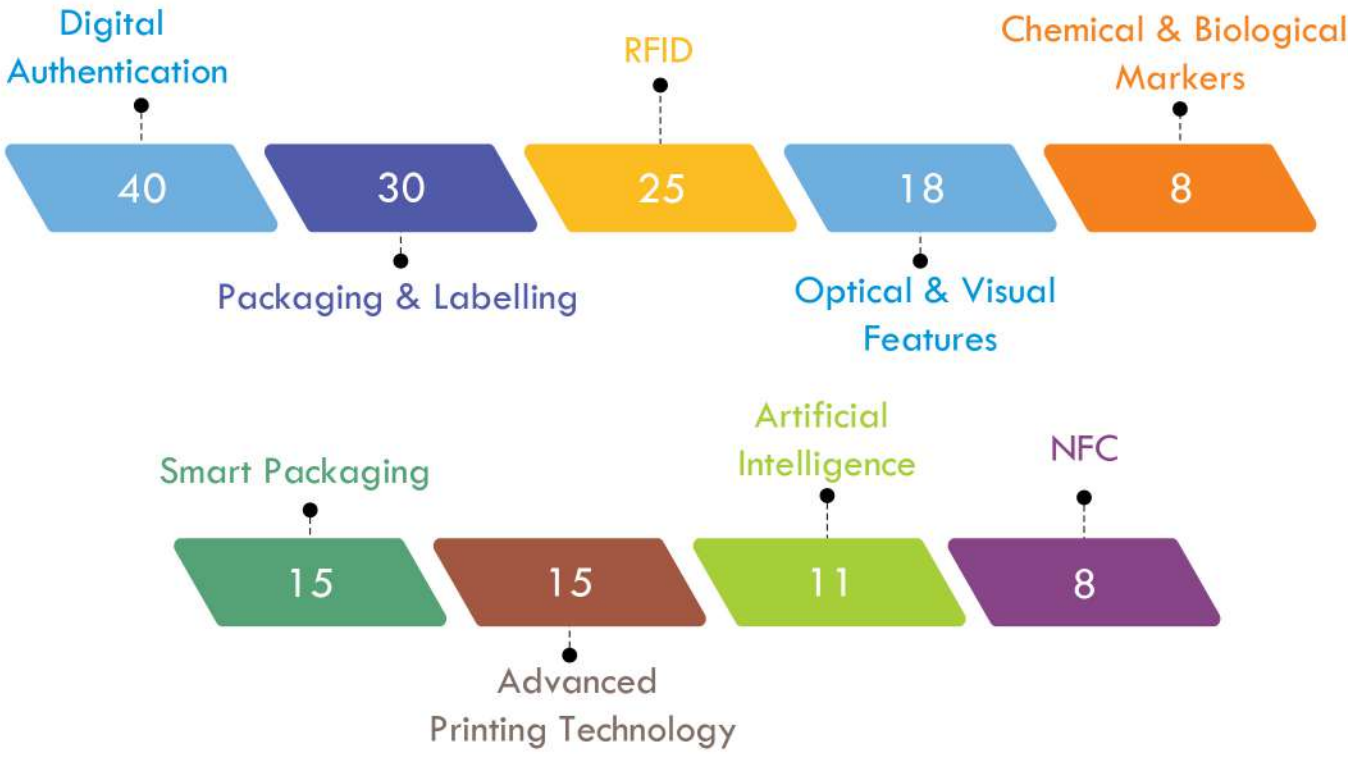
WORLDWIDE

PATENT FILED

196

INDIAN

Anti Counterfeit Domain Statistics: India



COMPANY STATUS

IN LAST 10 YEARS (INDIA)

PATENT FILED	PATENT FILED	PATENT FILED
98	31	22
SICPA	DE LA RUE	CCL

PATENT FILED	PATENT FILED	PATENT FILED
20	17	14
CRANE	OBERTHUR	MANIPAL

ACADEMIA STATUS

IN LAST 10 YEARS (INDIA)

PATENT FILED	PATENT FILED	PATENT FILED	PATENT FILED
8	14	5	2
CSIR	IITs	NIT	KERALA

PATENT FILED	PATENT FILED	PATENT FILED	PATENT FILED
2	6	4	4
CHITKARA	REVA	AMITY	MAHARISHI

PATENT FILED
2
SHARDA

ANTI-COUNTERFEITING TOOLS AND TECHNOLOGIES

Counterfeiting is a significant global issue that poses serious challenges across various industries, including pharmaceuticals, luxury goods, electronics, and consumer products. Anti-counterfeiting tools and technologies play a crucial role in safeguarding products, brands, and consumers from the growing threat of counterfeit goods. As counterfeit operations become increasingly sophisticated, the technologies used to combat them have also evolved, covering a wide spectrum of strategies ranging from physical to digital solutions.

One of the fundamental approaches is **holographic technology,** which involves embedding unique holographic images on product packaging or labels, making replication difficult. Similarly, **watermarks and UV inks** offer another layer of security, as they are invisible under normal lighting conditions and only reveal themselves under UV light, thereby allowing quick verification of authenticity. These physical technologies have long been a staple in anti-counterfeiting efforts, especially in industries such as currency, pharmaceuticals, and luxury goods.

In recent years, **RFID (Radio Frequency Identification) and NFC (Near Field Communication)** technologies have gained popularity. These tools embed a microchip into the product or its packaging, which can be scanned using dedicated readers or even smartphones to confirm authenticity. Such technologies not only ensure product security but also offer supply chain tracking, helping companies monitor the movement of their products from manufacturing to the end-user.

Block chain technology has emerged as a cutting-edge solution in anti-counterfeiting due to its decentralized and tamper-proof nature. By leveraging block chain, each transaction or transfer of a product is recorded in an immutable ledger, providing end-to-end traceability and ensuring that counterfeit products cannot be inserted into the supply chain. This technology is particularly promising for high-value industries like luxury goods, pharmaceuticals, and electronics, where product integrity is critical.

Digital watermarks and **QR codes** represent another effective technology in the fight against counterfeiting. Digital watermarks, which can be embedded into a product's packaging, are difficult to detect and replicate without specialized tools, while QR codes allow consumers to verify a product's authenticity using their smartphones, offering a user-friendly verification process.

In the domain of overt and covert markers, **micro text, micro printing,** and **security threads** are often employed. These technologies, visible under magnification or only to authorized personnel, make it difficult for counterfeiters to replicate genuine products without specialized knowledge or equipment.

Biometric markers and forensic markers are advanced technologies that introduce unique, unalterable identifiers into the product itself. Biometric markers, for example, can be DNA-based and are integrated into packaging or the product, providing a level of authenticity that is nearly impossible to duplicate. Forensic markers often involve chemical tracers or invisible inks that can be verified only through laboratory testing.

Finally, **AI-based image recognition and machine learning** play an increasingly prominent role in anti-counterfeiting strategies. These technologies use advanced algorithms to detect counterfeit products by analyzing images, patterns, or discrepancies that might be missed by the human eye. AI-driven solutions are highly adaptable and can process vast amounts of data, making them ideal for large-scale anti-counterfeiting operations across diverse industries. In conclusion, the landscape of anti-counterfeiting tools and technologies is both diverse and rapidly evolving. From traditional methods like holography and UV inks to advanced solutions such as block chain, AI, and biometric markers, each technology serves a unique role in protecting products and consumers from counterfeit threats.

PACKAGING AND LABELING TECHNOLOGIES

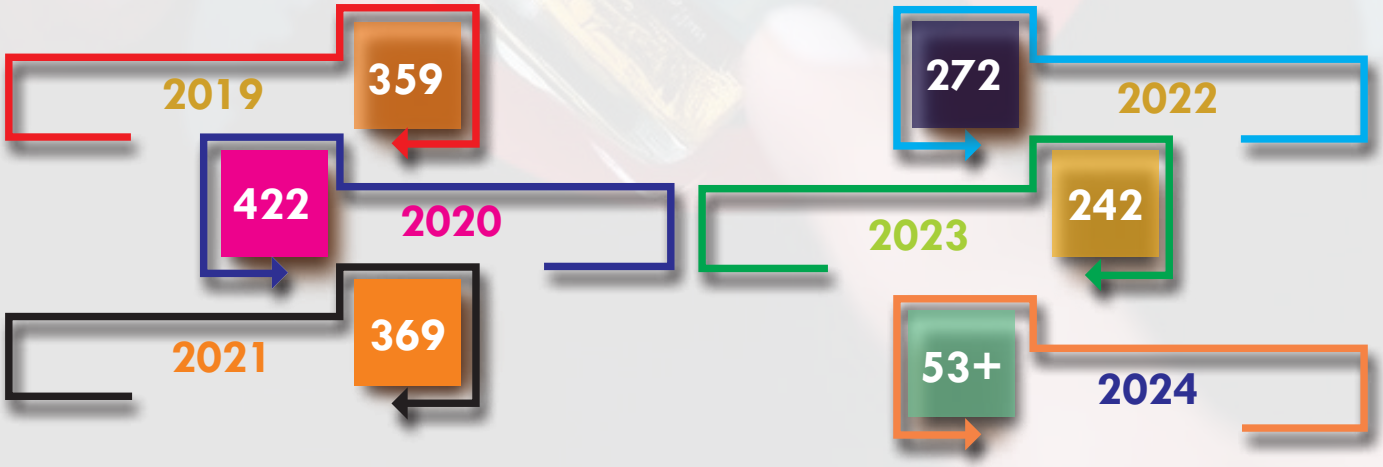
Tamper-Evident Packaging is a key anti-counterfeiting measure designed to show clear signs of tampering, ensuring product integrity from production to purchase. This technology builds consumers trust, as any unauthorized access become immediately apparent. **Security Inks** offer another layer of protection incorporating features like color-shifting or UV-reactive properties that are difficult to replicate, enhancing packaging authenticity.

Holographic Labels provide a highly visible and complex design that's challenging for counterfeiters to duplicate.

These 3D images are not only act as a deterrent but also enable quick verification by consumers and retailers. **Invisible Watermarks** are embedded into packaging designs and are only visible under certain conditions, such as UV light. This covert feature adds a hidden layer of authentications, making counterfeiting detection more robust.

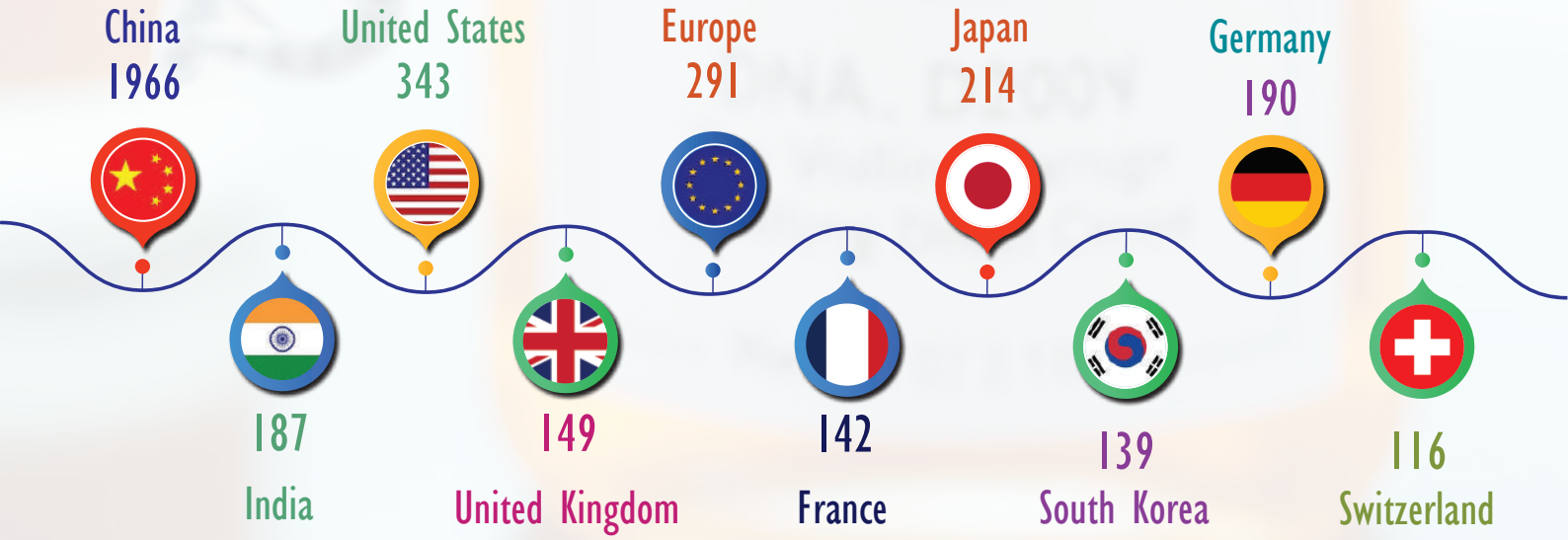
PATENT STATISTICS

WORLDWIDE PATENT FILING TIME-LINE



TOP APPLICANTS

PATENT LANDSCAPE



NOTABLE INNOVATION

Patent Application	Priority Date	Title	Assignee
US20230409844	26 November 2020	Method for Labelling Products with an Optical Security Feature with a Temporal Dimension	Fraunhofer
WO2019170090	05 March 2019	Anti-counterfeit Label and Anti-counterfeit Label Verification Method	Yang Shouping
KR102461312	06 April 2018	Hologram Label for Anti-Counterfeit Comprising Magnetic Color-Changeable Pigments	Nano Brick
US11281954	22 September 2017	Tamper-activated Authenticable Security Device	Authentic Vision
GB2529374	08 May 2015	Anti-Counterfeit Packaging	Smurfit Kappa UK Ltd.

Date Range: 01/01/2019 to 24/09/2024
Database: Questel Orbit

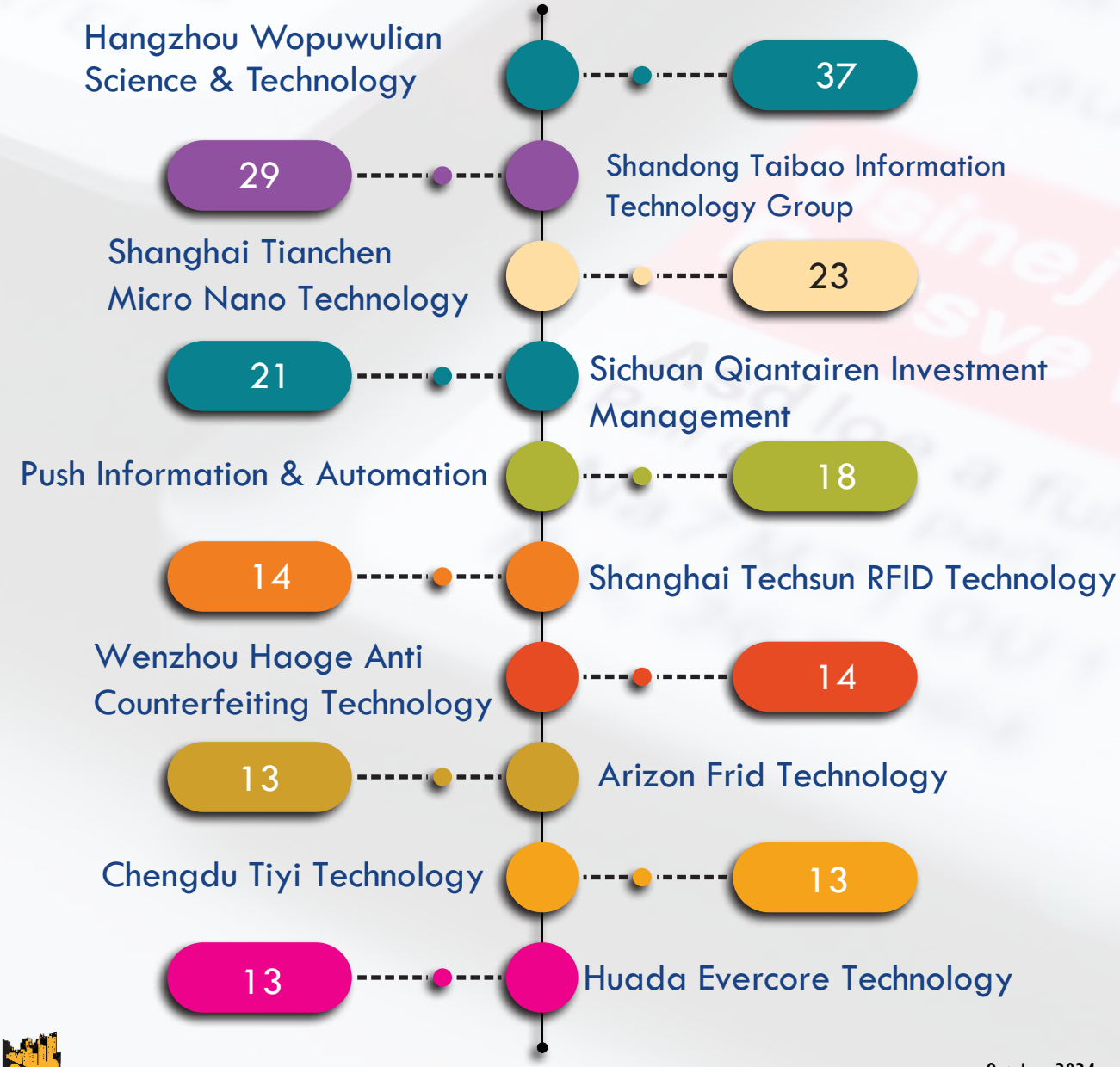
RFID AND NFC TECHNOLOGIES

RFID (Radio Frequency Identification) and NFC (Near Field Communication) are widely used technologies in anti-counterfeiting ,offering efficient solutions for product authentication and supply chain transparency. RFID uses electromagnetic fields to identify and track products over a distance, making it ideal for real-time monitoring across industries like pharmaceuticals, electronics and retail.

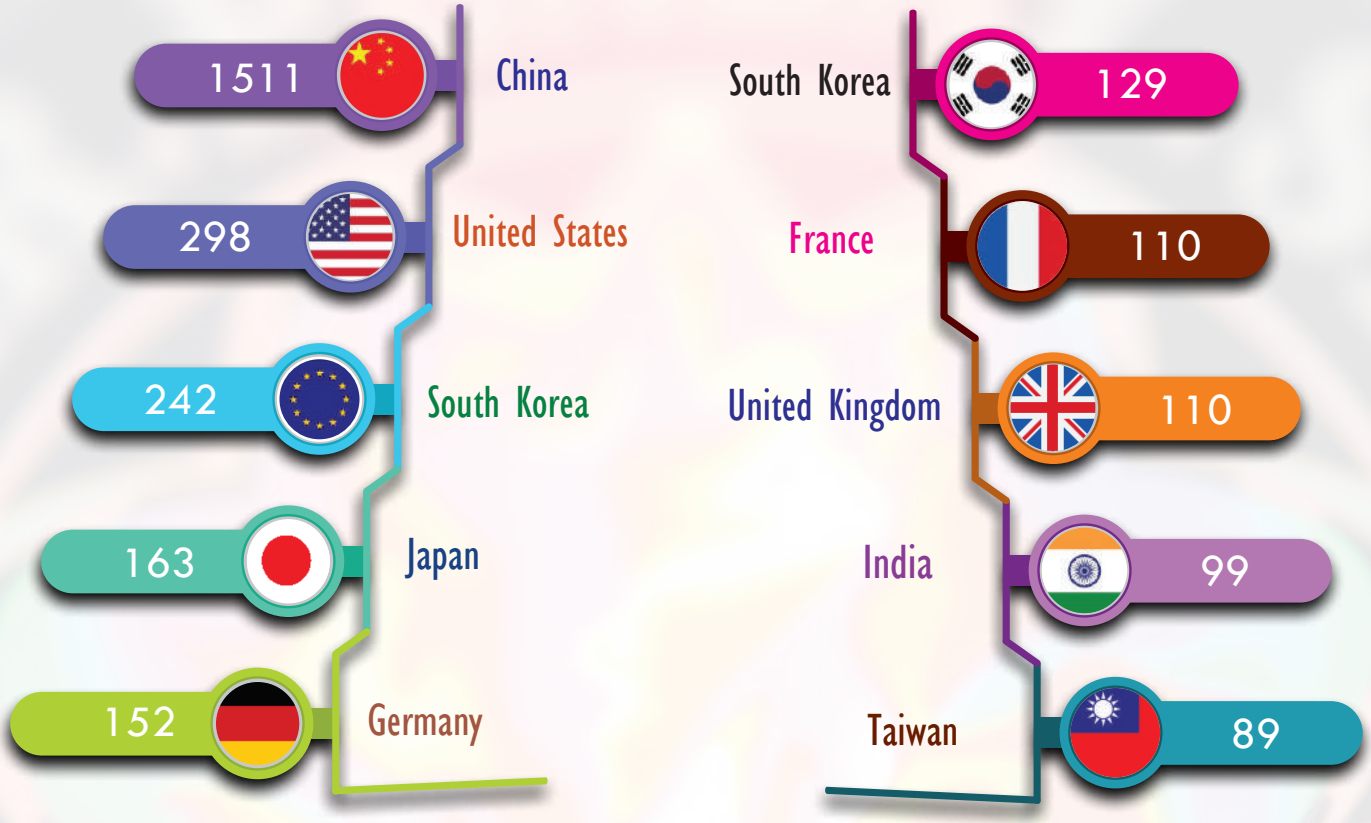
It provides robust protection against counterfeiting by ensuring traceability. NFC, a subset of RFID with a shorter range, allows consumers to verify product authenticity using smartphones, making it popular in luxury goods and fashion. Both technologies enhance security, supply chain efficiency, and consumer engagement, making them vital in preventing counterfeit activities.

RFID PATENT STATISTICS

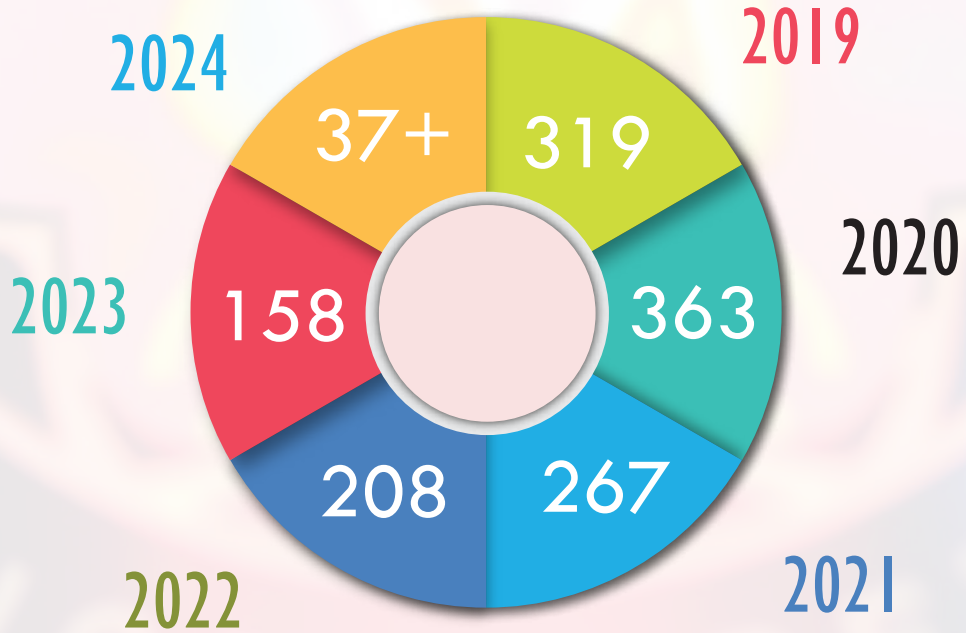
TOP APPLICANTS



PATENT LANDSCAPE



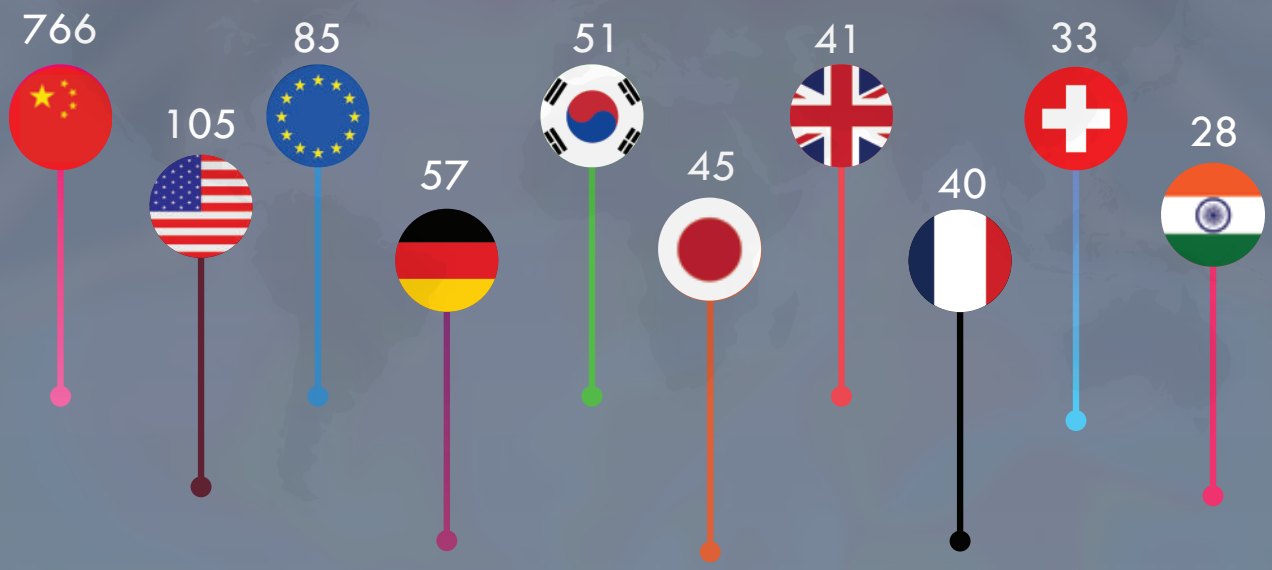
WORLDWIDE PATENT FILING TIME-LINE



NFC PATENT STATISTICS

TOP APPLICANTS

PATENT LANDSCAPE



WORLDWIDE PATENT FILING TIME-LINE

NOTABLE INNOVATION

Patent Application	Priority Date	Title	Assignee
CN219905321	10 March 2023	Tea Leaf Metal Inner Film Packaging Bag with NFC (Near Field Communication) or RFID (Radio Frequency Identification Device) Chip	Fuzhou Chamanduo Electronic Commerce
CN215376355	28 July 2021	RFID Electronic Tag with Efficient Anti-counterfeiting Function	Zheng Liwei
CN210836203	06 December 2019	Tracing Anti-counterfeiting Application System based on Block chain, RFID and NFC	Zheng Liwei
US11790191	11 September 2019	Multipurpose RFID Transponder and a System for Reading it	Radicalid
US11334688	22 July 2019	RFID Information Processing	Advanced New Technologies

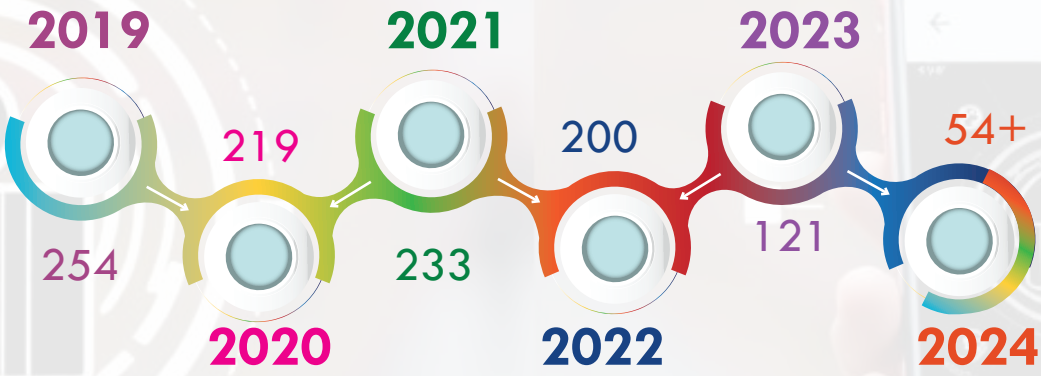
Date Range: 01/01/2019 to 24/09/2024
Database: Questel Orbit

DIGITAL AUTHENTICATION

Digital Authentication, QR Codes and Barcodes are widely used anti-counterfeiting tools that enable easy and instant product verification. By scanning a QR code or barcode with a smartphone or scanner, consumers and retailers can access crucial product information such as origin, manufacturing details, and distribution history. These tools are cost-effective and adaptable, making them effective for tracking products across industries like retail, pharmaceuticals, and fashion. **Block Chain-Based Track and Trace** offers a more advanced solution by using a decentralized ledger to create an unchangeable record of a product's entire journey. This technology ensures transparency, security, authenticity, as each transaction is recorded in real-time, making tampering or counterfeiting extremely difficult. It's increasingly valuable in sectors such as luxury goods, electronics and pharmaceuticals, where supply chain integrity is crucial.

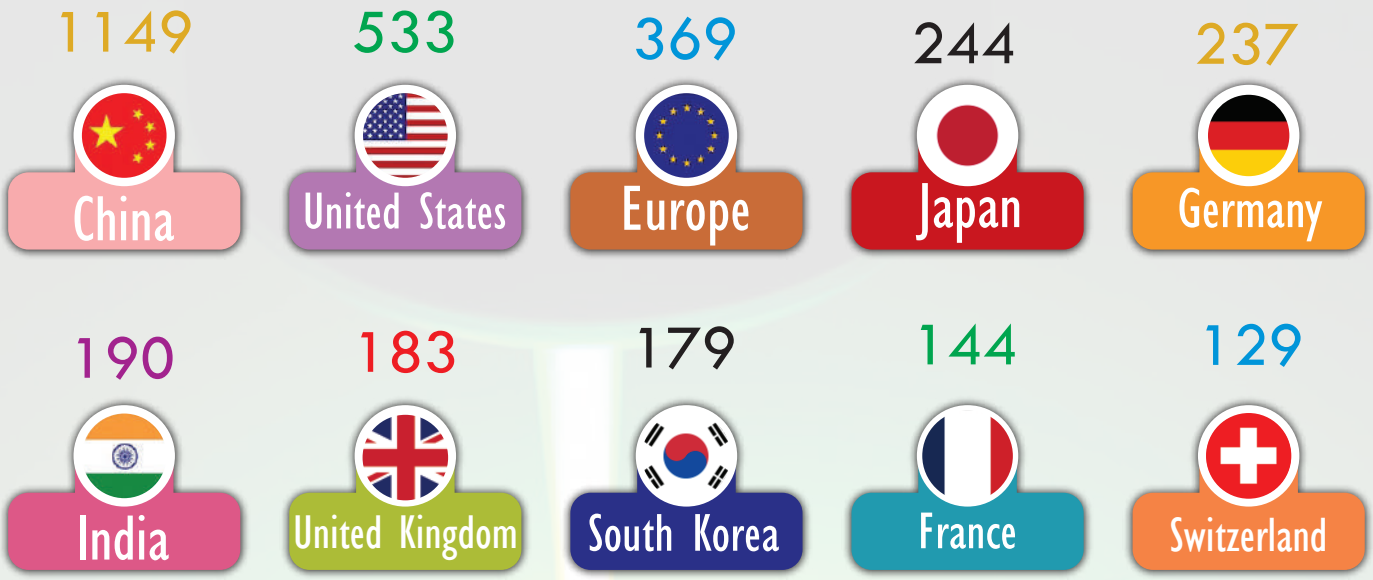
PATENT STATISTICS

WORLDWIDE PATENT FILING TIME-LINE



TOP APPLICANTS

PATENT LANDSCAPE



NOTABLE INNOVATION

Patent Application	Priority Date	Title	Assignee
CN117892275	16 January 2024	Digital Identity Anti-counterfeiting Verification Method and System based on Block chain	Lingshu Technology
DE102023115206	06 October 2022	System for Providing Services for the Authentication of Watches using the QR code	Bo Young Ryu Ryu Bo Young Ryu Su Eun
KR102415026	28 February 2020	System for Transaction a Deposit and withdrawal Based a block chain	Smartcoop
US11803722	01 July 2019	Multiplexed Luminescent QR codes for Smart Labelling for Measuring Physical Parameters and Real-time Traceability and Authentication	Universidade De Aveiro
CN110648141	07 June 2018	Intelligent Dynamic Electronic Anti-counterfeiting Method and Anti-counterfeiting System thereof	Xu Shigang

Date Range: 01/01/2019 to 24/09/2024
Database: Questel Orbit

OPTICAL AND VISUAL FEATURES

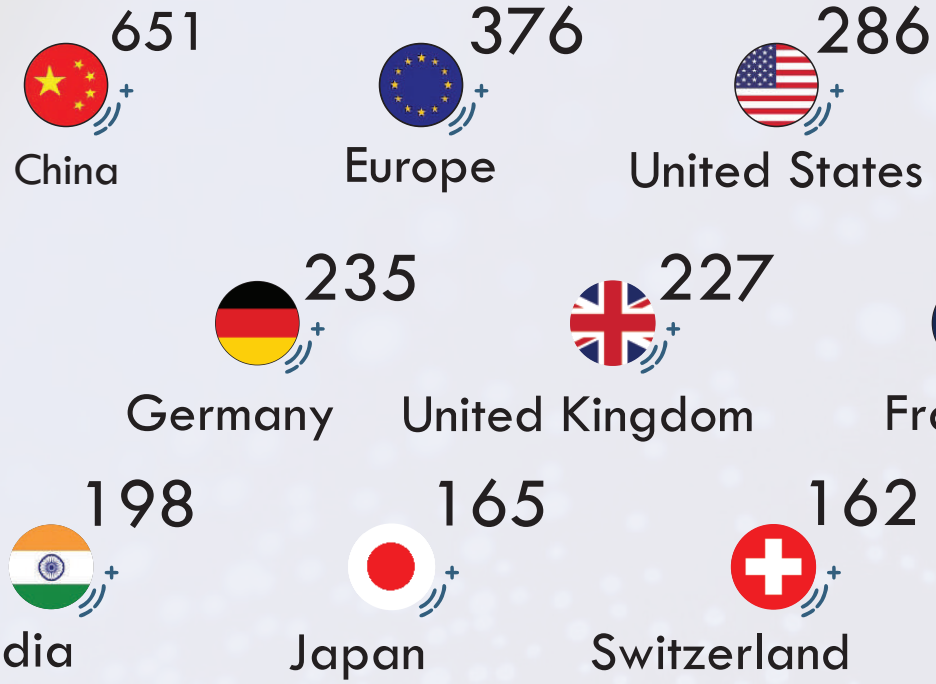
Micro printing involves printing tiny text or patterns that are nearly invisible to the naked eye but become clear under magnification, making it difficult for counterfeiters to replicate accurately. This subtle feature provides an extra layer of security. **Security Threads** are embedded strips or fibres within packaging or labels, often featuring text or patterns. They are typically visible under certain lighting conditions and add a physical authentication element, making duplication challenging. **Color-Shifting** Inks change color when viewed from different angles, providing a dynamic and easily recognizable anti-counterfeiting feature. This unique optical effect is difficult to mimic, offering an effective way to authenticity quickly.

PATENT STATISTICS

WORLDWIDE PATENT FILING TIME-LINE

TOP APPLICANTS

PATENT LANDSCAPE



NOTABLE INNOVATION

Patent Application	Priority Date	Title	Assignee
CN215450199	08 June 2021	Stamp Anti-Counterfeit Label and System	Junli Science & Technology Research Institute Nanjing
CN113255658	31 December 2020	Medium Authentication Method and Device, Electronic Equipment and Storage Medium	Nanjing Yihua Information Technology
EP4168254	20 June 2020	Graphene based Security Thread, Methods of Manufacturing the same and Application thereof	Patel Shilpan Pravinchandra
CN209803840	18 June 2019	Anti-counterfeit Label	Song Lihua
WO2020152505	25 January 2019	Preparation of Novel Security Threads and its Application for Anti-counterfeiting process	Unity Pulp & Papers Private

Date Range: 01/01/2019 to 24/09/2024
Database: Questel Orbit

CHEMICAL AND BIOLOGICAL MARKERS

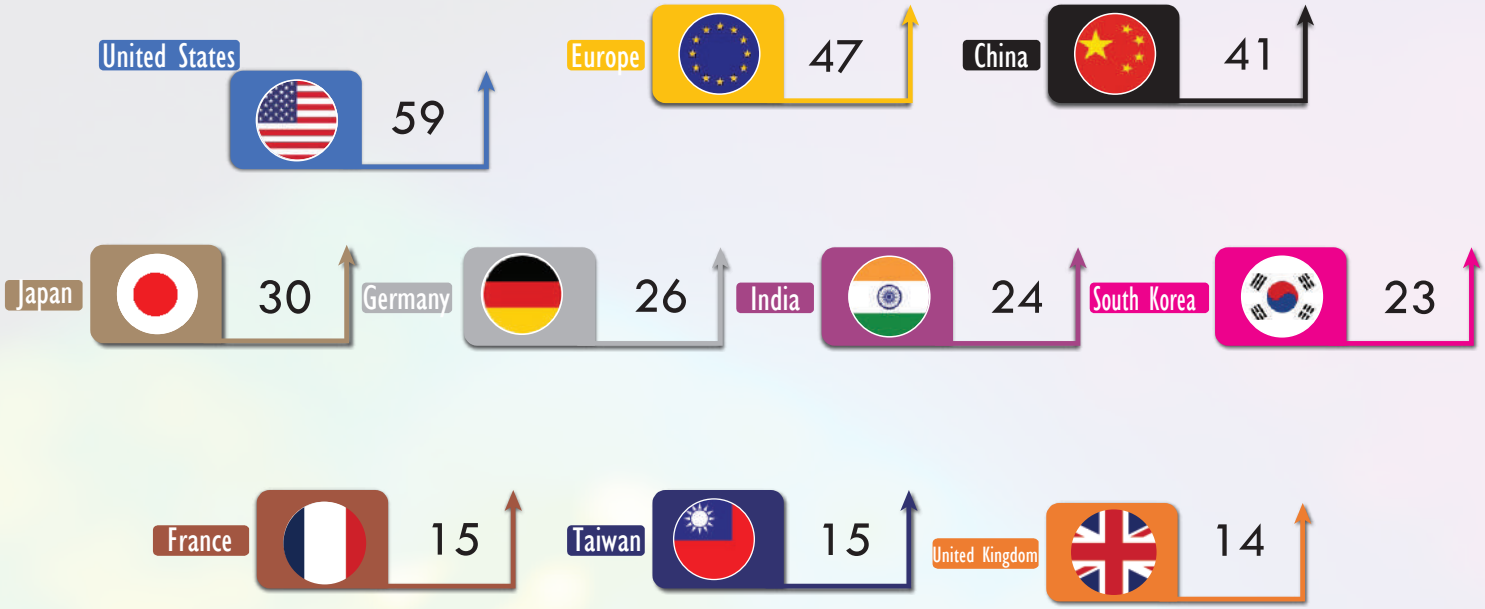
DNA Tagging uses unique DNA Sequences applied to products or packaging, providing a highly secure method for verifying authenticity. These DNA markers are highly complex and difficult to replicate, offering a strong defence against counterfeiting. The tagged DNA can be authenticated using specialized readers or chemical processes, ensuring the product's authenticity at molecular level. **Isotopic analysis** involves examining the isotopic composition of a product's material top verify its origin and authenticity. Each region or manufacturing process has distinct isotopic signatures, making it possible to detect counterfeits by analyzing these ratios. This method is highly effective in identifying discrepancies, as counterfeiters find it challenging to replicate exact isotopic patterns.

PATENT STATISTICS

TOP APPLICANTS

WORLDWIDE PATENT FILING TIME-LINE

PATENT LANDSCAPE



NOTABLE INNOVATION

Patent Application	Priority Date	Title	Assignee
US20220343271	26 April 2022	Systems and Methods for Chemical and Biological Authentication	Salvus
US20230313276	29 March 2022	Authentication Assay using embedded Deoxyribonucleic acid Taggants	Microsoft Technology Licensing
US20200071774	30 August 2019	Systems and Methods for Securing Anti-Tamper Label and Tape Adhesive Chemistry with Molecular Taggants	Invisidex
US20200040394	01 August 2019	Systems and Methods for Unifying Assemblies that Share Common Taggant Identifier Data	Invisidex
US11345963	07 May 2018	Nucleic acid Taggants	Ebay

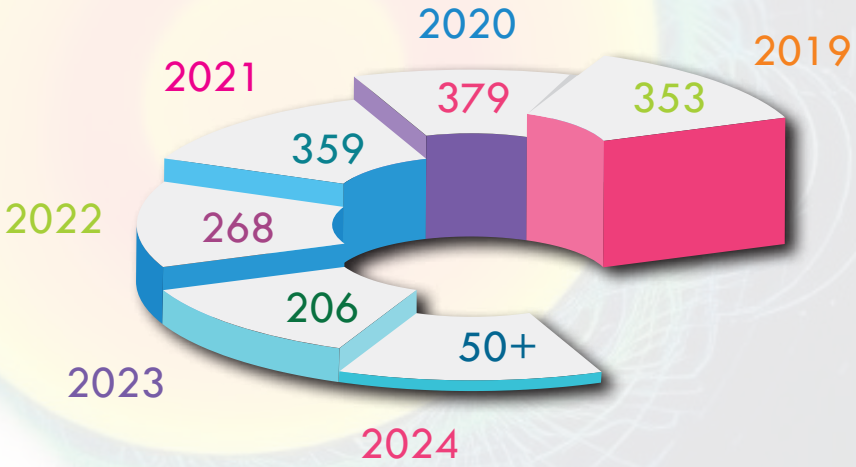
Date Range: 01/01/2019 to 24/09/2024
Database: Questel Orbit

ADVANCED PRINTING TECHNOLOGIES

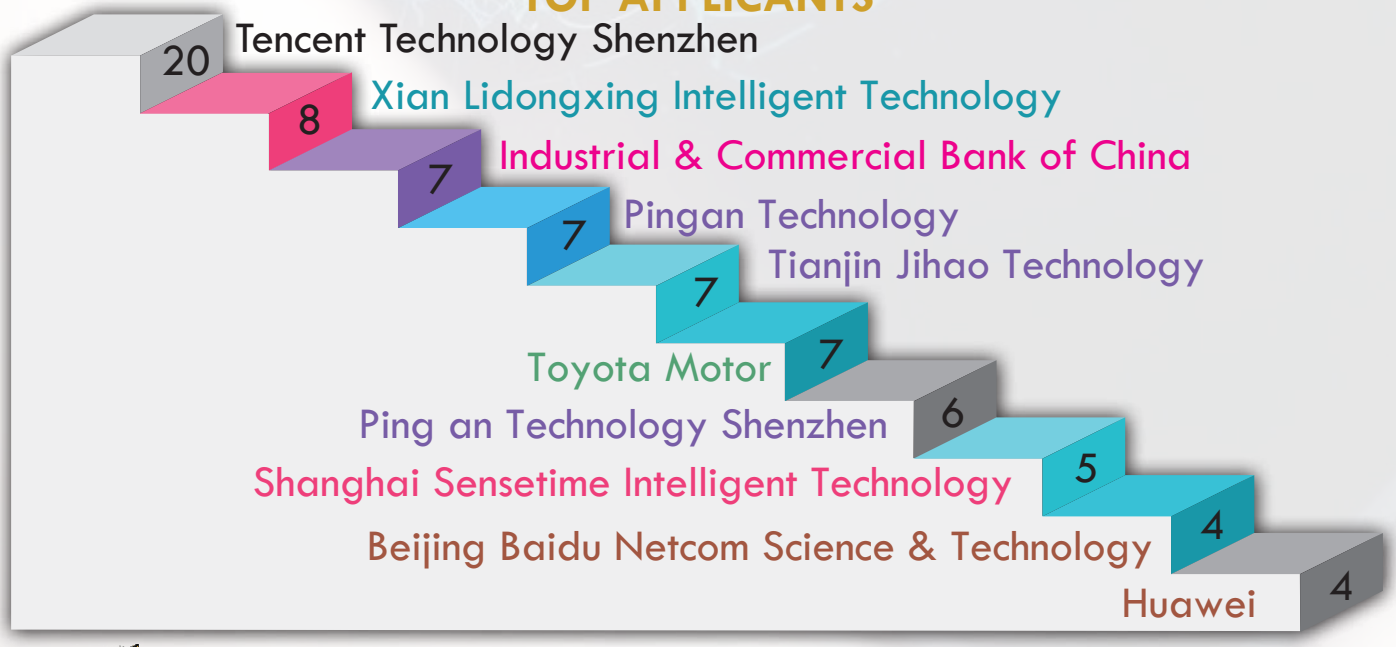
Advanced printing technology is expanding rapidly, with **laser marking** and nanotechnology establishing a standard in anti-counterfeiting solutions. A light beam is used in the precise and permanent process of laser marking to engrave identification details, such as logos, barcodes, and serial numbers, onto a variety of surfaces. When combined with nanotechnology, this technique gains an additional layer of security. **Nanoparticles** are embedded into inks and coatings, creating markings that are invisible to the naked eye but can be detected when illuminated with UV-light. This integration not only makes counterfeiting extremely difficult but also enables easy traceability of products throughout the supply chain. From pharmaceutical to luxury goods, laser marking and nanotechnology offers unmatched protection, ensuring authenticity and safeguarding brands against forgery. Furthermore, these advanced markings can carry encrypted data, adding another layer of protection. As counterfeit threats evolve, this technology offers a future-proof solution for global markets.

PATENT STATISTICS

WORLDWIDE PATENT FILING TIME-LINE



TOP APPLICANTS



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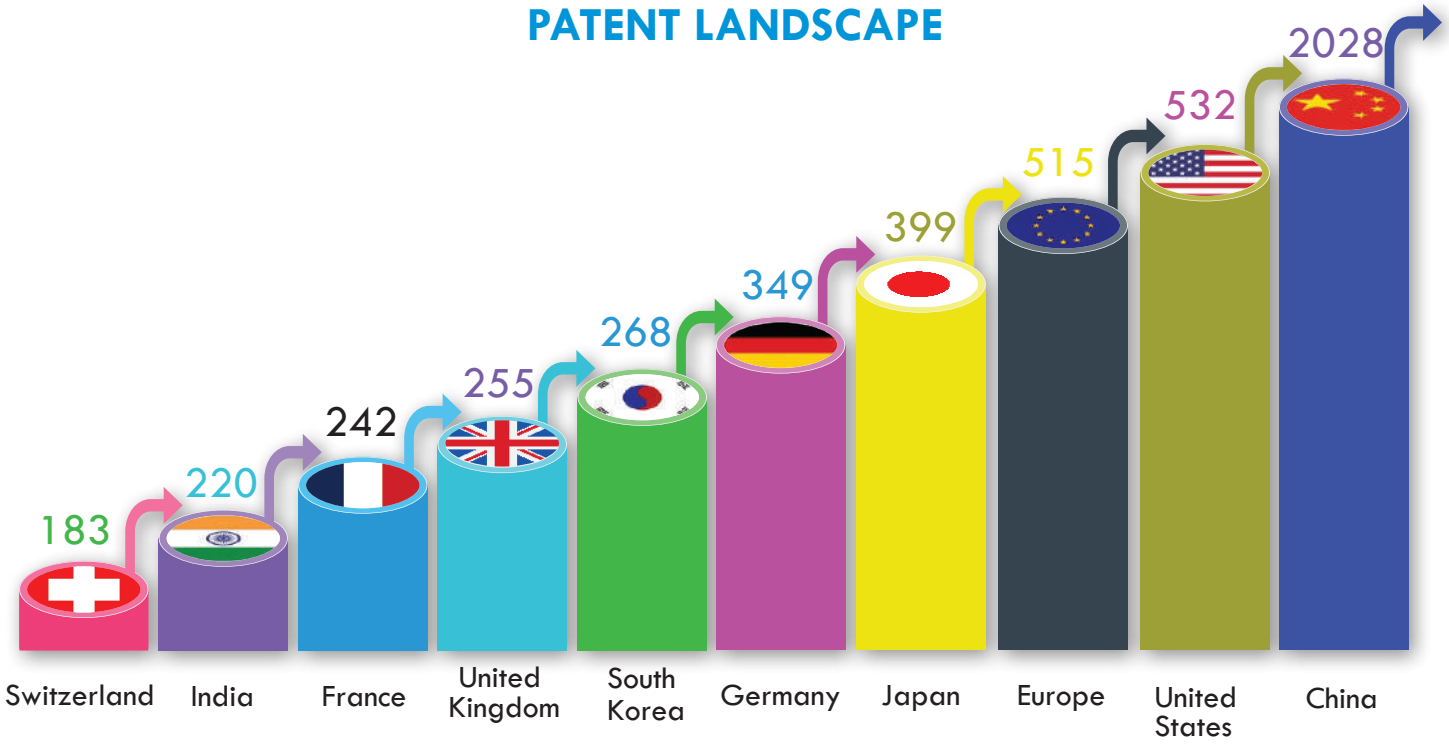


NOTABLE INNOVATION

Patent Application	Priority Date	Title	Assignee
CN117863756	Jan 16, 2024	Patterning Encryption Method combining Room Temperature Phosphorescence and Ultraviolet Laser Marking and Anti-counterfeit Label	Guangdong University of Technology Jieyang Sub Center Chemie & Fine Chemical Guangdong Province Laboratory
CN114298251	Dec 27, 2021	Anti-counterfeiting Image Printing Method and Device and related Equipment	Aisino
CN112133185	Sep 22, 2020	Laser-engravable Label	Siai Product Logo Suzhou
KR1020220010238	Jul 17, 2020	Laser Label with Laser Marking Layer Blocked from External Interference	Tootech
US11891527	May 15, 2018	Machine Readable Security Features	Sicpa Holding Sa

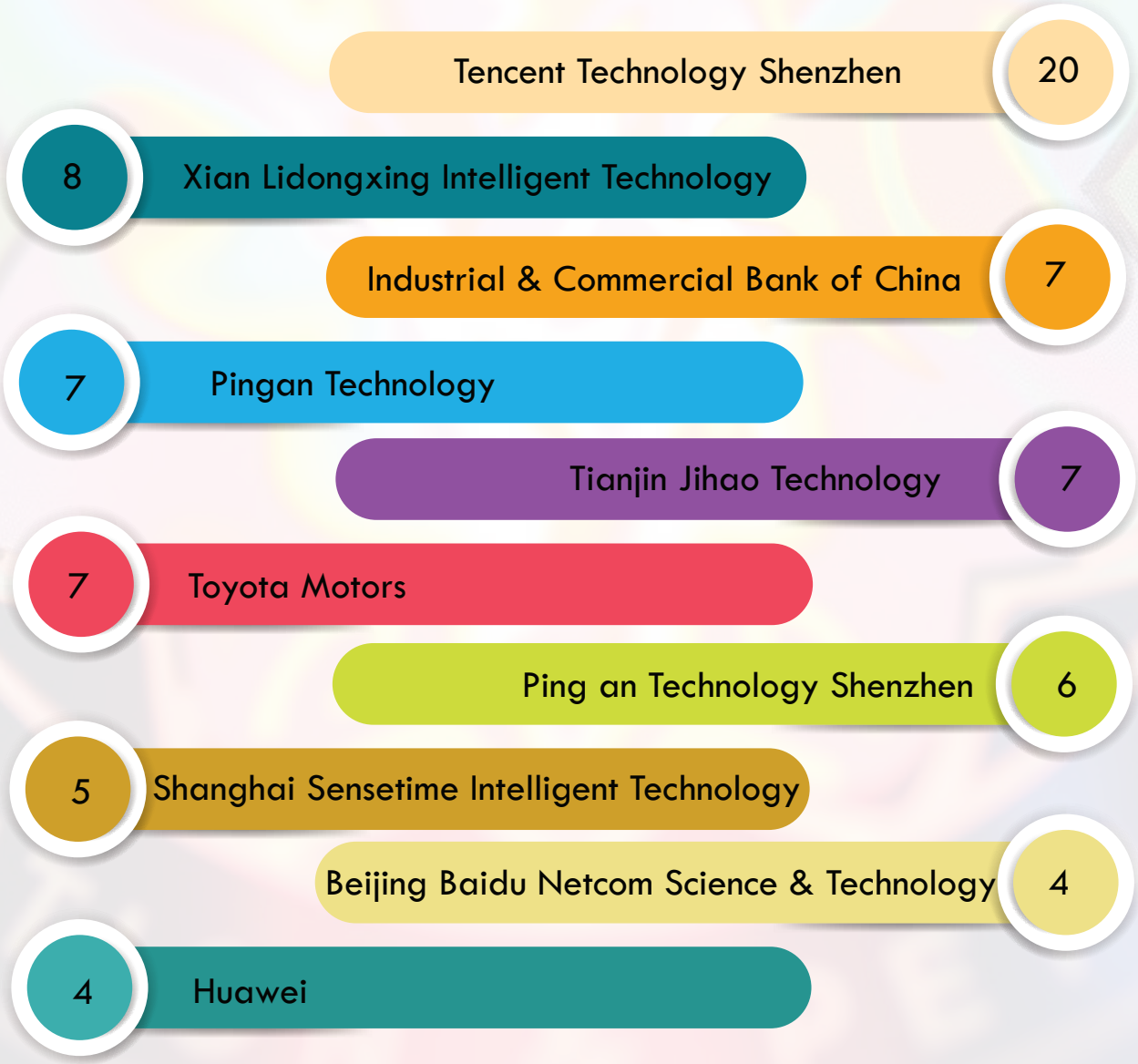
Database: Questel Orbit

Date Range: 01/01/2019 to 24/09/2024

ARTIFICIAL INTELLIGENCE (AI)

AI-Powered Image Recognition utilizes advanced algorithms to identify counterfeit products by comparing product images, packaging and labels with genuine counterparts. This technology can detect subtle differences such as variations in logos, fonts, or design elements, which are often missed by the human eye. It offers a highly effective way to identify fakes in real time, ensuring authenticity across supply chains. Pattern Detection in Consumer Behavior leverages AI to monitor purchasing trends, detect anomalies, and flag suspicious activities that may indicate the presence of counterfeit goods. By analysing vast amounts of consumer data, AI can identify patterns linked to counterfeiting, such as unusual buying spikes or atypical purchasing locations, enabling businesses to respond quickly to potential threats and maintain product integrity.

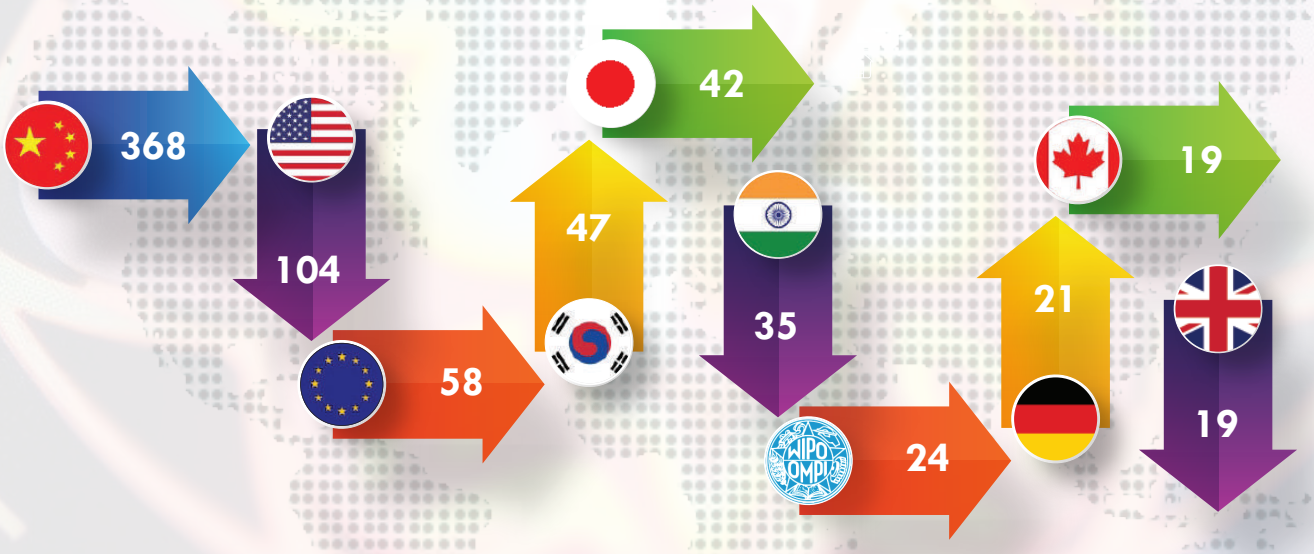
TOP APPLICANTS



PATENT STATISTICS

WORLDWIDE PATENT FILING TIME-LINE

PATENT LANDSCAPE



Date Range: 01/01/2019 to 24/09/2024
Database: Questel Orbit

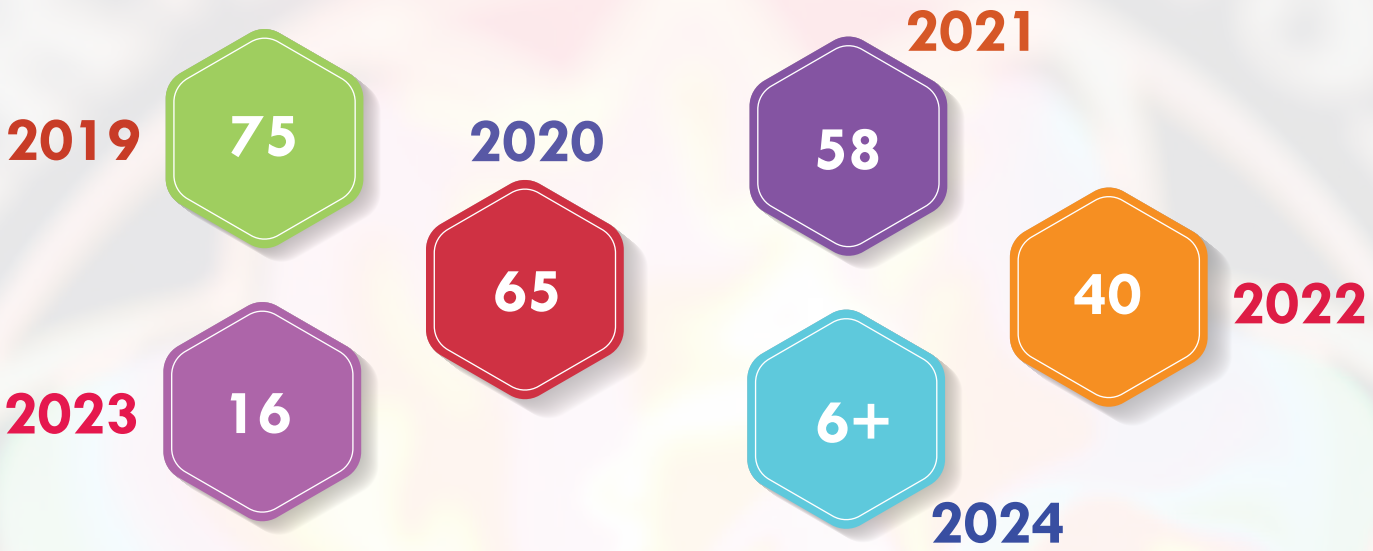
SMART PACKAGING (IOT)

Embedded Sensors in smart packaging use IoT technology to monitor and communicate real-time data about a product's condition, such as temperature, humidity or tampering, throughout its supply chain journey. These sensors can alert stakeholders if the product is compromised, ensuring quality and authenticity. They offer enhanced visibility, making it easier to track the product's status and detect potential counterfeit attempts. Connected Packaging integrated with smartphones and other smart devices through QR codes, NFC tags, or RFID chips, providing consumers with instant access to product information, authenticity checks, and usage instructions. This technology not only strengthens anti-counterfeiting efforts but also improves consumer engagement and trust.

TOP APPLICANTS

PATENT STATISTICS

WORLDWIDE PATENT FILING TIME-LINE



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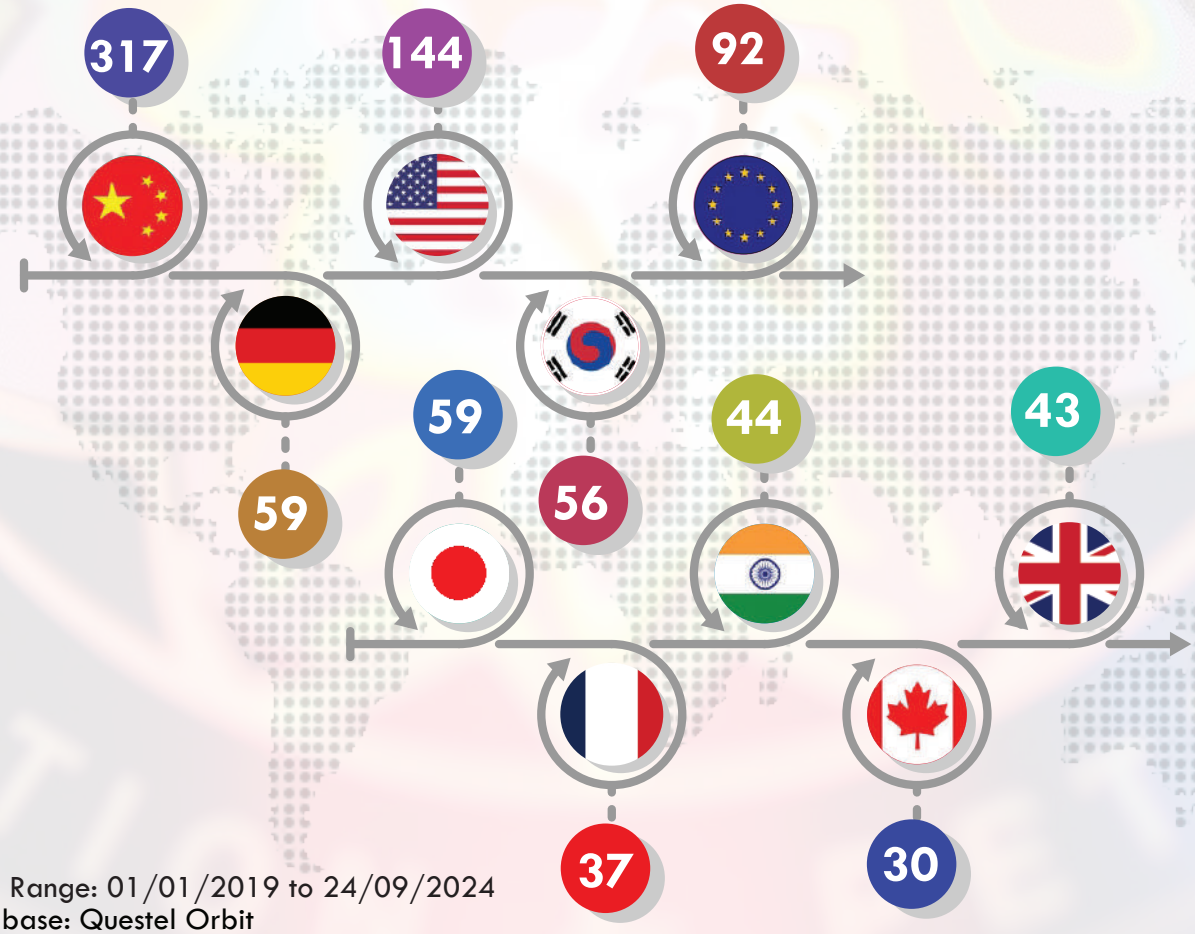


Date Range: 01/01/2019 to 24/09/2024
Database: Questel Orbit

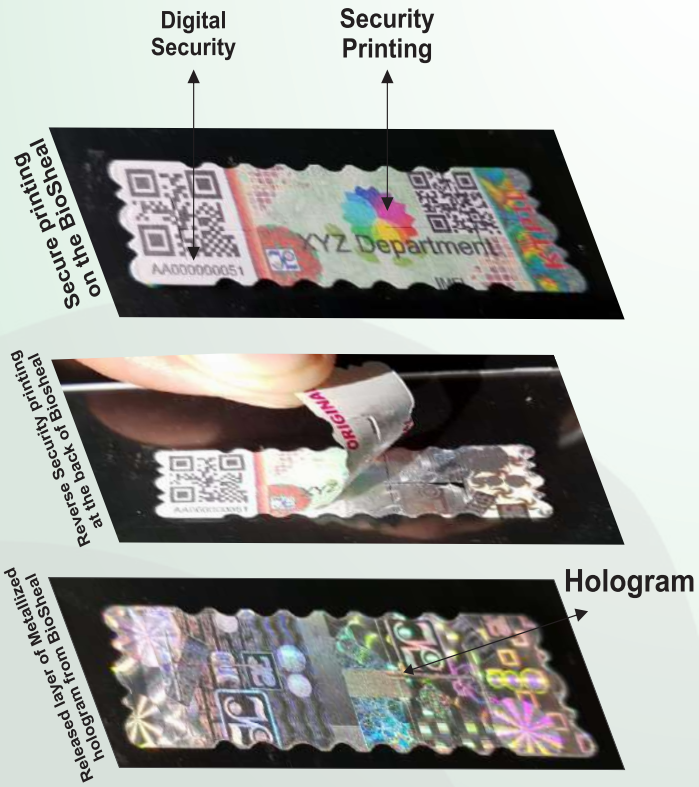
TRACK PACK INNOVATION LLP

Leading the Fight Against Counterfeiting with Sustainable Authentication and Traceability Solutions

At Track Pack, we are reshaping the fight against counterfeiting by blending cutting-edge technology with environmental sustainability. Driven by a third-generation entrepreneur, we lead the way with eco-friendly, biodegradable products and solutions that address today's environmental challenges while protecting vital industries.

Our advanced authentication and traceability patented technologies protect governmental revenues and bolster public and private sector security. By embedding sustainability at the core of our innovation, we are creating products that combat counterfeiting and support a greener, more sustainable future.

Join us in driving a future where innovation and sustainability go hand in hand.

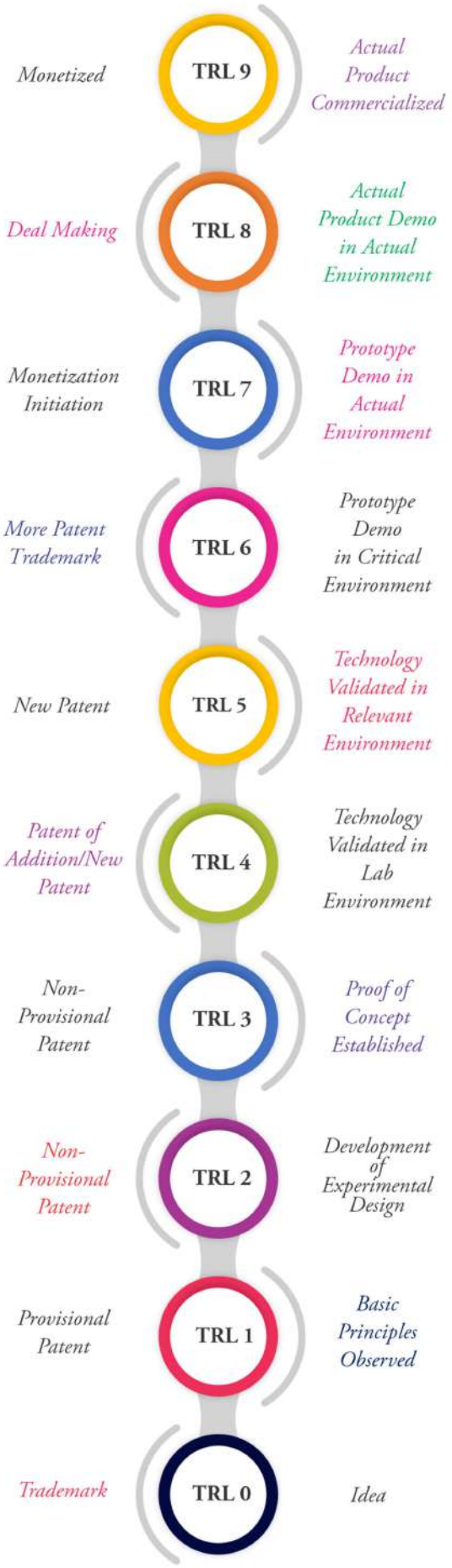


98103 36197 info@tpinnovation.in www.tpinnovation.in

TECH ZONE

TECHNOLOGIES AVAILABLE FOR LICENSING

Monetization Process



ANTI-COUNTERFEITING INK SOLUTION

Tech Intro

The technology introduces a fluorescent film and spreadable ink designed for security applications. It uses a base material incorporated into a stable polymer matrix like polypropylene. The ink and film are highly fluorescent under UV light but remain transparent in daylight, making them effective for anti-counterfeiting purposes. The film can be applied as luminescent tags on products without altering its properties.

Problems Addressed

- Complex Synthesis Process
- Limited Fluorescence Visibility
- Multi-step Production
- Narrow UV Range
- Non-reusable Materials
- High Temperature Requirement

Target Audience

- Security Printing Industry
- Anti-counterfeiting Sector
- Currency Authentication Sector
- Luxury Goods Industry
- Brand Protection Industry
- Forensics Sector

Tech Features

Enhanced Fluorescent Properties

Easily Spreadable Material

Visible under UV Light Only

No Alteration in Ink Properties

Single-step Preparation

Reusable Materials

Direct Luminescent Coating

Stable Polymer Matrix

TECH STATUS

Licensed to a manufacturing company

IP STATUS

Granted in India

+91-9811367838

+91-11- 40366109

tech@ipbazzaar.com

ANTI-THEFT DEVICE FOR COMPUTER ACCESSORIES

Tech Intro

This invention presents an affordable device to prevent theft of computer accessories like mouse and keyboards.

IP STATUS
Granted in India

TECH STATUS
Technology Validated

AVAILABLE FOR
Available for exclusive and non-exclusive license

TRL
5

Problems Addressed

- Theft of accessories
- High System costs
- Complexity of operation
- Required Specialized expertise
- Lack of warning mechanism
- Limited accessibility

Target Audience

- Computer accessory manufacturers
- Office supply retailers
- Educational technology providers
- Facilities management companies
- Security technology firms

Tech Features

Theft Prevention

Monitors connected devices

Activates alarm on disconnection

Illuminates Led indicators

Provides relay alerts

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Reusable Passive RFID Sensor for Structural Health Monitoring

Tech Intro

The technology introduces a Reusable Passive RFID Sensor System for Monitoring Structural Health. It describes RFID tags with meander dipole antennas and adhesive bonding for detecting deformation in components, providing cost-effective, real-time monitoring solutions across various industries.

Problems Addressed

- Complex and Expensive
- One-time Use Sensors
- Need Frequent Adjustments
- Labor-intensive Work

Target Audience

- Civil Engineering and Infrastructure
- Aerospace Industry
- Energy Industry
- Automotive Industry
- Safety & Maintenance Sector

Tech Features

Cost-Efficient

Real-Time Monitoring

Accurate strain and deformation measurement

Reusable sensors

Easy to install

Efficient wireless data exchange

TECH STATUS

Technology Validated

AVAILABLE FOR

Available for exclusive and non-exclusive license

IP STATUS

Granted in India

+91-9811367838

+91-11- 40366109

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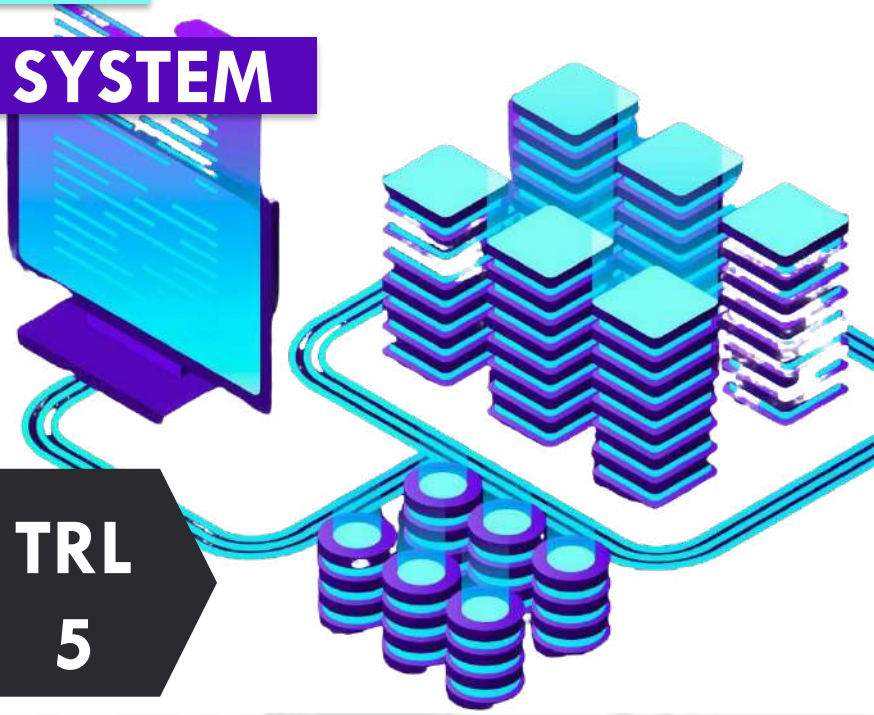
BLOCKCHAIN BASED MICROBLOGGING SYSTEM



Tech Intro

The technology introduces a blockchain-based content platform on a mobile device, which ensures the authenticity of shared content on a decentralized microblogging platform.

TRL 5

Problems Addressed

- Centralized System
- Data Accessibility Issues
- Data Routing Problems
- Storage Issues

Target Audience

- Social Media Platforms
- Digital Marketing
- Finance Sector
- E-Commerce Industry

Tech Features

Decentralized Microblogging Platform

Efficient Content Management

Light and Energy Efficient

Enhanced Data Security

Privacy for Users

Smart Contract Monetization

TECH STATUS

Technology Validated

AVAILABLE FOR

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IP STATUS

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ADAPTIVE TRANSACTION MANAGEMENT SYSTEM

TRL - 4

TECH INTRO

A method for managing transactions like credit card or debit card payments, using an object such as a document or an electronic device. The system involves a user-controlled authorization that responds to an intent or electronic message.

Problems Addressed

- Lack of User Control
- Delayed Fraud Detection
- Inflexible Transaction Handling
- Static Operations Rules

Target Audience

- Financial Sector
- Online Storage Systems
- ATMs
- E-Commerce Platforms

Tech Features

- User Intent-Based Transactions
- Flexible Transaction Operations
- Instructions-based Execution
- E-Message Commands
- Adaptive User Preferences
- Absence of Fixed Guidelines

TECH STATUS

Technology Validated

AVAILABLE FOR

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IP STATUS

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tech@ipbazzaar.com

Advanced Optical Polling System

Tech Intro

The invention utilizes augmented reality (AR) tag markers in optical polling platform to capture user identifiers and polling options through image processing and edge detection.

Problems Addressed

- Assessment Challenges
- Slow Feedback Loops
- Limited Engagement
- Orientation Complexity
- Inefficient Marker Detection
- Need for Real-Time Evaluation

Target Audience

- Event Management Companies
- Market research Firms
- Educational Institutions
- Corporate Training Providers
- Public Opinion Polling Organizations

Tech Features

Augmented Reality Tag Markers

Polling Option Decoding

Vertical Edge Detection

Real-Time Processing

Final Edge Identification

Adaptive Thresholding

TECH STATUS

Technology Validated

AVAILABLE FOR

Available for exclusive and non-exclusive license

IP STATUS

Granted in US
Pending in India

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tech@ipbazzaar.com

Fluorescent ZnO Nanoparticles for Anti-Counterfeiting

TRL - 5

Tech Intro

This invention provides bio-compatible zinc oxide (ZnO) nanoparticle for use as fluorescence-specific anticounterfeiting ink, synthesized via a one-step, binder-free process

Problems Addressed

- Limited Fluorescence control
- Complex multi-step synthesis
- Biocompatibility Concerns
- Limited Sized Inks
- Ineffective Existing materials
- Poor stability and durability

Target Audience

- Banking and Finance sector
- Pharmaceuticals companies
- Government Security agency
- Electronics and Tech Firms
- Printing and Packaging Firms

Tech Features

Fluorescence-specific ZnO nanoparticles

Single-step Laser Synthesis

Biocompatible and Eco-friendly

Tunable emission profile

Transferable to substrates

Currency and document security

TECH STATUS

Technology Validated

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