

Brewing Authenticity

How Radio Frequency Identification (RFID)
is Combating Coffee Counterfeiting



The aroma of freshly brewed coffee: a simple pleasure, but one that's become the battleground in a high-stakes war against counterfeiters. For decades, coffee roasters have struggled to protect their brand and revenue from a flood of third-party and fake consumables, threatening not only their bottom line, but also the quality of the coffee experience. This is why coffee companies are turning to RFID technology, paving the way toward a future free from counterfeit products.



The Challenge

A Market Flooded with Counterfeits



The issue of imitation products is especially challenging for companies like ReKico Caffè, a renowned Italian coffee roaster producing millions of capsules annually. Despite substantial investment in advertising and branding, they struggled to stop customers from turning to cheaper, often lower-quality, counterfeit alternatives. The result? Unstable revenue streams and a loss of market control.

“We were expecting a 50/50 share of original vs counterfeit products,” reveals Andrea Castellari, CEO of ReKico. This meant half of their potential sales were being siphoned off by illicit operators. Traditional methods like mechanical guarantees and patents have failed to combat counterfeiting effectively, as counterfeiters continually find ways to bypass these protections.

The Solution

RFID Technology to the Rescue



Introducing Duolabs: a company specializing in the design and production of electronic boards tailored to diverse industries.

From industrial and medical applications to hospitality, vending machines, consumer electronics, telecommunications, home automation, and infrastructure, Duolabs delivers innovative solutions to meet a wide range of needs. Their answer is a sophisticated, yet user-friendly system named DuoLocker - a technology that uses RFID and more specifically Near Field Communication (NFC) to manage consumable usage and protect devices from unauthorized or counterfeit products.

About Duolocker

How it works:

Integration

A small electronic board, the DuoLocker, is installed inside the coffee machine.

Credit Loading

Original consumables (coffee capsules) come packaged with an NFC tag inside the box. For this challenge, the Bullseye NFC tag from Avery Dennison, a global leader in materials science and digital solutions, was selected. This specific tag allows a fast, frictionless and easy interaction with the device and contains a pre-set number of “credits” representing the number of coffee brews. The end-user simply brings the tag close to the coffee machine and the DuoLocker inside reads the tag, securely transfers the credits to its internal counter, and then disables the tag to prevent reuse.

Authorization

When the coffee machine needs to brew a coffee, it first requests authorization from the DuoLocker. The DuoLocker checks if enough credits are available for the operation.

Operation & Deduction

If sufficient credits exist, the DuoLocker authorizes the operation, the main device proceeds, and the corresponding number of credits is deducted from the DuoLocker’s internal counter.

Key Advantages:

Ease of Use

The user experience is straightforward. They simply use the original consumable packaging, bring the included RFID tag near the device, and the device is ready to use. No complex setup, smartphone apps or interface is required. The system works intuitively, ensuring a smooth experience for consumers.

High Security

Robust security features protect against hacking and unauthorized access.

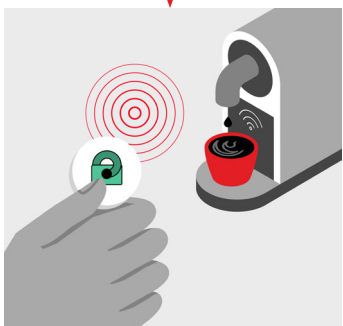
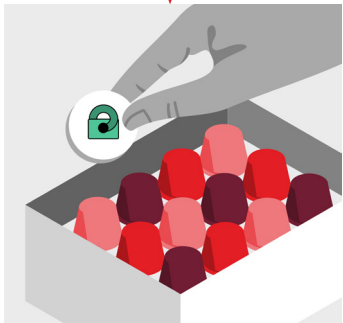
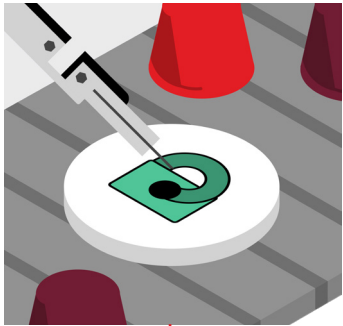
Cost-Effectiveness

The solution strikes a balance between security, ease of use, and affordability.

Data-Rich Insights

Opportunity to gather valuable insights into customer usage patterns that could be used to personalize marketing efforts and optimize product development.

The DuoLocker system not only authenticates genuine capsules but also offers additional functionalities. As the credit management is handled via the RFID tag, it allows for tracking machine activity, importing machine settings, and even offers a new life to older machines without displays or special features. This ensures that even less advanced machines can benefit from the anti-counterfeit technology.



From Skepticism to Partnership:

Initially, coffee roasters explored various tagging options. Avery Dennison's commitment to exceptional quality and dependable supply chain management has been instrumental in establishing trust with end users.

ReKico's Capsules Machine

ReKico was among the first to adopt the innovative solutions and give public endorsement. They went even beyond the standard market protection offered by the system, aiming to achieve an additional objective.

Andrea Castellari explained:

“The Duolocker system also includes the programming of a specific parameter for each dealer to whom Rekico supplies its coffee. These exclusive Tags for a specific dealer (distributor) allow, in a hierarchical manner, the protection of their market share as well. Rekico thus achieves a dual objective: protecting its own market while also enabling its dealers, sometimes operating locally, to ensure customer loyalty at a regional level.”



Therefore, the RFID Tag-based solution benefits not only coffee roasters but also distributors working in partnership with brands. The potential impact reaches well beyond this, as emphasized by Duolabs CEO Riccardo Alessi:

“The solution acts as a gatekeeper, not only preserving the integrity of the coffee supply chain but also providing a scalable model for other industries battling counterfeiting challenges.”

The Results

A Glimmer of Hope



Although widespread adoption and conclusive results are still on the horizon, early adopters are already seeing the benefits of RFID technology.

The ReKico CEO Andrea Castellari shared:
“RFID technology has strengthened our relationships with distributors and customers, allowing us to recover 40% of revenue previously lost to the gray market.”

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“The solution acts as a gatekeeper, not only preserving the integrity of the coffee supply chain but also providing a scalable model for other industries battling counterfeiting challenges.”

The vision of using technology to decisively combat counterfeiting is no longer a distant dream—it’s becoming a reality today, one cup of authentic coffee at a time.

Would you like to hear more on this solution?

Connect with our team
<https://rfid.averydennison.com/en/home/contact.html>

Duolabs

Duolabs is a leading provider of turnkey electronic solutions, specializing in the design and production of advanced electronic boards for industries including industrial automation, telecommunications, medical, home automation, and consumer electronics. With expertise in RFID technology, Duolabs develops innovative solutions for secure identification and tracking.

For over 15 years, we have been a key player in the coffee market, delivering cutting-edge technological solutions that enhance efficiency and automation. Originally focused on Digital Video Broadcasting (DVB), Duolabs has evolved into a trusted B2B partner, guiding clients from concept to mass production. Our expertise spans hardware, firmware, and software development, ensuring reliable and scalable solutions. Backed by a team of highly skilled engineers, we provide tailored electronic systems that drive efficiency, sustainability, and technological advancement.

Avery Dennison

Avery Dennison Corporation (NYSE: AVY) is a global materials science and digital identification solutions company. We are Making Possible™ products and solutions that help advance the industries we serve, providing branding and information solutions that optimize labor and supply chain efficiency, reduce waste, advance sustainability, circularity and transparency, and better connect brands and consumers. We design and develop labeling and functional materials, radio-frequency identification (RFID) inlays and tags, software applications that connect the physical and digital, and offerings that enhance branded packaging and carry or display information that improves the customer experience. Serving industries worldwide — including home and personal care, apparel, general retail, e-commerce, logistics, food and grocery, pharmaceuticals and automotive — we employ approximately 35,000 employees in more than 50 countries. Our reported sales in 2024 were \$8.8 billion.



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