

keeper

Key Code based on Nanomaterials to protect personal and product identity

Keeper aims to bring a new anti-counterfeiting technology to the market, with an unprecedented level of security, traceability and cost-effectiveness.

Keeper features the first system ever to combine a unique product identification with the possibility to connect only the right user to the related digital information. Keeper makes traceability ensured by the security of authenticity.

NANOMATERIAL BASED SECURITY INK



The NanoLab @Polimi is the PI of the project. The team focuses on the formulation, production and characterization of security inks based on novel nanomaterials. The chemical-physical characteristics are tailored to achieve a slightly different and unique opto-electronic response at the atomic level for each ink, and the material is optimised for easy and low-cost printing. The Polytechnic is also working with partners Variuscard and Day One on the design of a cryptographic code based on these inks to create multi-layered security that can protect any type of product, or document.

CNRS

The Complex Media Optics Lab @ LKB in CNRS focuses on developing novel ways to image complex media, with strong experience in optics, nonlinear microscopy and computational imaging. While the LKB is world-wide known for their three Noble Prizes in fundamentals of quantum mechanics, more recently it has also put-up successful stories of entrepreneurship through three spin-offs. The extremely ambitious role in the project is to develop an innovative, super-fast and accurate reading system that takes full advantage of the characteristics of the inks developed at Polimi while keeping costs and dimensions down.

ULTRA-FAST SPECTROMETRIC READER

THE CONTROL SOFTWARE

enigma

Enigma is the Italian company aiming to combine traceability and security of products and identities. The company is a spin-off of the Polimi and is active on the Italian market, offering solutions ranging from the protection of documents to the traceability of industrial products, using technologically-advanced solutions. Within Keeper, Enigma is responsible for creating a software platform capable of linking spectrometric measurements to a unique and certain key associated with the product's digital counterpart, or the user's personal data, and creating a simple interface in line with the needs of different customers.

VARIUSCARD

VariusCard is an Austrian company specialized in plastic card for end-to-end solutions. As a full-service provider for the card system and a globally active plastic card manufacturer with over 50 years of experience, VC produces everything from loyalty, gift, or ID cards to complex coded smart cards. The role of VC is to dictate the guidelines for large-scale industrialisation of products based on Keeper technology for document and ID card applications. During the project, pilots on active industrial lines will be activated leading to the production of hundreds of cards protected by the technology under development.

THE INDUSTRIAL PILOT

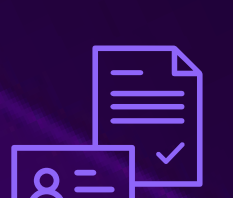
FROM TECH TO MARKET

dayone

Day One is a deep-tech Innovation Studio that helps researchers and start-ups take their innovations to the market. Day One provides support in requirements analysis, business development and validation to innovation projects, building products and companies from low TRL to successful business. The role of Day One is to improve the exploitation results through user-centered design approach to Keeper products development, study of the best business model strategy and opening up new potential market segments.

Applications

Keeper is applicable to several sectors where counterfeiting and lack of traceability make the value chain insecure and consumers at risk of fraud. Generally speaking, KEEPER technology will allow products such as electronic cards, drugs, foodstuffs, etc. to be traced down to the individual product, enabling control bodies to check its authenticity at all times for counterfeit-proofing. It will also allow sensitive data on documents of individuals and companies to be protected, guaranteeing access to information only to selected users or only in designated areas.



Documents and Stamps



Food and Beverage



Electronic Components



Pharma Packaging



Art and Design

In a nutshell



TRACEABILITY

Keeper uniquely identifies individual entities, through a unique encrypted code, printed in security ink.



SECURITY

Keeper offers a unique multi-level security method, with at its heart an ink and reading method that is unique at the atomic level and irreproducible.



INTEGRABILITY

Keeper can be applied to almost any type of material, occupies a few mm² and is totally invisible.



MULTILEVEL ACCESS

Keeper enables an access hierarchy, to share the right information only to selected entities. It can also be integrated into classic QRcodes to allow the sharing of public information with unauthenticated users.

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Partners



Funded by the European Union

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