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Elephantech Inc

# Elephantech Develops "TabbyPrint,"
## a Unique identification marks Printing Technology
## That Can Be Linked to Blockchain and Ensures Traceability.

Elephantech Inc. (Head Office: Chuo-ku, Tokyo; Shinya Shimizu, CEO & CTO, hereafter "Elephantech") has developed "TabbyPrint," an inkjet Unique identification marks Printing Technology that can print directly on objects. Since this technology is expected to be used with blockchain to ensure traceability and other applications, Elephantech will begin proof-of-concept (PoC) activities.

TabbyPrint enables inkjet identification printing of legible characters and designs. It allows the production of one-of-a-kind printed materials by adding microscopic randomness to the position of ink droplet impact.
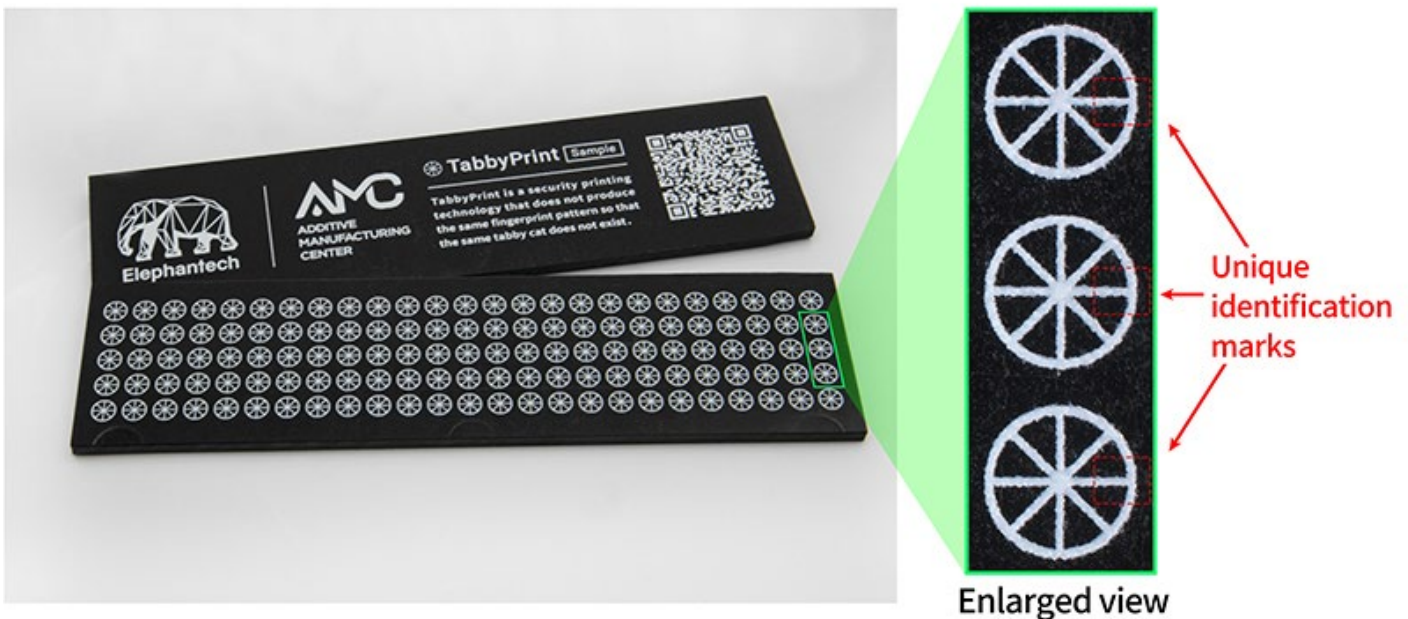


Shown is a photograph of a sample printed with TabbyPrint technology using marking ink on a plastic substrate.
Even figures indistinguishable to the naked eye (image on the left) can serve as individual identification marks as variations in the ink-to-surface contact points can be recognized by microscopic observation (enlarged image on the right).

## ■ Technology Background

From the production process of various raw materials and parts to the distribution and sales of products, businesses have been increasing their efforts in recent years to trace and calculate $CO_2$ emissions throughout entire supply chains to meet their targets for a decarbonized society. Furthermore, we are seeing a shift toward a recycling-oriented society in which products are used long after they reach the market and resources are recycled and reused. Amid such transformation, blockchain technology is attracting much attention as a system for tracing various historical data of entire supply chains because of its high affinity with traceability systems in terms of incorruptibility and transparency.

Technical contributions to users facing challenges

- Compared to NFT certification cards or certification stickers, TabbyPrint prints individual identification marks directly on the product, thereby making product and traceability inseparable.
- Since TabbyPrint prints directly on the product, there is no need to pay for a sticker to ensure traceability. In addition, it eliminates the need for space on the product's surface to place the sticker.
- We believe that TabbyPrint, which directly imprints a unique identification mark on a product, can also contribute to profit sharing and usage history management during secondary distribution, as seen in discussions regarding how blockchain technology can be used.

## ■ TabbyPrint Technology

TabbyPrint is a technology that prints "one-of-a-kind unique identification marks" using an inkjet printer.
Combined with the inkjet technology that Elephantech has been working on, directly identifiable patterns can be printed not only on flat substrates such as paper and plastic but also on the sides of electronic components and the surfaces of three-dimensional objects such as clothing.
By photographing the TabbyPrint marking with sufficient resolution and linking it to the blockchain, TabbyPrint-marked products can be identified as individual products. Linking blockchain registration information with product distribution information ensures the traceability of product procurement, distribution, sales, etc. It improves the accuracy of $CO_2$ emissions calculations and the evolution of secondary distribution.

## ■ Report on research results related to this matter

1. We investigated whether TabbyPrint could be used for unique product identification and demonstrated the possibility of improving the accuracy of unique product identification by actively controlling printing variations through the inkjet process.

   Mamoru SAITO, Yoshimasa FURUYAMA, Ryotaro ISHII, Masaaki SUGIMOTO

   Application of Inkjet Technology to Unique Product Identification for the Determination of Authenticity

   The 129th Annual Conference of the Imaging Society of Japan, pp.41-42

2. The study found that TabbyPrint could contribute to yield improvement in chipset manufacturing and other applications.

   Atsushi MIYAZAKI, Masaaki SUGIMOTO

   High-Density Inkjet Mounting Technology for Heterogeneous Devices, 31st JIEP Workshop Kawasaki (Poster)

■ **Future Outlook**

Elephantech hopes to develop the TabbyPrint technology further.

- Flow yield control of semiconductor products - Distribution control - Authenticity determination
- Digital art - IP-rights management and market distribution traceability for works printed with digital content and other IP
- Unique ID management to trace raw material information for products for which society strongly demands a reduction in environmental impacts, such as fashion, automobiles, and smartphones

By ensuring the traceability of various products printed with TabbyPrint technology, we will contribute to the promotion of GX (Green Transformation) and work toward realizing a sustainable society.

In addition to printing technology, we are looking for collaborators for ledger management systems, photography departments, printing equipment, etc. Collaboration projects that have already started will be announced in due course.

**Reference page**

https://info.elephantech.co.jp/en/tabbyprint

**About Us**

| Company Name | Elephantech Inc. |
|---|---|
| Establishment | January 2014 |
| Headquarters | 4-3-8 Hatchobori, Chuo-ku, Tokyo 104-0032, Japan |
| representative | Shinya Shimizu, CEO & CTO |
| Capital | JPY 1,178 million |
| Number of Employees | 83 |
| Business Description | Development of printed electronics manufacturing technology and provision of related services |
| URL | https://www.elephantech.co.jp/en/ |

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Contact for inquiries regarding this matter

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