

CONTRIBUTION TO:

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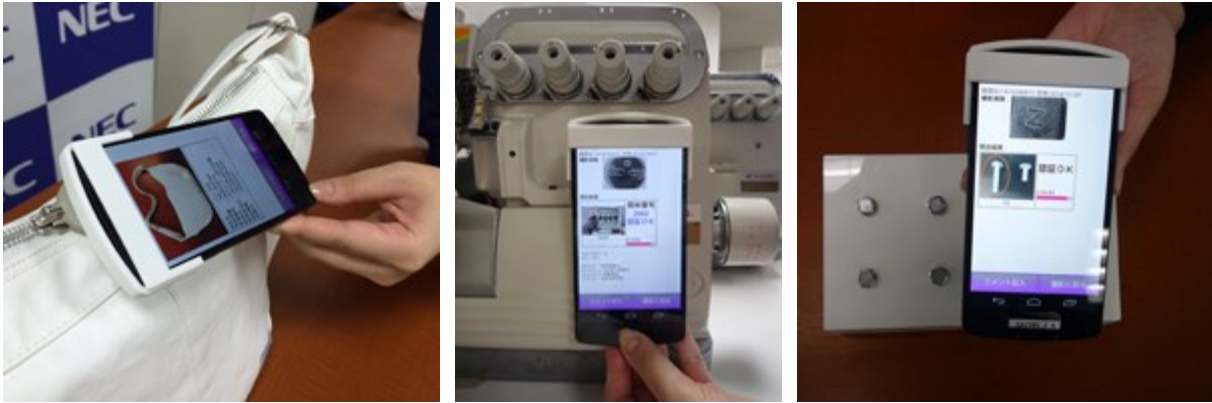
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Image recognition technology that identifies counterfeit products

On November 17, 2014, NEC Corporation announced the development of technologies that identify individual products based on patterns that appear on the surface of industrial products and parts, known as “object fingerprints.”



As manufacturing and distribution are expanded and globalized, it is increasingly important to manage products that are mass-produced and distributed in large quantities all over the world. Moreover, it is essential to provide quality assurance, maintenance and other customer services. Conventionally, individual products have been managed, for example, by adding barcodes, IC chips, hologram stickers or other identification tags. However, it is very costly and time consuming to individually add tags or to perform special processing for an enormous number of products. In addition, identification has required dedicated equipment or an expert, making it difficult to provide identification services for many products and situations.

NEC reliably identifies individual products by fusing and extending its fingerprint recognition and other image recognition technologies, which boast the world’s leading level of accuracy (*). NEC will promote this technology to businesses throughout the world, including manufacturers and distributors, in order to ensure the identification and authenticity of a wide range of products.

Main features of this technology include the following:

1. Recognizes “object fingerprints,” images of patterns naturally created on products and parts in the manufacturing process

This technology adopts NEC’s object fingerprint recognition technology to detect fine patterns on the surface of metal or plastic products and parts and check them against a database of data entered in advance in order to identify specific products and their respective manufacturers. The patterns vary with the individual item and manufacturer, similar to human fingerprints, and naturally occur during the manufacturing process. As they are too fine to recognize with the human eye, it is difficult to intentionally produce them on the surface of components. This technology has enabled identification of individual products at a low cost without attaching identification tags or performing special processing.

2. Image recognition may be easily performed anytime and at any place with a smartphone or tablet

This technology is easily available by merely downloading a dedicated app on an ordinary smartphone or tablet and then taking a photo using a dedicated attachment for the camera. The image recognition process, registration and saving of image data are performed on NEC's cloud. This means that a highly secure service can be provided at any time and at any place without saving product identification points or other confidential information on the terminal.

Potential uses of the technology include the following:

1. Distribution traceability

The technology registers and recognizes the surfaces of buttons, fasteners and other parts used in bags, wallets and other accessories for individual identification purposes. This enhances product traceability that helps identify when and who made purchases at which stores and other information, and paves the way for using data for identifying loyal customers and stores, as well as for product promotion and other purposes.

2. Authentication

The technology registers and recognizes the surfaces of emblems and logos on industrial machinery. This enables a determination of whether particular products are genuine or not without special identification tags or serial numbers, which leads to measures against counterfeiting.

3. Management of parts or maintenance work

The technology registers and recognizes the surfaces of small-sized parts on which it is difficult to add identification tags or serial numbers for more sophisticated part management. Their dimensions and lengths can be checked without detaching them after they are attached. This helps increase efficiency in maintenance and inspection work and prevents accidents arising from attaching a wrong part.

Notes:

(*1) Results shown from the Proprietary Fingerprint Template Evaluation II (PFT II) do not constitute endorsement of any particular system by the U. S. Government.

(*2) Hybrid Finger Identification Products

http://www.nec.com/en/global/solutions/security/products/hybrid_finger.html