New image recognition service for displaying detailed information on food products, vehicles, etc. through mobile terminals

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NEC
3rd Carrier Services Division
Service background

- Spread of smartphones, tablets, and other mobile devices equipped with cameras
- Increase in demand for easy access to valuable data among large amounts of data

Demand for a service that enables easy and quick access to information using camera images

Calls for the use of “image recognition” technology for mobile terminals
Challenges in creating an image recognition service for mobile terminals

- The need for a versatile system that enables recognition of a wide variety of objects (special systems for fingerprint identification and face recognition exist)

- Processing using limited resources, i.e., a mobile terminal (image recognition involves a large volume of data and computational complexity)

- Construction of a fast and accurate recognition system

- Maintenance/operation costs
NEC’s initiatives in image recognition technology

R&D of world-class image recognition technologies
Contributing to public safety business in Japan for more than half a century

1960 Start of character recognition research
1969 Postal code reader and sorter
1989 Postal address reader
2009 Hong Kong Customs support system

1969 Start of fingerprint technology research
1982 AFIS deployment in National Police Agency
2003 No. 1 NIST benchmark evaluation

1989 Start of facial recognition research
2002 Commercialization of facial recognition technology “NeoFace™”
2009 No. 1 in NIST MBGC *
2010 No. 1 in NIST MBE *

• Character recognition technology
• Fingerprint identification technology
• Facial recognition technology

Public Safety Business

Border control
Criminal investigation (AFIS)
Video surveillance (Physical security)
e-Passport
National ID

Deployment achievements (facial recognition)

- Facility gate control and detection of suspicious persons
- Blacklist matching for border control in Hong Kong
- Universal Studios Japan annual entrance pass identity verification
- Device log-in verification (PC, mobile phones), etc.

NIST: National Institute of Standards and Technology

*1 http://face.nist.gov/mbgc/
*2 http://www.nist.gov/itl/iad/ig/mbe.cfm
New image recognition service

1. Enables fast and accurate recognition
   • Equipped with the world’s fastest and most accurate recognition technology developed by NEC.
   • Practical operating speed for smartphones and other limited computational resources achieved through image data compression and reduction in computational complexity.

2. Facilitates service deployment by offering the system through the Cloud
   • Offers systems essential for the service, such as image processing engines, database updates, etc. through the Cloud.
   • No need to develop new systems; the service can be introduced easily and at low cost.
New service areas

Unstable shape

Age estimation
Gender estimation

Special engines

NeoFace
Face recognition
Fingerprint

SecureFinger

Fixed shape

New service areas

Food

Generic engine

Cars, Buildings

Packages
New service usage scenarios

- Take a picture
- Convenient access to information
- While on the road
- Magazines
- Cars
- At museums

Examples:
- At museums: View art databases like the "ねこ野菜" painting by Shige Fukuzawa.
- While on the road: Access restaurant recommendations such as "おいしいランチナビ" at NEC Restaurant, with recommended meals like "ケータイランチ ¥480 ~ (日替わり)".
- Cars: Information on used Toyota Prius prices,上限金額: ¥2,385,000.
Service application example ①: Use the service for looking up cars and prices

Learn about the type/maker and brand - new or second-hand - price information for a car you just saw:

Use the service for “car recognition” to access car details and price information with one push
⇒ Enhance purchasing motivation

NEC Motors Service-X

New car info:
- Capacity: 7 persons
- Color: white, red, blue
- Length: 4200mm
- Weight: 1380kg
- Gas mileage: 20km/l
- Ranking: ★★★★☆

Second-hand car info:
⇒ To second-hand car search
Service application example②: Use the service for finding out apartment vacancies and room availability

Locate realtor contact information or vacancies in an apartment you just saw:

Use the service for “apartment recognition” to access rent and vacancy information with one push ⇒ Enhance purchasing motivation

NEC Condominium
1-23-45 Shiba Minato-ku Tokyo

Vacancy info
NEC Realtor
03-1234-5678

NEC Condominium
Rm. 202
Rent: ¥150,000
Administrative fee: ¥10,000
Deposit: 1-month rent
Key-money: 1-month rent
Year built: 15 years
Orientation: South
Layout: 3LDK

PUSH!

With one more PUSH!
Service application example ③: Use service for obtaining information on food ingredients and recipes

Learn about nutritional information and recipes for the dish you are about to eat

Use the service for “food recognition” to access food information with one push ⇒ Easy and convenient way to obtain information

Pork curry recipe:
Ingredients;
- Pork 500g
- Potato 4 pieces
- Onions 2 pieces
- Carrots 1 piece
- Garlic 1 clove
- Curry powder: as desired
- Water: as desired

Procedure:
1. Slice meat, carrot, onions, and potatoes to bite sizes and sauté on a fry pan with the garlic.
Service application example④: Information brochure

Tell me more about the pictures in this brochure!

Service recognizes printed material
One-push access to tourist information
⇒ Detailed information on where you want to go
NEC Group Vision 2017

To be a leading global company leveraging the power of innovation to realize an information society friendly to humans and the earth.