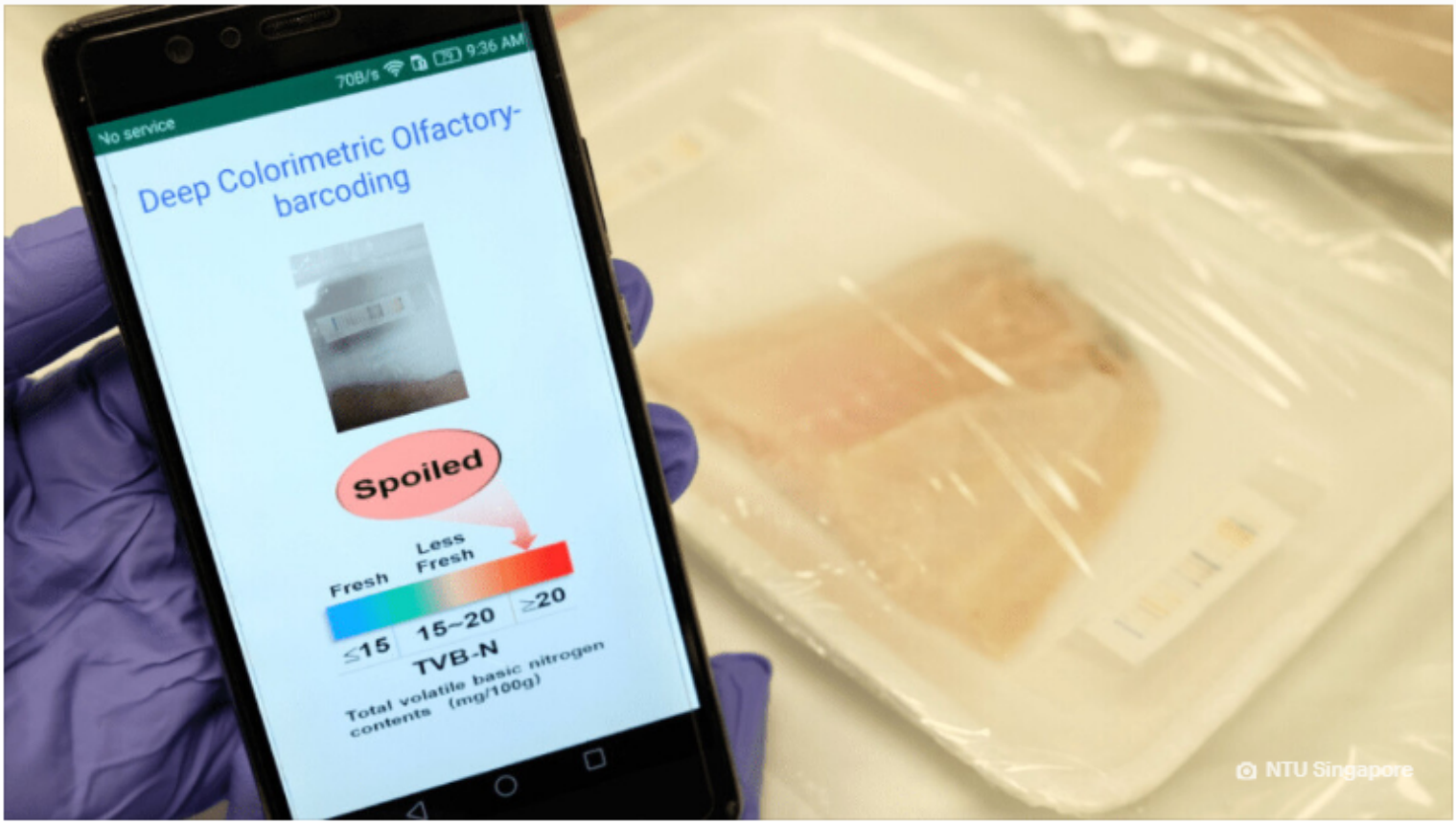
SCIENTIST SINGAPORE ARTIFICIAL INTELLIGENCE HUMAN NOSE ALGORITHM

This AI-powered ‘electronic nose’ can sniff out rotten meat

The app analyzes a barcode in food packaging that changes color as meat decays



Scientists from the Nanyang Technological University of Singapore have developed an AI-powered “electronic nose” that accurately assesses the freshness of meat.

The system uses a barcode inserted in food packaging that changes color when it senses gasses

emitted from rotting meat. A smartphone app then scans the barcode pattern to measure the freshness of the meat within 30 seconds.

In tests on commercially-packaged chicken, beef, and fish samples that were left to age, the system predicted the meats’ freshness with 98.5% accuracy.

Co-lead author Professor Chen Xiaodong said the app could help consumers decide whether meat is fit for consumption better than a “best before” label:

> *These barcodes help consumers to save money by ensuring that they do not discard products that are still fit for consumption, which also helps the environment. The biodegradable and non-toxic nature of the barcodes also means they could be safely applied in all parts of the food supply chain to ensure food freshness.*

[Read: Meet the AI-generated bipartisan president of the US]

The researchers say their system mimics the mammalian nose‘s method of detecting decaying meat by sensing its gases.

In the e-nose, each bar of the barcodes contains a dye that changes color in response to different types and concentrations of gasses. These reactions create a color combination that provides a “scent fingerprint” for the state of the meat as it decays.

Deep convolutional neural networks trained on images of barcodes then analyze the patterns to predict the freshness of the meat.

In the tests, the algorithm achieved 100% accuracy in detecting spoiled meats, and a 96 to 99% accuracy in identifying fresh and less fresh meats.

The researchers have now filed a patent for their method and are working with a Singapore agribusiness firm to apply it to other types of foodstuffs.

You can read a research paper on the system in the journal *Advanced Materials.*

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