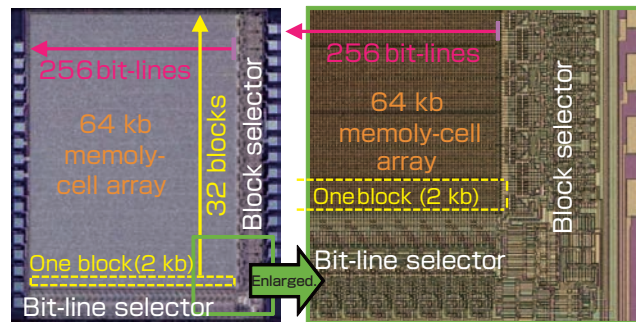# High-quality 64 kb ferroelectric NAND flash memory array
Towards the industrial production of the next-generation nonvolatile semiconductor memory

We have developed a 64 kilobit (kb) memory cell array of a ferroelectric NAND (Fe-NAND) flash memory where each memory cell is a ferroelectric gate field effect transistor (FeFET). The first 64 kb Fe-NAND flash memory array with all cells accessible has been produced by developing a FeFET circuit integration technology. We also demonstrated the good data retention of the memory array by investigating a block (2 kb) of the memory cells for at least 2 days. The Fe-NAND flash memory is a promising next-generation nonvolatile semiconductor memory of high-density large-scale integration with a good endurance property and low power dissipation because it has the same cell-area scalability, about 1/7 as low power dissipation, and about 10,000 times as many endurance cycles as the conventional NAND flash memory.
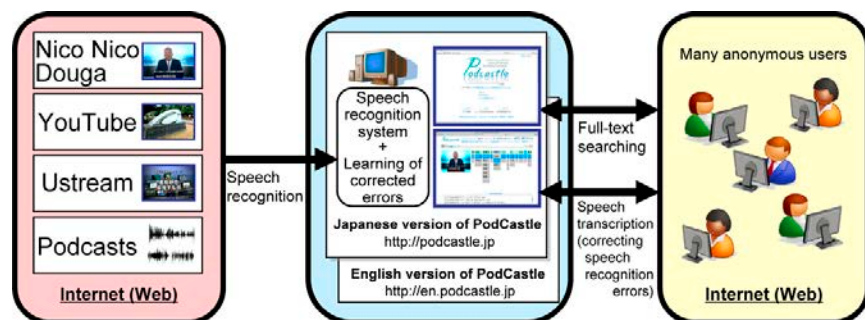
Shigeki SAKAI
shigeki.sakai@aist.go.jp

Mitsue TAKAHASHI
mitsue-takahashi@aist.go.jp

Nanoelectronics Research Institute

AIST TODAY Vol.12 No.4 p.18 (2012)

The 64 kb Fe-NAND flash memory array developed in this study
Microscopic photos of the whole chip (left) and an enlarged area around a corner (right)

PodCastle: a spoken content retrieval service based on speech transcriptions
Improving speech recognition performance through cooperation from many users

PodCastle (http://en.podcastle.jp for the English version and http://podcastle.jp for the Japanese version) is a spoken content retrieval service that uses automatic speech recognition technologies to provide full-text searching of speech data in podcasts, individual audio or movie files on the web, and video clips on video sharing services (YouTube, Nico Nico Douga, and Ustream. tv). PodCastle enables users to find English and Japanese speech data including a search term, read full texts of their recognition results, and easily correct recognition errors by simply selecting from a list of candidate alternatives. The resulting corrections are used to improve the speech retrieval and recognition performance. In our experience with its use over the past five years (since December 2006), over five hundred eighty thousand recognition errors in about one hundred sixty thousand speech data were corrected by anonymous users and we confirmed that PodCastle's speech recognition performance was improved by those corrections.

Masataka GOTO
m.goto@aist.go.jp

Jun OGATA
jun.ogata@aist.go.jp

Information Technology Research Institute

AIST TODAY Vol.12 No.5 p.11 (2012)

Overview of PodCastle, a spoken content retrieval service based on speech transcriptions