

External Awards

Best Paper Award of IEEE CPMT Symposium Japan 2012

Winners: Shoichi Oshima, Kenichi Matsunaga, Hiroki Morimura, and Mitsuru Harada, NTT Microsystem Integration Laboratories

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Organization: IEEE Components, Packaging and Manufacturing Technology Society

For “3D integration techniques using stacked PCBs and small dipole antenna for wireless sensor nodes”.

We developed ultra-small wireless sensor nodes (WSNs) that contain an energy harvester. The small WSNs can be mounted on any kind of object without affecting their volume. The use of the energy

harvester means that there are no concerns about battery life. We applied two strategies to reduce the total volume of the WSNs: compact integration and device size reduction. The former involves stacking small printed circuit boards three dimensionally. The latter involves using a small electrical antenna and ultralow power wireless IC (integrated circuit) to reduce the size of the energy harvester. The fabricated 1-cm³ and 5-mm³ nodes can transmit ID signals using solar energy.

Published as: S. Oshima, K. Matsunaga, H. Morimura, and M. Harada, “3D integration techniques using stacked PCBs and small dipole antenna for wireless sensor nodes,” Proc. of IEEE CPMT Symposium Japan 2012, Kyoto, Japan.