

BEAT SENSORS FOR LONG LIFE IOT APPLICATIONS

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Long life wireless sensors are necessary to realize trillion sensors universe in IoT era. We have proposed beat sensors, wherein the interval times of ID code transmissions correspond to physical quantity, thereby achieving such advantages as low power consumption, low cost, small size, and high accuracy of data. We have demonstrated the operations of the beat sensors for measuring AC power consumption of electrical appliances, temperature and DC current and long communication distance by data recovery algorithm. In beat sensors, sensor nodes uniformly consume tiny power with time, so that batteries for the sensor nodes last much longer than conventional IoT sensors, using intermittent operations to reduce power consumption. Therefore, beat sensors can be used in applications such as security, aquaculture, agriculture and so on, in which long life of sensors are inevitable.

Biography

Koichiro Ishibashi has received his PhD degree from Tokyo Institute of Technology, Tokyo, Japan in 1985. He joined Central Research Laboratory, Hitachi Ltd in 1985, where he investigated low power technologies for SH microprocessors and high density SRAMs. He worked for Renesas Electronics from 2004 to 2011, where he developed low power IPs, mainly for SOCs used in mobile phones. He has been a Professor at The University of Electro-Communications, Tokyo, Japan since 2011. He has presented more than 150 papers at international conferences and has published papers in numerous journals. He was awarded R&D 100 for the development of SH4 Series Microprocessor in 1999. He is a Member of IEICE and a Fellow of IEEE. His current research interests include IoT technologies including ultra-low power LSI design technology, technologies for energy harvesting sensor networks and applications and bio sensor technology.

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