External Awards

2007 IDDY Award

Winner: Kenji Takahashi, NTT Information Sharing Platform Laboratories
Date: September 25, 2007
Organization: Liberty Alliance

For "SASSO (strong authentication for single sign on)".
NTT Labs. has developed SASSO, a personal identity provider that enables users to achieve single-sign-on to a PC and leverages the strong authentication capabilities of the mobile phone to conduct a wide range of secure identity-based transactions. SASSO uses the increasingly ubiquitous mobile phone as an identity provider (IdP) to allow users to access a service provider (SP).
For details: http://www.projectliberty.org/liberty/news_events/press_releases/liberty_alliance_announces_winners_of_the_2007_iddy_award

Papers Published in Technical Journals and Conferences

VoiceUbique: Ultra-small Infrared Audio Receiver for Ubiquitous Services

S. Mutoh, T. Ishihara, S. Yasuda, R. Kawano, Y. Kado, and Y. Matsutani
ISICE, ISICE 2007, Kitakyushu, 2007.

This paper describes an ultralow-power and ultrasmall infrared digital audio receiver called VoiceUbique. A 1-bit quantization/transmission method greatly simplifies the receiver configuration and reduces current consumption to 1 mA, which is one or two orders of magnitude lower than that of conventional wireless audio-phone technologies. The receiver is only 3 cm^3 in volume, and its shape can be easily altered to make it wearable as a wireless earphone or even a finger ring device, for example. Making good use of the directional characteristics of infrared light provides easy-to-use and surprising ubiquitous audio guidance and navigation services. We actually used this system as an audio and visual guidance service in an old japanese castle. The system was used by 1800 tourists, most of whom reported a positive experience.

Synthesis of quantum circuits for *d*-level systems

Y. Nakajima, Y. Kawano, and H. Sekigawa
Asian Conference on Quantum Information Science, AQI2007 Commitee, pp. 135–136, Kyoto, 2007.

Using the KAK matrix decomposition, we provide an efficient strategy for synthesizing quantum circuits for *d*-level systems. With our method, we can translate an arbitrary operation on *d*-level systems, denoted by a $d^n \times d^n$ unitary matrix, into a quantum circuit, where the number of elementary gates appearing in the circuit can be bounded by $O(n^2 d^{\delta n})$, $O(d^{\delta n})$, and $O(nd^{\delta n})$ if d is odd, if d is a power of two, and otherwise, respectively. Here, δ is any number greater than 2. These results are almost the same as the expected best value.