Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: [Overview of Japanese IEICE SGs on Medical ICT]
Date Submitted: [20 March, 2014]
Source: [Kohei Ohno1, Ryuji Kohno2,3,4] [1;Meiji University, 2;Yokohama National University, 3;Centre for Wireless Communications(CWC), University of Oulu, 4;University of Oulu Research Institute Japan CWC-Nippon]
Address [1; 4-21-1 Nakano, Nakano-ku, Tokyo, Japan 164-8525,
2; 79-5 Tokiwadai, Hodogaya-ku, Yokohama, Japan 240-8501,
3; Linnanmaa, P.O. Box 4500, FIN-90570 Oulu, Finland FI-90014,
4; Yokohama Mitsui Bldg. 15F, 1-1-2 Takashima, Nishi-ku,Yokohama, Japan 220-0011]
Voice: [2; +81-45-339-4115, 3:+358-8-553-2849], FAX: [+81-45-338-1157],
Email: [ohno@meiji.ac.jp, kohno@ynu.ac.jp, ryuji.kohno@oulu.fi] Re: []

Abstract: [IEICE study group on Medical ICT has been promoting research and development on dependable wireless systems for wide variety of medical monitoring and treatment including BAN. While keeping advantages of IEEE802.15.6, specifications of MAC and PHY may be revised to make it much more reliable, secure, fault tolerant, robust against undesired factors. While keeping advantages of IEEE802.15.6, specifications of MAC and PHY may be revised to make it much more reliable, secure, fault tolerant, robust against undesired factors. These slides may offer opportunity to discuss on use cases and applications of this standard.]

Purpose: [The discussion on use cases and applications will lead definition and requirement of current ongoing research and development on dependable wireless networks.]
Notice: This document has been prepared to assist the IEEE P802.15. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.
Release: The contributor acknowledges and accepts that this contribution becomes the property of IEEE and may be made publicly available by P802.15.
Overview of Japanese IEICE SG on Medical ICT (MICT)

20th March, 2014  Beijing
Kohei Ohno*,
Ryuji Kohno,*2,3,4

*1 Meiji University, Japan
*2 Yokohama National University, Japan
*3 CWC, University of Oulu, Finland
*4 University of Oulu Research Institute Japan CWC-Nippon
 Agenda

1. Introduction of IEICE SG on Medical ICT (MICT)
2. IEICE Transactions on Fundamentals, Special Issues on MICT
1. Introduction of IEICE SG on Medical ICT (MICT)

Kohei Ohno (Meiji University)
Ryuji Kohno (YNU, CWC-Nippon)
1.1 Recent MICT Conferences

2011 MICT Conference
April, 2011: 5 presentations
July 2011: 14 presentations
January, 2012: 8 presentations

2012 MICT Conference
June, 2012: 8 presentations
October 2012: 8 presentations
January, 2013: 17 presentations

2013 MICT Conference
May, 2013: 12 presentations
July 2013: 8 presentations
November, 2013: 9 presentations
January, 2014: 12 presentations
1.2 IEICE 2014 Annual General Conference
BS-5. Medical Information and Communication Technology

BS-5-1  A Method of Calibration for BAN Over-The-Air Testing Using a Fading Emulator with a Dynamic Phantom
Kun Li • Kazuhiro Honda • Koichi Ogawa (Toyama Univ.)

BS-5-2  Directional characteristics of shadwings of antennas on human body from external systems during walking in WBAN
Takahiro Aoyagi, Minseok Kim, Jun-ichi Takada (Tokyo Tech.)

BS-5-3  Consideration of Biological Information Detection using UWB Radar
Aya Suzuki, Kento Kawamura ,Tetsushi Ikegami (Meiji Univ.)

BS-5-4  Performance Evaluation on Joint RSSI/TOA-based Localization for Wireless Capsule Endoscope
Takahiro Ito, Masafumi Yamanaka, Daisuke Anzai, Jianqing Wang (Nagoya Tech.)
1.3 IEICE 2014 Annual General Conference
BS-5. Medical Information and Communication Technology

March 18, 2014

BS-5-5 Throughput Performance of Local Frequency Offset Receiver Diversity with Multi-Level Modulation for Implant Communications, Takashi Koya, Daisuke Anzai, Jianqing Wang (Nagoya Tech.)

BS-5-6 Real-time Vital Data Collection System for Soccer Players — Performance Improvement with the Antenna Height Diversity — Toui Kanda, Tetsuo Tujioka, Shinsuke Hara, Hajime Nakamura, Takashi Kawabata Masanao Ise, Kenji Watanabe, Noah Arime, Hiroyuki Okuhata (Osaka City Univ., Kansai Univ., Synthesis Corporation)

BS-5-7 Study on Transmission Suppressing Interference with Channel Information for UWB-BAN Yuya Obinata, Kotaro Yamasue, Chika Sugimoto, Ryuji Kohno (Yokohama National Univ.)

BS-5-8 Performance Evaluation of the Heart Rate Monitoring Method in Different Types of Exercise Takunori Shimazaki, Shinsuke Hara (Osaka City Univ.)
1.4 IEICE 2014 General Conference

BS-5. Medical Information and Communication Technology


BS-5-10 Real-time Vital Data Collection System for Athletes during Exercise - Experimental Measurements of Packet Loss Rate in Relay Transmissions Using 920MHz and 2.4GHz Bands for Wireless Data Collection in a Soccer Games - Kouhei Tezuka, Shinsuke Hara, Tetsuo Tsujioka, Hajime Nakamura, Takashi Kawabata, Hiroyuki Okuhata, Masanao Ise, Kenji Watanabe, Noah Arime (Osaka City Univ., Kansai Univ., Synthesis Corporation)

BS-5-11 ROI Tracing : An Emerging Video Coding Technology for Remote Healthcare Morsalin Uz Zoha • Toshitaka Tsuda (Waseda Univ.)
1.5 IEICE Society Conference 2013

BS-9. Medical Information and Communication Technology

BS-9-1 Design of UWB-IR Receiver for Implant Body Area Communications
Yuto Shimizu, Kenta Katsu, Daisuke Anzai, Jianqing Wang (Nagoya Tech.)

BS-9-2 Multiplexing and Error Control Scheme Considering the Different QoS for Wireless BAN
Kento Takabayashi, Hirokazu Tanaka, Chika Sugimoto, Ryuji Kohno
(Yokohama National Univ.)

BS-9-3 Relaying performance and simulation study on interference avoidance of IEEE 802.15.6 based BAN
Ichirou Ida, Tatsuya Kikuzuki, Teruhisa Ninomiya, Takeshi Umemoto, Kazuhiro, Muraoka(Fjitsu)

BS-9-4 Performance of Link Budget on /4-DQPSK Local Frequency Offset Receiver Diversity
for Implant Communications
Takashi Koya, Jingjing Shi, Daisuke Anzai, Jianqing Wang (Nagoya Tech.)

BS-9-5 Basic study for optical communication through human body
Daisuke Seki, Takeshi Namita, Yuji Kato, Koichi Shimizu (Hokkaido Univ., Kyoto Univ.)
1.6 IEICE Society Conference 2013
BS-9. Medical Information and Communication Technology

BS-9-6 Real-time Vital Data Collection System for Soccer Players — Comparative Experiment of the Frequency for the System —
Toui Kanda, Tetsuo Tujioka, Shinsuke Hara, Hajime Nakamura, Takashi Kawabata, Masanao Ise, Kenji Watanabe, Noah Arime, Hiroyuki Okuhata (Osaka City Univ., Kansai Univ., Synthesis Corporation)

BS-9-7 A Heart Rate Detection Scheme from ECG Signal at Waist Part during Exercise
Masayuki Ichikawa, Tetsuo Tujioka, Shinsuke Hara, Hajime Nakamura, Takashi Kawabata, Masanao Ise, Kenji Watanabe, Noah Arime, Hiroyuki Okuhata (Osaka City Univ., Kansai Univ., Synthesis Corporation)

BS-9-8 An Application of Load Sensors Buried in The Step Platform for Slow Step Exercises
Keishi Matsuno (JuKen Co.,Ltd.)

BS9-9 Bio-information Monitoring Sensor System Using Ultra-wideband Radio
Ryohei Nakamura, Akihiro Kajiwara, Isamu Matsunami (Kitakyusyu City Univ.)

BS-9-10 Imaging for Detecting Breast Cancers Using UWB Radar System
Yuta Okuyama, Pham Thanh Hiep, Kotaro Yamasue, Chika Sugimoto, Ryuji Kohno (Yokohama National Univ.)
1.7 IEICE Society Conference 2013
BS-9. Medical Information and Communication Technology

BS-9-11 Preparation of voxel models for wave propagation simulations of wireless body area networks
Takahiro Aoyagi (Tokyo Tech.)

BS-9-12 Simulation Analysis for Propagation Characteristics on Intrabody Communication with Small Electrodes
Kazuhiro Inoue, Takafumi Ohishi (Toshiba)

BS-9-13 Electrically Isolated Measurement System for MHz-Band Near-Field Coupling Communication
Tomonori Nakamura, Mami Nozawa, Masaki Ishida, Yuichi Kado (Kyoto Tach.)

BS-9-14 K-factor Dependent Multipath Characterization for BAN-OTA Testing Using a Fading Emulator
Kun Li • Kazuhiro Honda • Koichi Ogawa (Toyama Univ.)
1.8 IEICE Society Conference 2013

BS-9. Medical Information and Communication Technology

BS-9-15 Effects of noise in HBC system using HF band
Takehiro Sugo, Shinsuke Ishida, Roslina Binti Abdul, Razak Toshiyuki (Takusyoku Univ.)

BS-9-16 Human Movement Classification for Body Area Networks using Signal Level Fluctuation via Neural Network
Sukhumarn Archasantisuk・Takahiro Aoyagi （Tokyo Tech）

BS-9-17 Effect of Resin Hardener on Dry -Phantom Model for Device Development of Body Area Network -
Tetsuyuki michiyama, Shuzo Kuwano (Nihon Univ.)

BS-9-18 Improvement of electrical properties of high hydrous gel phantom in low frequency band
Takahiko Yamamoto, Kohji Koshiji (Tokyo Univ. of Science)
1.9 IEICE Society Conference 2013
BS-9. Medical Information and Communication Technology

BS-9-19 A Study of Performance Improvement for Particle Filter-based Capsule Endoscope Location Tracking
Takahiro Ito, Daisuke Anzai, Jianqing Wang (Nagoya)

BS-9-20 Development of Wireless Vital Monitor and its Further Discussions on Wireless Technology
Hirokazu Tanaka, Takuji Suzuki, Shigenobu Minami (Toshiba)

BS-9-21 BER Analysis of a BAN Antenna Mounted on the Wrist
Kazuhiro Honda, Li Kun, Koichi Ogawa (Toyama Univ.)

BS-9-22 Effects of Floor on the Radiation Pattern Characteristics of BAN antennas
Kazuhiro Honda, Li Kun, Koichi Ogawa (Toyama Univ.)

BS-9-23 Fundamental study of RFID antenna for removing drip injection by patient
Hiromasa Nakajima, Masaharu Takahashi, Kazuyuki Saito, Koichi Ito (Chiba Univ.)
2. **IEICE Transaction B Special Issue**

2009: Medical Information and Communications Technologies

2010: Information and Communication Technology for Wellness and Medical Applications

2011: Information Communication Technology for Highly Reliable Human Health Care Services

2012: Medical Information and Communication Technology for Disaster Recovery and Human Health Care Support

2013: Special Section on Information and Communication Technology for Medical and Healthcare Applications in Conjunction with Main Topics of ISMICT2013

2014: Innovation of Medical Information and Communication Technology for Dependable Society
2.1 IEICE Transaction Special Issue
Special Section on Information and Communication Technology for Medical and Healthcare Applications in Conjunction with Main Topics of ISMICT2013

1. Interval Walking Training for Middle-Aged and Older People: Methods and Evidence
   Hiroshi NOSE (Shinsyu Univ.)

2. Targeting Morbidity in Unreached Communities Using Portable Health Clinic System
   Ashir AHMED Andrew REBEIRO-HARGRAVE Yasunobu NOHARA
   Eiko KAI, Zahidul HOSSEIN RIPON Naoki NAKASHIMA (Kyusyu Univ.)

3. A Priority-Based Temperature-Aware Routing Protocol for Wireless BANs
   Christian Henry Wijaya OYE Sangman MOH (Chosun Univ.)

4. Mobility Support in IEEE 802.15.4 Based Mobile Sensor Network
   Pranesh STHAPIT Jae-Young PYUN (Chosun Univ.)

5. Multiplexing and Error Control Scheme for BAN Employing IEEE 802.15.6
   Kento TAKABAYASHI Hirokazu TANAKA Chika SUGIMOTO Ryuji KOHNO (Yokohama National Univ.)
6. Performance Improvement by Local Frequency Offset Spatial Diversity Reception with \(\pi/4\)-DQPSK in Implant Body Area Networks
Daisuke ANZAI  Takashi KOYA  Jingjing SHI  Jianqing WANG  (Nagoya Tech.)

7. Performance Evaluation on RSSI-Based Wireless Capsule Endoscope Location Tracking with Particle Filter
Takahiro ITO  Daisuke ANZAI  Jianqing WANG  (Nagoya Tech.)

8. Wireless Self-Powered Urinary Incontinence Sensor for Disposable Diapers
Ami TANAKA  Takakuni DOUSEKI  (Ritsumeikan Univ.)

9. Fundamental Study on UWB Radar for Respiration and Heartbeat Detection
Huan-Bang LI  Ryu MIURA  (NICT)
IEICE SG on Medical ICT will be a Regular Study Group since May, 2014

URL of IEICE SG on Medical ICT
http://www.ieice.org/~mict/