

## CURRICULUM VITAE

Surname: Ayurzana  
First name: Odgerel  
Nationality: Mongolian  
Date of birth & place: 1978, Selenge province  
Contact address: Tel: 976 - 99038313  
E-mail: [odgerel55@gmail.com](mailto:odgerel55@gmail.com)



### High Education

- 1996-2000 *Hardware Engineering, Bachelor of Computer Science*  
Computer Science and Management School, Mongolian University of Science and Technology  
Bachelor diploma title: Video Buffer
- 2000-2002 *Hardware Engineering, Master of Computer Science*  
Computer Science and Management School, Mongolian University of Science and Technology  
Master thesis title: Integral Processing of Texture Image
- 2004-2008 *Computer Engineering, PhD*  
College of Electrical and Computer Engineering, University of Seoul, Korea  
Doctor dissertation title: A Study on Performance Improvement of Reed Switch for Automatic Metering

### Professional Career

- 2000-2004 Assistant Lecturer  
Mongolian University of Science and Technology, Department of Computer Engineer, UB, Mongolia
- 2008-2012 Senior Engineer  
GES (Genuine Embedded System) Co.,Ltd, Seoul, Korea
- 2012-2019 Associate Professor  
Mongolian University of Science and Technology, Department Electronics, UB, Mongolia
- 2019-Now Head of Electronics Department  
Mongolian University of Science and Technology, Department Electronics, UB, Mongolia

## Projects

### (1) University of Seoul, South Korea (2004 ~ 2008):

1. Development of a Car Identification System for Automatic Parking Management using Long Distance RF-ID (2005.07.01 ~ 2006. 04.30)
2. Introduction Strategy for Automatic Meter Reading System in Waterworks Services of Korea (2005.9 ~ 2006.9)
3. Ubiquitous Healthcare System using Wristband Type Health Check Unit (2006.9.1~2007.8.31)
4. Ubiquitous Environmental Management System for Seoul Subway Stations Region (2006.10~2008.9)

### (2) GES (Genuine Embedded System) Co, Ltd, South Korea (2008 ~ 2012):

1. Development of Analog Sensing Unit (ASU) for Fence Security System based on Electrostatic Charge Detection Technique (2008.01 ~ 2009.06)
2. Development of Energy Efficient ZigBee Transceiver Module (2009.08 ~ 2010.01)
3. Development of Sensitivity Control Unit (SCU) for Fence Security System (2010.02 ~ 2011.10)
4. ZigBee Transceiver Operation for Building Energy Integrated Management System (BEIMS) (2011. 04 ~2011.12)

### (3) Mongolian University of Science and Technology (2012 ~ Now)

1. "Darkhan Smart City" (2012.08 ~ 2012.11)
2. "National Technology of the Military Telecommunication", Ministry of Education and Defence, (2014.04 ~ Now)
3. "Perimeter Security System" Ministry of Education, Mongolian Foundation for Science Technology (2014.10 ~ 2016.06)
4. "Sensitive and Errorless Electrical Security Fence by Using Minimal Friction Electricity in Coaxial Cable", Mongolian-Korean Joint Project with Professor Hiesik Kim, University of Seoul (2015.01 ~ 2017.12)
5. "To develop energy efficient ZigBee wireless module for agriculture", Asian Development bank and Ministry of Education (2015.12 ~ 2017.02)

## Patents

1. Yong Chol Lee, Odgerel Ayurzana "Security System using Shielded Twisted Pair Cable" June 18, 2010, Patent Registration No.10-0966299, Seoul, Korea
2. Yong Chol Lee, Odgerel Ayurzana "Sensitivity Control Device for Fence Security System using Shielded Twisted Pair Cable" Nov 24, 2011, Patent Registration No.10-1088418, Seoul, Korea

## Copyrights:

1. "Agriculture monitoring MonAGR-1.0 software", №10497, 2019.03.29
2. "Speed measurement software for Phycisc SpeedMeter v3.1", №10496, 2019.03.29

3. "Camera monitoring software MonSES-1", №10831, 2019.08.20,
4. "Border monitoring and controlling software Border-1", №10830, 2019.08.20
5. "Robot circle competition software", №11148, 2019.12.03
6. "Computer application – 1 Book" №11830, 2020.06.30
7. "Computer application – 2 Book" №11829, 2020.06.30
8. "Water meter monitoring software Water Meter-1.0" №12887, 2021.06.10
9. "Water meter data processing software WM uC-1.0" №12886, 2020.06.10

## Publication lists

### (1) International Journal (SCIE, Peer Review)

1. Hiesik Kim and Odgerel Ayurzana "Improvement of Data Receive Rate in Remote Water Meter System by Upgrading Sensor", Springer, International Journal of Control, Automation, and Systems, by Institute of Control, Robotics and Systems, February 2009, Vol.7, No.1, pp.145-150
2. Odgerel Ayurzana and Hiesik Kim, "Experimental Noise Analysis of Reed Switch Sensor Signal under Environmental Vibration", Journal of Computer Technology and Application, Volume 7, Number 2, Feb 2016, pp.96-102
3. Odgerel Ayurzana and Sugir Tsagaanchuluun, "Design of Energy Efficient ZigBee Module" Journal of Communication and Computer, David Publishing, USA, Volume 13, Number 7, Dec 2016
4. Odgerel Ayurzana and Hiesik Kim "Minimal Electric Charge Detection Device for Perimeter Security Systems" Journal of Electrical Engineering, David Publishing, USA, Volume 5, Number 6, Nov-Dec 2017
5. Hiesik Kim and Odgerel Ayurzana "Upgrade of Electronic Security Fence System by Reduction of Vibration Noise by Wind Effect" Springer LNEE proceedings, July 2018
6. Odgerel Ayurzana, Sugir Tsagaanchuluun "Monitoring System of Agriculture Fields using ZigBee Modules" International Journal of Advanced Smart Conference, Vol 10, Num 1, March 2021

### (2) Korean Domestic Journal

1. Odgerel Ayurzana, Hiesik Kim "Reduction of Chattering Error of Reed Switch Sensor for Remote Measurement of Water Flow Meter" June 2007, The Institute of Electronics Engineers of Korea, Journal 44<sup>th</sup>, SC, pp. 277-283
2. Odgerel Ayurzana, Hiesik Kim "Development of Digital AMR System", Review of Korean Society for Internet Information. June 2006. Vol.7 No.2 pp.67-71

### (3) International Conference

1. Odgerel Ayurzana, Hiesik Kim, YoungJun Choi "Standardization of Remote Measurement of Water Meters by Data Transfer through CDMA Modem" ICEIC-2006, Ulaanbaatar, Mongolia, 2006.06. 27~28
2. Odgerel Ayurzana, Hiesik Kim "Development of Telemetry System of Water Supply using the RF module and TCP/IP Socket Program" ICASS 2006, Busan (BEXCO), Korea, 2006.10. 18~21
3. Odgerel Ayurzana, Yongman Park, Jongwon Kwon, Hiesik Kim "Development of the Real Time Sensor Networking System" HUT-ICCE 2006, Hanoi University, Vietnam, 2006.10.10~11
4. Odgerel Ayurzana, Hiesik Kim, YongMan Park, Jongwon Kwon, Sangjun Koo "Ubiquitous Telemetry System for Water Flow Meters Using Zigbee Module and CDMA Modem" ICUCT 2007 (The 2007 International Conference on Ubiquitous City Technology), Aomori, Japan, 2007.01.28 ~ 31

5. Odgerel Ayurzana, Bumduuren Pumbuurei, “A Study of Hand Geometry Recognition System” IFOST-2013, Ulaanbaatar, Mongolia, 2013.6.28~30
6. Odgerel Ayurzana, Hiesik Kim, “Analysis of Chattering Error on Reed Switch for AMR System of Water Supply” UMedia-2014, Ulaanbaatar, Mongolia, 2014.7.12~14
7. Odgerel Ayurzana, Hiesik Kim, “Development of Energy Efficient ZigBee Module” IoTT-2014, Hsinchu, Taiwan, 2014.12.16~19
8. Hiesik Kim, Seok Jin Yun, Odgerel Ayurzana “Implementation of Intrusion Monitoring System to Operate Optimum by using Electronic Security Fence of Friction Electricity Sensor” ICS-2015, International Conference, Gannin City, Korea, 2015.04.23~24
9. Odgerel Ayurzana, Hiesik Kim “Minimal Electric Charge Detection Device for Fence Security”, MUSTAK-2015, International Conference, MUST Library, 2015. 08. 19~20
10. Odgerel Ayurzana, Byambajav Ragchaa “Design of Energy Efficient ZigBee Module using Hardware Technique”, IFOST-2016, International Conference, Novosibirsk, Russia, 2016.06.01~03
11. Odgerel Ayurzana, Hiesik Kim “Reducing False Alarms Caused by Wind Effect in Automatic Security Perimeter System”, ESCS-2016, International Conference, Las Vegas, USA, 2016.07.25~28
12. Hiesik Kim, Odgerel Ayurzana “Development of Perimeter Intrusion Detection Device based on Triboelectric Effect”, ICONTES-2017, International Conference, Kuala-Lumpur, Malaysia, 2017.02.09~10
13. Odgerel Ayurzana, Hiesik Kim “Reducing False Alarms Caused by Wind Effect in Automatic Security Perimeter System”, ICEESE-2017, International Conference, Zurich, Switzerland, 2017.07.27~28
14. Hiesik Kim, Odgerel Ayurzana “Detection of Turboelectricity Tiny Charge in Cable Sensor for Perimeter Fence Security Systems”, ICIARE-2017, International Conference, Ube, Yamaguchi, Japan, 2017.12.14~17
15. Hiesik Kim, Odgerel Ayurzana “Upgrade of Electronic Security Fence System by Reduction of Vibration Noise by Wind Effect” ICGHIT-2018, International Conference, Chiang Mai, Thailand, 2018.01.31~02.02
16. Odgerel Ayurzana, Amartuvshin Togooch “Development and Experiment of the ZigBee Module” International Conference, ISAAC-2018, Seoul, Korea, 2018.11.08~10

**Research fields:** Embedded Systems, Sensor networking (USN), Perimeter Security Systems

### Knowledge of Languages

No	Language	Speaking	Reading	Writing	Listening
1	Korean	Excellent	Excellent	Excellent	Excellent
2	English	Middle	Good	Good	Good
4	Mongolian	Native			

*Last updated: Feb 20, 2022*