Activities of the APT/TTC Bridging the Standardization Gap Working Group—Holding of Ideathons in Cooperation with Universities in Southeast Asia

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Abstract

The Bridging the Standardization Gap (BSG) Working Group of the Telecommunication Technology Committee (TTC) of Japan has been implementing and promoting the spread of information-and-communication-technology-based solutions to address social issues in rural areas of Asian countries with support provided by the Asia-Pacific Telecommunity (APT). It has launched a platform designed to share data obtained at pilot sites in a number of countries, related to several fields including agriculture, fisheries, the environment, medical care, education, and disaster prevention. It held events at which ideas were proposed on how to create new industries through the utilization of data across different industries. This article presents an overview of these events.

Keywords: TTC, BSG, APT, ideathon

1. First ideathon

The first ideathon was held at the University of Malaysia Sarawak in Kuching, Malaysia, on December 5 and 6, 2018.

1.1 oneM2M Workshop (pre-ideathon workshop)

On November 28, before the ideathon was held, a lecturer from the University College of Technology Sarawak in Malaysia, held a workshop for 70 students at the University of Malaysia Sarawak. He gave an overview of oneM2M*, demonstrated how to set up a oneM2M-compliant server and connect Internet of Things (IoT) devices to this server.

1.2 Ideathon@Malaysia

This ideathon was held over two days and was attended by 76 students in 20 teams from the University of Malaysia Sarawak, and University College of Technology Sarawak (**Photo 1**). The teams were then further divided into three groups and gave presentations and demonstrations in each group. The top team in each group gave additional presentations in the plenary session, then the teams were ranked.

The titles of proposals and the areas targeted by the participating teams are shown in **Table 1**.

Since Kuching is a provincial city in Borneo, there were few proposals addressing the problem of traffic congestion. The most common topics were disaster-response solutions to floods and forest fires and medical issues, including problems with water quality.

* oneM2M: A global organization that was established in 2012 by major standards development organizations aiming at developing the requirements and specifications for machine-to-machine (M2M) and IoT technologies.

Photo 1. Scene from the awards ceremony at Ideathon@Malaysia.

Table 1. Titles of proposals and target areas at Ideathon@Malaysia.

No.	Title of proposal	Area	Group	Award
1	Smart Indoor Hydroponic Planting	e-Agriculture	QBF Ultimate	
2	Smart Shopping System	Smart city	4896	
3	IoT-based Water Quality Buoy Using oneM2M	e-Environment	Morphling	
4	Smart Badminton Stadium with Automatic Lighting System	Smart city	Keeper of the Light	
5	Health-monitoring System Using Motion and Pulse Sensor	Smart city	DGB	
6	Parking Slot Availability Indicator	Smart city	Smart Park	
7	Forest-fire Detector	e-Disaster	G-TECHNOVATORS	
8	Drainage-system Sensors for Flood Prediction	e-Disaster management	IDealTech	
9	Flood Detection with Rain Sensor	Disaster	SMART LRB	1st Prize
10	Narcolepsy Life Saver	e-Health	MedIT.com	
11	Water-pollution Detection System	e-Health	Mind Bender	
12	Vehicle RFID	Smart city	EE Prodigy	
13	Smart Greenhouse	e-Agriculture	iGreen	
14	JAMS: Just Another Metering System	Smart city	TheBitJunkeys	2nd Prize
15	Rainwater-collection System to Reduce Floods	e-Traffic, disaster	Alpha Minds	
16	iWater Cleaner	e-Environment	Fantastic Four	
17	Smart Waste-management System	Smart city	HOTS	
18	A+I: Mood-detecting Sensor	Smart city	LOTS	
19	Forest-fire Detection Using ATIS	e-Agriculture	ZIPs	
20	Life-saving System: e-Health, e-Traffic Management, Smart City	Health, transportation, smart city	Sffic	3rd Prize

2. Second ideathon

The second ideathon took place at Ateneo de Manila University, Manila, the Philippines, on March 6–8, 2019.

2.1 Technical Specifications Workshop

On March 5, the day before the ideathon was held, Dr. Daniel of Ateneo de Manila University explained and demonstrated to 26 students how to connect oneM2M-compliant IoT devices to a oneM2M-compliant server.

Photo 2. Scene from Ideathon@Philippines.

Table 2. Titles of proposals, target areas, and awards at Ideathon@Philippines.

No.	Title of proposal	Area	Group	Preliminary award
1	Potential of Smartphones in Disaster and Emergency Situations	Disaster	TriLocate	
2	Smart Analytics and Early-warning System that Forecasts Future Red Tide and Fish Kill Incidents	Aqua culture, disaster	Red Alert!	Round 2 /3rd Prize
3	Fastest Route Cleared Smart Traffic-light Control System to Emergency Vehicle Driver	Smart city, medicine	Lifeline	
4	Provide Commuters with Accurate Estimates of Wait Times and Optimization of Train Use	Smart city, transportation	Moving Stations	
5	Redistribute Foot Traffic to Save Time and Resources	Smart city	BOMS	Round 2
6	Food-supply Monitoring and Tracking System	Agriculture, health, logistics	Food Enthusiasts	Round 2 /1st Prize
7	Real-time City-wide Pedestrian Traffic Monitoring and Mapping System	Disaster, smart city	Fast Pass	Round 2
8	Improve Security, Portability, and Overall Efficiency of Medical Procedures	Smart city, health	MED ID	Round 2 /2nd Prize
9	Monitor Pollen and Dust Distribution	Smart city, health	polleNATION	
10	Provide New Innovative Sets of Data Concerning Human Activities within Homes	Smart home	Home Vita	
11	Monitor Trash in Drainages	Disaster	Image Pulse	Round 2
12	Patient-monitoring System	Health	MonitAir	
13	Solve Problems of Environmental Pollution through Smart Trash Collection	Smart city	Waste Watch	
14	Monitor Health and Status of Its Users Using Smart Watch	Smart city	Ligaw	Round 2
15	Intersection Data Collection and Processing System to Solve Traffic Problem	Smart city	IDCPS	
16	Track-energy Consumption by Providing Real-time, Aggregate and Pre-appliance Data and Heuristics	Smart home, energy	Smartr	

2.2 Ideathon@Philippines

Before the final ideathon (Round 2), an elimination round (Round 1) was held at Ateneo de Manila University with 34 students in 16 teams from the university, and 7 teams were selected (**Photo 2**). The final ideathon (Round 2) was held with judges from Japan, Malaysia, and the Philippines.

The titles of proposals, target areas of the participating teams, and awards presented at Ideathon@Philippines are shown in **Table 2**.

Photo 3. Scene from the awards ceremony at Ideathon@Indonesia.

Since this region is prone to natural disasters, many proposals addressed disaster-related issues and issues related to a shortage of medical facilities and institutions. Also, many of the proposed solutions required the involvement of the entire city.

3. Third ideathon

The third ideathon was convened at the Bandung Institute of Technology, Bandung, Indonesia, on November 8–9, 2019.

Three people from the Telecommunication Technology Committee (TTC) Bridging the Standardization Gap (BSG) Working Group, two from Malaysia, and two from the Philippines participated in and supported the event. Twenty faculty members and students from the Bandung Institute of Technology also assisted.

3.1 Workshop on oneM2M

Vice-Chair Kazunori Tanikawa of the TTC BSG Working Group gave an overview of oneM2M to enable the participants to use the internationally standardized platform for providing information and communication technology (ICT) solutions. Also, the University College of Technology Sarawak handed out oneM2M-compliant IoT tool kits and gave a tutorial on how to connect them to a oneM2M-compliant server.

3.2 Ideathon@Indonesia

This ideathon was attended by 57 people in 19 teams. Before the final ideathon (Round 2), an elimination round (Round 1) was held by the local operating organization, and 10 of the 19 teams were selected. Six people from the TTC BSG Working Group and two from the local operating organization were judges and evaluated the presentations (**Photo 3**).

The titles of proposals, target areas of the participating teams, and awards given by Ideathon@Indonesia are shown in **Table 3**.

The theme of many presentations was how to resolve traffic congestion, which is a common social issue in Asian cities. In addition, since Indonesia is studying how to transfer the capital from Jakarta to Kalimantan (Indonesian part of Borneo), there was a proposal on how to control peatland fires, a problem affecting Kalimantan.

4. Future prospects

In planning ideathons, we hoped to see proposals aimed at creating new industries by combining data across different industries. However, most proposals presented in these ideathons were related to solving impending social issues with ICT. Since our prior explanation seems to have been insufficient, it will be necessary to clarify the themes we would like participants to address in upcoming events. We plan to hold ideathons in other countries in the Asia-Pacific region and aim to expand these activities so that they will become common events in Asia.

Cultivation of human resources skilled in ICT is essential if we are to make regional economies thrive. Together with universities in Japan, we will contribute to this initiative through these activities.

Table 3. Titles of proposals, target areas, and awards given by Ideathon@Indonesia.

No.	Title of proposal	Area	Preliminary	Award
1	Independent Household Waste Processing and Online-based Waste Management	Environment		
2	E-MONEY with Tracking System in Toll Roads	Safety, transportation		
3	Peatland Humidity-control System for Forest-fire Handling	Environment	Round 2	
4	Firetruck Routing System	Transportation, safety	Round 2	
5	Coal Mining Supervision for Borneo 2025	Safety, efficiency, mining industry		
6	Smart Zebra Cross	Smart cities, road safety, IoT	Round 2	1st Prize
7	Smart Electricity	Smart cities	Round 2	
8	Integrated Waste-quality-monitoring System for Borneo: Integrating the Eco-friendly Trash Can and GoTrash Application	Environment, health, smart cities	Round 2	3rd Prize
9	WeHelp: Disaster-management App	Safety	Round 2	2nd Prize
10	Smart Traffic Light Using IoT and Cloud Computing for Protanopia	Smart city, cloud computing, IoT		
11	Borneo in 2025 Be a Smart City in Public Transportation	Smart city, transportation		
12	Traffic Control and Monitoring	Transportation		
13	E-Commerce for Fisherman	E-Commerce		
14	Kalimantan (Borneo) Smart-city Car Limiter 2025	Traffic, environment, health		
15	UAV Swarming Usage to Conserve Borneo's Forest	Environment	Round 2	
16	Waste Management	Environment		
17	Integrated Household Photovoltaic in a Smart City for New Capital Issue	Smart city, green energy	Round 2	
18	Crowd Estimation for Smart Transportation	Smart city, transportation	Round 2	
19	Smart Building	Smart city	Round 2	

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He received a Ph.D. in electrical engineering from Yamagata University in 2011. From 1993 to 2000, he conducted research on high-density and aerial optical fiber cables at NTT Access Network Service Systems Laboratories. Since 2000, he has been responsible for standardization strategy planning for NTT research and development.

He has been a delegate of the International Electrotechnical Commission (IEC) Subcommittee 86A (optical fiber and cable) since 1998 and of the International Telecommunication Union - Telecommunication Standardization Sector (ITU-T) Telecommunication Standardization Advisory Group (TSAG) since 2003. He is a vice-chair of the Working Group on Policy and Strategic Coordination and the Expert Group on Bridging the Standardization Gap in the Asia-Pacific Telecommunity Standardization Program (ASTAP). He received an award from the IEC Activities Promotion Committee of Japan in 2004, the ITU Association of Japan (ITU-AJ) International Activity Encouragement Award in 2005, an ITU-AJ International Cooperation Award in 2012, an award for contributions to an ICT development project at the APT ICT Ministerial Meeting in 2014, the ITU-AJ Accomplishment Award in 2018, and TTC Chairman's Prize in 2019.