

2022 WITSA Global Innovation and Tech Excellence Awards Nomination Form

The 2022 WITSA Global Innovation and Tech Excellence Awards (formerly known as *the Global ICT Excellence Awards*) will be presented to select individuals, academic institutions, corporations, NGOs or governments whose use and applications of digital technologies exhibit exceptional achievement within the following broad categories:

Private Sector/NGO	Public Sector
Digital Opportunity/Inclusion Award	Digital Opportunity/Inclusion Award
Smart Cities Award	Smart Cities Award
Sustainable Growth/Circular Economy Award	Sustainable Growth/Circular Economy Award
Innovative eHealth Solutions Award	Innovative eHealth Solutions Award
Public/Private Partnership Award	Public/Private Partnership Award
E-Education & Learning Award	E-Education & Learning Award
Emerging Digital Solutions Award	Startup Ecosystem Award

In addition, a *Chairman's Award* will be presented to a nominee selected from the entire pool of candidates from all award categories.

Candidates for these Awards are nominated by ICT experts from around the world who span over 80 countries/economies. The 2022 *WITSA Global ICT Excellence Awards* will take place in conjunction with the September 13-15, 2022 World Congress on IT in Penang, Malaysia (<https://wcit2022.com>/<https://wcit2021.org.bd/>).

E-Education & Learning Award

Award #1: Individuals, academic institutions, corporations, or NGOs

Award #2: Government authorities

Award Criteria: The Digital Age is requiring new sets of skills, and adoption of new models of public education that emphasize coding, programming and computer science must be adopted. Contrary to popular belief, the digital gap is widening, putting pressure on countries to catch up. Public education must adopt new approaches to lifelong learning. This award will be given to the best electronic learning project. We seek any innovative new technological tool, or any project that uses existing electronic learning tools in an innovative way. Such projects should facilitate and support learning through the use of information and communications technology.

YOUR NOMINEES (limit three nominations per award category). *Please specify whether the nominee(s) are for the private or public sector category.*

Lab@Home with ThingsSentral : Laboratory & Project Implementation Using Smartphones & IOT Platform For Enriching Home-Based Teaching & Learning

Category : Public Sector Category

REASONS FOR NOMINATION (NOTE: It is important that you make a detailed description of the nominee and why you think the nomination is justified. The absence of a detailed summary of qualifications as they *relate* to the above-mentioned award description will make it difficult for the awards committee to make an appropriate assessment of the candidate):

Numerous students worldwide had their education disrupted due to the spread of the viral COVID-19 recently. This constituted a challenge for the entire education community, forcing academics to adopt remote learning and novel techniques to conduct experiments. However, physical access to laboratory facilities were limited, and the unavailability of laboratory apparatus complicates the learning process. In our project, we utilized smartphones and a cloud-based IoT platform to enrich online teaching experience for students and educators during COVID-19 related lockdowns. Using built-in sensors in smartphones (such as light intensity sensor, proximity sensor, orientation sensor, position sensor, vibration sensor and noise measurement from microphone) students can collect data from the sensors available in the smartphone. The data captured will be uploaded to a central cloud platform called ThingsSentral™. This enables students to create their own innovative and home-based experiments, such as (i) utilizing the phone's light intensity and sound sensor to determine the optimal place to study in their home and (ii) utilizing the light sensor to determine the optimal location in their home for growing indoor plants (iii) using phones light sensor to determine the turbidity of water (iv) using orientation sensor to determine human joints angle during their movement and many others.

This approach is innovative because it enriches the learning process, which was done mostly using online platform such as Microsoft Team, with the ability to conduct projects and experiments from the student's home without them having to come to school. It is also sustainable because most household with Internet connection have smartphones. It is easily scalable juts by increasing the IoT platform server capability without burdening the end user.

Traditionally the use of sensors is done in laboratories. To use sensors in their homes, usually students would have to use of microcontrollers and single board computers such as Arduino and Raspberry Pi. Not everyone has Arduino and raspberry PI at their home and not everyone is comfortable with microcontrollers and single board computer. Most students have smartphones in their home. Therefore the use of smartphones as a device to acquire data and to enable the students to conduct projects and experiments in their home during COVID-19 related lockdown was very useful and enriches the learning process.

This innovation enriches the learning process because it incorporates physical project activities into the online learning process utilizing a tool that is mostly available in every household with internet connectivity.

Even if the threat of academic institution closure due to COVID-19 is no longer eminent, the use of this approach still can be implemented in academic institution and benefits the society at large.

SUPPORTING INFORMATION: Please send any supporting information to the address above, including information from candidate (i.e. excerpt from program description, web site print-out, press release, etc.)

Please find the attached supporting documents with this form and email. This project has won several awards at the national level in Malaysia as recognition to its effectiveness and viability. It was also presented to several conferences, including as plenary speaker in a conference in India, and received good recommendation.

Please visit our promo video at :

https://youtu.be/11RT7_CsHVY

NOMINEE CONTACT INFORMATION (for award follow up and coordination)

Name/title : **Assoc Prof Dr Mohamad Hanif Md Saad**

Email : **hanifsaad@ukm.edu.my**

Phone/Mobile : **+60196669395**
