

UPH Celebrates International Day of Light 2018 through a Series of Seminars, Workshops, and Humanitarian Activities

By: Henri P. Uranus

On 14 Nov 2017, during the closing ceremony of 39th session of UNESCO general assembly, resolution no. C39/40 which proclaimed every 16 May as the International Day of Light (IDL) was released. Hence, 16 May 2018 will be historical as it will be the very first celebration of this big day to celebrate the important the role of light and light-based technologies for life, science, culture, art, education, welfare, etc. and popular with acronym IDL2018. A movement steered by many well-respective organizations like ICTP, IEEE Photonics Society, SPIE, OSA, AIP, APS, universities, companies, etc. spreads a global activities from seminars, talk-shows, exhibitions, outreaches, etc. with light as the central theme. The www.lightday.org, an official website for IDL2018 lists more than 800 activities in 87 countries. For Indonesia, the website lists IDL2018 celebrations in Bandung, Surabaya, and Tangerang. The celebration in Tangerang was organized by Dept. Electrical Eng., Universitas Pelita Harapan (EE UPH). The activities in UPH were endorsed by IEEE Indonesia Section, OSA Indonesia Section, and The Indonesian Optical Society.

The IDL2018 celebration in UPH consists of a series of activities under a big theme of “Lucis pro Nobis”, a Latin for “Light for Us”. The activities were organized by Electrical Engineering Student Union under its yearly event called as Electro Mega Project (EMP) led by 2nd year EE student, Budi Khusnandar. The activities starts at 18 May 2018 by delivering 3 parallel workshops in Poris Indah Junior (SMP Poris Indah) and Senior High Schools (SMA Poris Indah), Tangerang.

For the 1st year junior high school students, workshop on “Learning Optics through Experiments” were delivered by Julinda Pangaribuan, a lecturer of EE UPH. In this workshop the youths were amazed by seeing the world differently through an own-made kaleidoscope constructed of pieces of broken compact disks arranged in a tube taken from used toilet paper roll. Through this activity, the students learned about reflection and scattering of light.



The second workshop was “Fun with Optics”, where using simple off-the-shelf stuffs from local DIY store and laser pointer, Marincan Pardede, a lecturer of EE UPH showed how students can learn the geometrical optics principles of lenses using an own-made smoke-box, learn how rainbow happens through dispersion and multiple reflection visualized by laser light reflection in water inside a beaker glass, learn how reddish sky during sunset and sunrise happens by scattering of white light in water added with few drops of milk. This activity was given to the last year students of the junior high school.

The third workshop was “Make Your Own Solar Lamp”, delivered by Henri Uranus, a lecturer of EE UPH. This workshop was aimed for senior high school students, where students learn how to harvest electricity

from sun light using small solar panel, and construct their own circuit to control battery charging and automatic night-on lamp. The unique aspect is that the lamp bulb is made of used mineral water bottle. The students were grouped into 3 to 4 person to construct, test, and troubleshoot the circuit under supervision of 1 EE UPH student. In the near future, the fabricated solar lamp, after tested and packed by UPH students, will be donated people living in remote area in Papua, an area in Indonesia where electricity is still a luxury, where more than 50% of families do not have access to electricity.



On 28 May 2018, the activity continued by official opening of the EMP, where Henri Uranus, a lecturer of EE UPH delivered a seminar entitled “Let There be Light: Lucis Pro Nobis” where UPH students were exposed to the role of light in many modern-day applications, from telecommunications, lighting, welfare, energy, education, medicine, industrial activities, archeology, etc. Additionally, a workshop on making a blinking keychain were delivered by EE students on 31 May 2018 to their fellow students from other departments. On 4 June 2018, another seminar on laser applications were delivered by Marincan Pardede for UPH students, where students learn applications of lasers from spectroscopy, material processing, to medicine.



On 9 June, 2018 a group of EE UPH's student led by Josavan Ezekhiel Taniara, erected poles of village street light constructed using affordable materials for garbage sorter (in Bahasa Indonesia: “pemulung”) community in Trash Dump of Bintara, Bekasi.

Have you ever imagined living in a trash dump, in a small simple hut made of used materials, where infrastructure is minimal? There are actual families living in this condition, in many places, including The Bintara Trash Dump, Bekasi, Indonesia. Despite living among garbage, these families are in fact heroes for environment, since they sort the garbage to find out stuffs that can be recycled. Plastics, papers, metals, electronics will be sorted out, sent to the recycle factory get their life cycle extended, and hence reduces the amount of end garbage. This profession is called “pemulung” in Bahasa Indonesia, which literally means “garbage sorter/collector” who plays instrumental role in recycle business process.

In this solar lamp system, a small solar panel will harvest energy during day time, charge a 10.000 mAh Li battery bank, and the system will automatically turn on a 3 W LED during night. The system is able to light

up for more than 12 hours a day and already employs battery overcharge and overdischarge protection. This humanitarian activity is conducted by making and installing simple, small light poles called as Penerangan Jalan Kampung (Village Street Light) using affordable materials, at a fraction of cost of ordinary street light pole. The system was designed by Henri Uranus, a lecturer of EE UPH, using affordable materials, constructed and deployed by a group of students led by Josavan Ezekhiel Taniara, a 2nd year EE UPH student.



The execution of this humanitarian activity was assisted by LDD/Lembaga Daya Dharma, a charity institution of Archdiocese of Jakarta, which is coincidentally running several humanitarian activities there as well. After several times of circuit redesigns, revisions, and testing in UPH campus, 4 solar lamp poles were finally erected in The Bintara Trash Dump, Bekasi, on 9 June 2018 in several spots which are usually very dark at night. The humanitarian activity helps the community of 200 families for their activities at night and will be a pilot project for further implementations in other places in the future. The area which are usually very dark at night, now get small lights at certain spots from the poles. These series of IDL2018 activities outreaches around 100 high school students, 100 UPH students, and the humanitarian activity reaches a community of around 200 families.

Socialization Internship Program from PT. PLN



In June 2018, IEEE SB of ITS held a seminar Socialization Internship Program from PT PLN. This seminar consist of information to the students who want to conduct internship. This seminar was attended by more than 100 students.

Special Article: Wearable Wireless Technology

By: A'isya Nur Aulia Yusuf



Wearable wireless technology provide an innovative way to connect human and/or objects everywhere, anywhere, in various applications. It provides continuous monitoring on physiological parameters such as heart rate, blood pressure, body temperature, etc. It also provides mobility, portability and flexibility to the users. This technology involves various type of device such as sensor, actuator, coordinator and gateway. Sensor is used to get physiological data, while actuator is used to act based on observation result. Coordinator is used to control and coordinate devices on human body with devices around the body. That's why wearable wireless technology emerges as a new technology for smart application in the future.

Wearable wireless technology revolutionizes a lot of applications, including health, rescue management and state of emergency, and so on. Nowadays people can easily monitor their health condition with human-assistive wearable technology. Older people also can monitor and follow up their health condition from remote places. By using this technology, health workers can monitor patient's condition in real time inside the ambulances, emergency room, operating room, post operating recovery. We can also use this technology in health clinic, house and even outpatient, so that most of the diseases can be prevented through early detection and doctor can give efficient advice to the patient to improve their health condition.

In another application, wearable wireless technology can help, in emergency situation such as natural disaster, not only to save human life but also to monitor health status of rescue team and the victims. Furthermore, the technology can help to make an optimal decision during disaster rescue operation.

Wearable wireless medical application not only provides comfort for patients in their daily life, but also can improve efficiency where doctors can monitor and observe patient's health in real time. There are some sensors and wearable devices available to use in human body, such as accelerometer, blood glucose sensor, blood pressure monitor, ECG sensor, thermometer, etc. These applications are designed to benefit patients and doctors in monitoring continuously and mobility. In the future, wearable technology is expected to support high data rate in a small and light size. To implement these two criteria, a high frequency technology will be used. Wearable technology also has to consume power as less as possible.

Source and References:

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Editor Corner

We welcome all the readers for the 14th edition of our newsletter. This newsletter is from us to us and hopefully it is useful for all Indonesian IEEE members. We hope that the article can inspire you. This month, we have information about wearable technology. We also held a series of activities to celebrate International Day of Light 2018. What are these activities? Read this newsletter, more information is included. We will also continue to update about all our activities through newsletters and e-notices. Please be aware with these important major activities in 2018! Hope you enjoy this newsletter edition! Happy reading!

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We are waiting for the participation of Chapters and Student Branch in Indonesia to share the information of completed and ongoing activities and the participation of Chapters in Indonesia to share the regarding technical articles. For members IEEE who want to share information and articles please email to :

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