Earth Friendly AI for Sustainability on Smart Campus

Regional Workshop on UI Greenmetric

World University Ranking for Mediterranean Universities

UI GreenMetric World University Rankings

CYPRUS INTERNATIONAL UNIVERSITY

UNIVERSITI SAINS ISLAM MALAYSIA

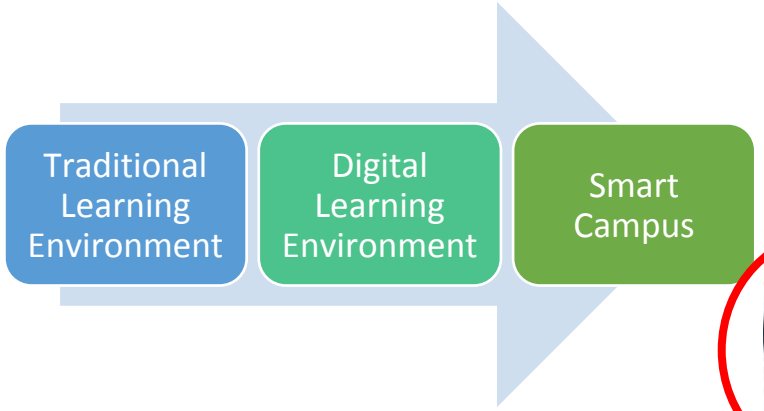
جَامِعَة العُلوم الإسْلامِيَة المَالِيزِيَة

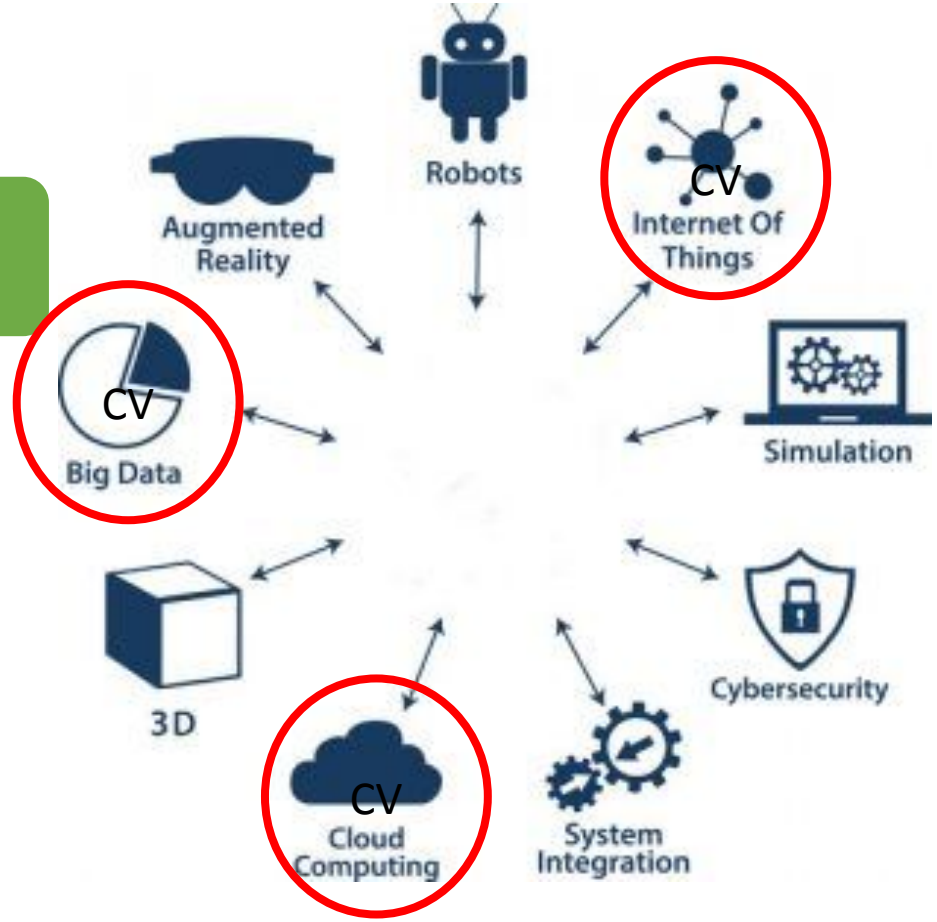
ISLAMIC SCIENCE UNIVERSITY OF MALAYSIA

CONTENT

- What is a Smart Campus?
- What is Earth Friendly AI?
- How Smart Campus support Sustainability?

1. What is a Smart Campus?



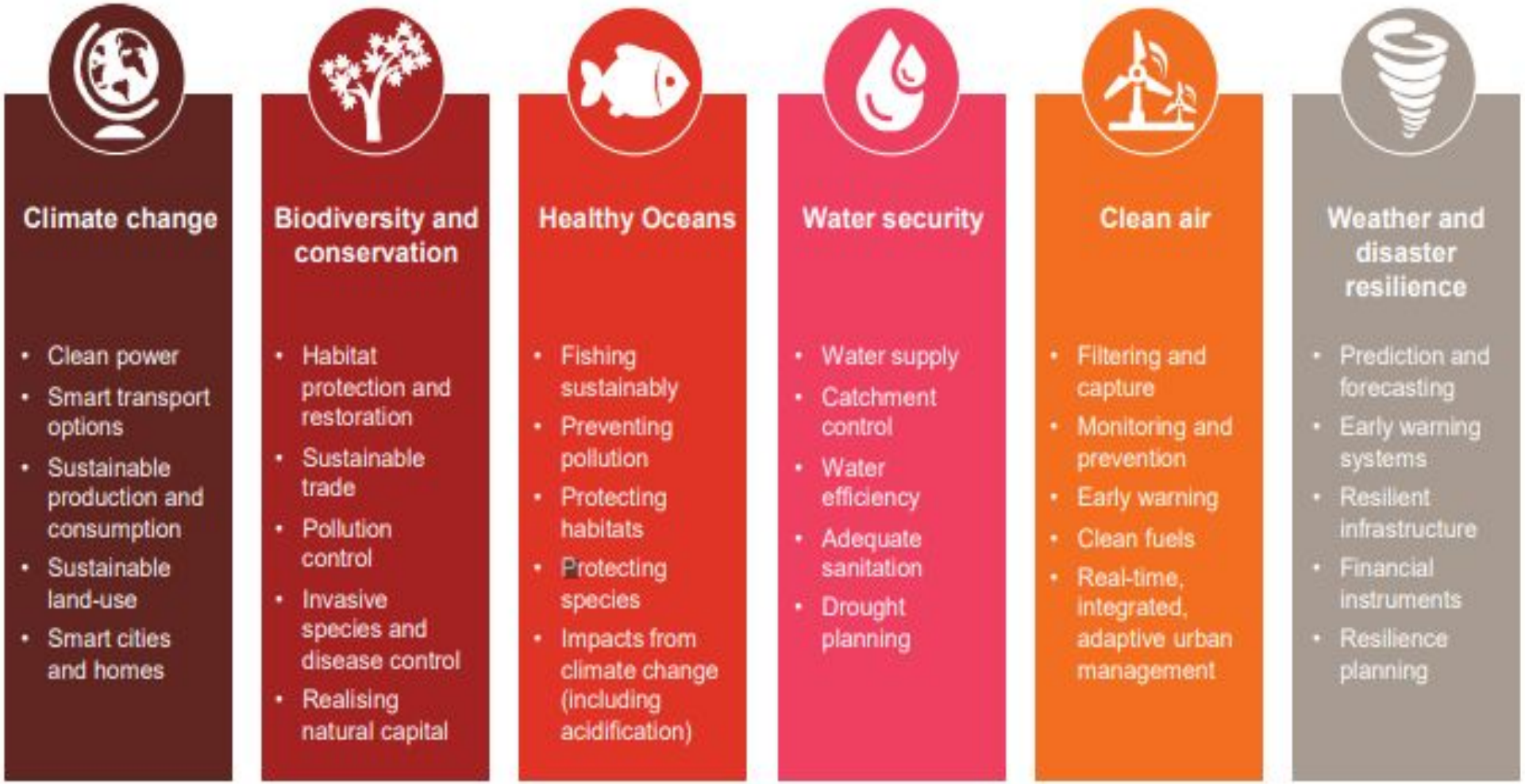


A Smart Campus links devices, applications, and people to enable new experiences or services and improve operational efficiency.

2. What is Earth Friendly AI?

- The AI technology such as machine learning, robotics, drones, and the internet of things (IoT) may give advantage to monitoring, understanding, and prevention of damage and stressors on Earth's land, air, and water.
- Purpose is to develop **safe, responsible and ethical AI**, future and future generation development to be aligned with humanity's values, promising safe application of the technology for humankind.
- Ensuring that evolving AI systems remain **friendly** must incorporate the **health of the natural environment** as a fundamental dimension.

Figure 2: Priority action areas for addressing Earth challenge areas



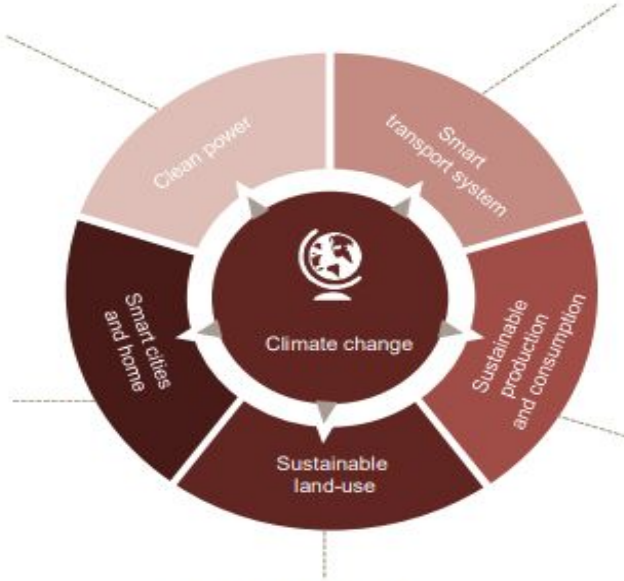
Source: PwC research

Fourth Industrial Revolution for the Earth
Harnessing Artificial Intelligence for the Earth, PricewaterhouseCoopers(2018)

Figure 3: AI applications by challenge area

Climate change

- Optimised energy system forecasting
- Smart grids for electricity use
- Predict solar flares for protecting power grids
- Renewable energy plant assessments
- Optimised decentralised & peer-to-peer renewable energy systems
- Optimised virtual power plants



- On-demand shared transport mobility
- AI-enabled electric cars
- Autonomous vehicles for efficient transport
- Vehicle to infrastructure communication and optimisation
- Optimised traffic flows
- Integrated cost-efficient transport systems
- Demand-response charging infrastructure

- Smart traffic light & parking systems for urban mobility management
- Optimised sustainable building design
- Energy-efficient building management systems
- Auditory responsive lighting & heating
- Optimised urban-level energy generation and use
- Analytics & automation for smart urban planning

- Supply chain monitoring and transparency
- Active optimisation of industrial machinery & manufacturing
- Digital twins for lifespan performance optimisation
- Smarter fresh-food replenishment
- Smart recycling systems
- Integrated municipal & industrial waste management

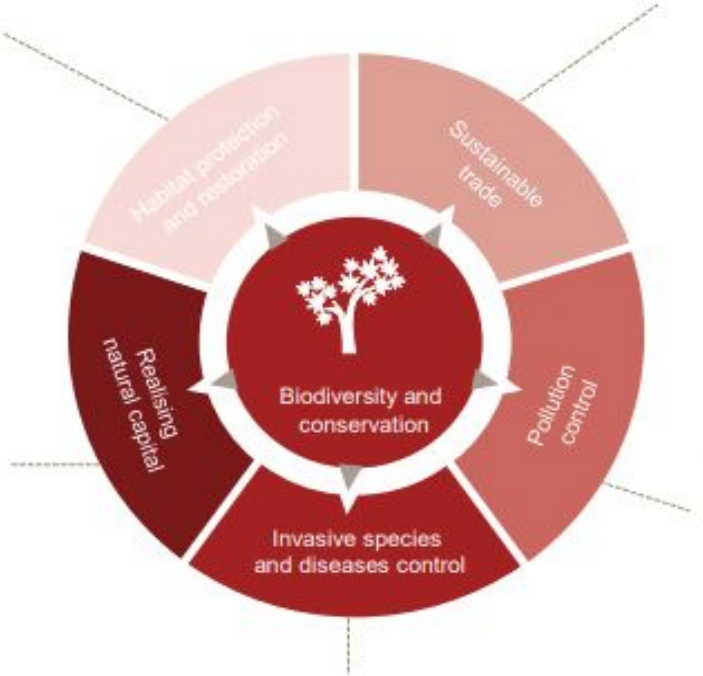
- Early crop yield prediction
- Precision agriculture & nutrition
- Hyper-local weather forecasting for crop management
- Early detection of crop issues
- Automated & enhanced land-use change detection for avoided deforestation
- Monitoring health & well-being in livestock farming

Source: PwC research

Fourth Industrial Revolution for the Earth
Harnessing Artificial Intelligence for the Earth, PricewaterhouseCoopers(2018)

Biodiversity and conservation

- Precision monitoring of ecosystems
- Bird habitat and migration pattern prediction
- Simulation of animal and habitat interaction
- Habitat loss detection and monitoring
- Micro drones for pollination
- Optimised breeding of plants



- Detection of unauthorised animal capture
- Image-based detection of illegal wildlife trade
- Poacher route prediction and high risk animal tracking
- Food value chain optimisation
- Supply-chain monitoring & origin tracking

- Register & trading of biological & biomimetic assets
- Plant species identification
- Machine-automated land-use detection linked to ecosystem payments

- Pollutant dispersal prediction and tracking
- Analysis of urban runoff quality issues

- Machine-automated biodiversity analysis
- Smart mosquito traps
- Plant disease identification & detection

Source: PwC research

Fourth Industrial Revolution for the Earth
Harnessing Artificial Intelligence for the Earth, PricewaterhouseCoopers(2018)

Clean air

- Optimised sensor-based air purifying systems
- Carbon capture, sequestration and use

- Real-time air pollution monitoring & simulations
- Air pollutant source detection

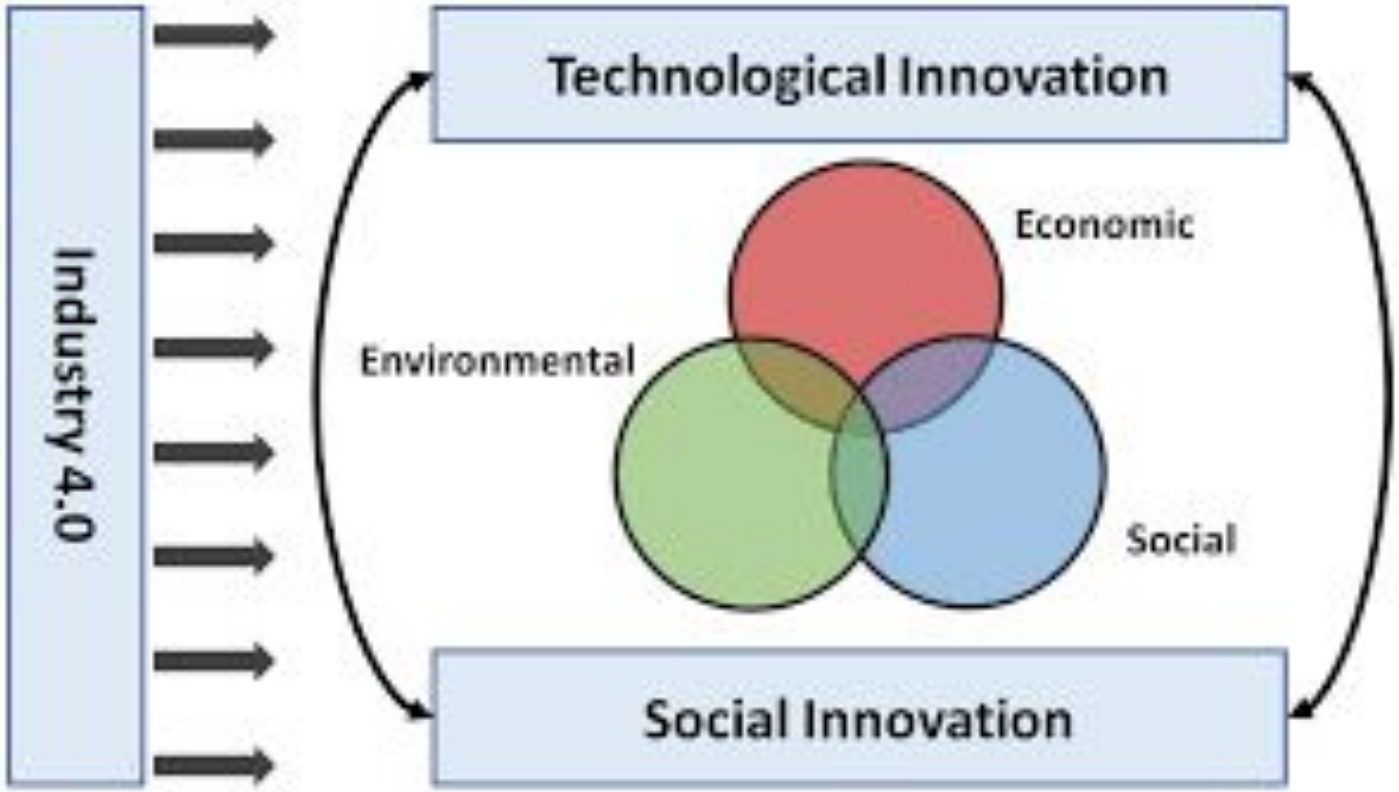
- Advanced battery and fuel-cell design
- Advanced battery components
- Pollution forecasting for transport management

- 2-10 day pollution level forecasting
- Air quality alerts

Source: PwC research

Fourth Industrial Revolution for the Earth
Harnessing Artificial Intelligence for the Earth, PricewaterhouseCoopers(2018)

3. How Smart Campus support Sustainability?



How technological progress can be exploited to solve society problems?

Must view technological innovations through a social perspective.

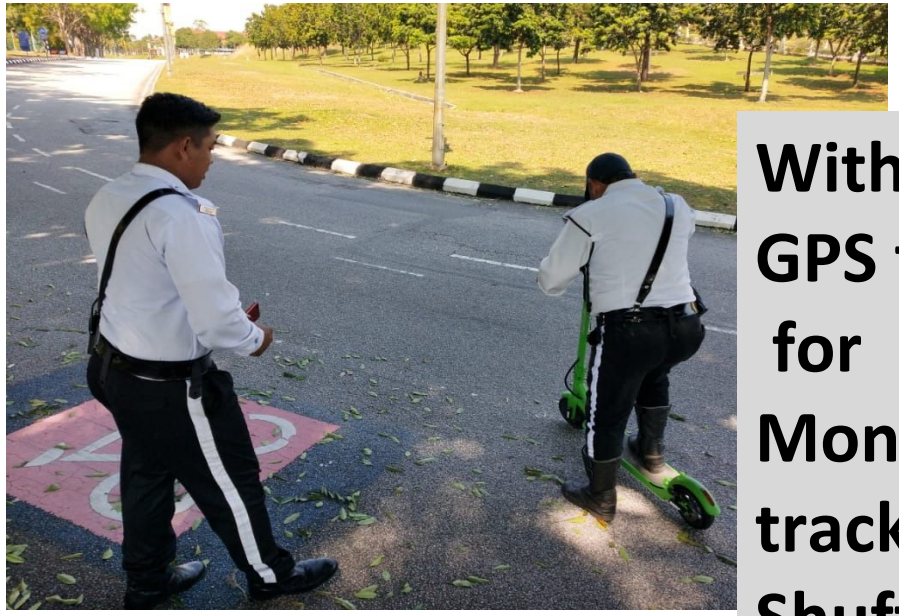
Social innovations such as new models, services, and products that simultaneously meet social needs (Marolt et al., 2015).

Rabeh Morrar, Husam Arman, and Saeed Mousa .
The Fourth Industrial Revolution (Industry 4.0): A Social Innovation Perspective,
Technology Innovation Management Review(2017)

Little Steps in USIM

CONGRATULATIONS FOR THE BEST PHOTO. YOU GET A FREE 3 HOUR RIDE TOMORROW MORNING, SUNDAY. MESSAGE US FOR THE DETAILS AND PICK-UP TIME.

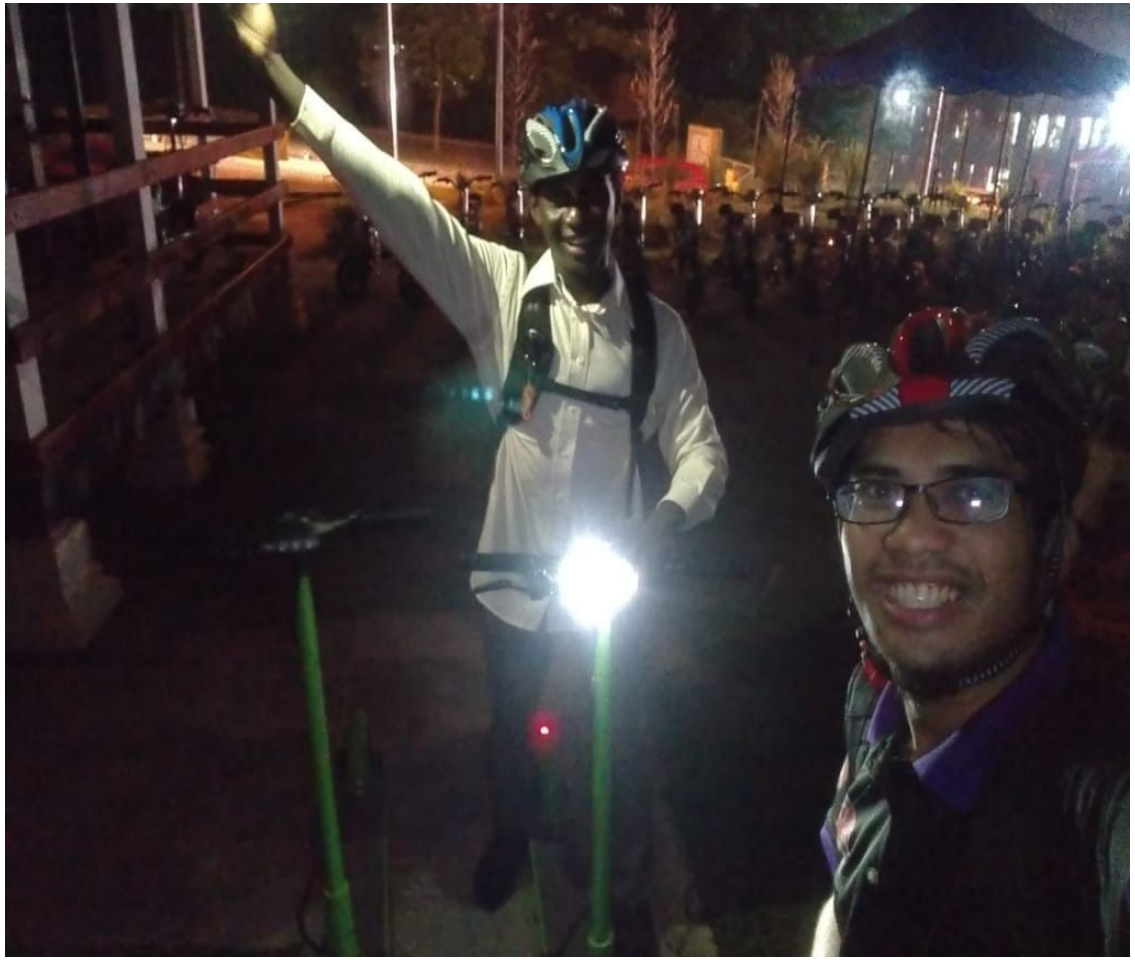
#USIM #SUSTAINABILITY #EBIKECHALLENGE



With GPS tracker for Monitoring track and Shuffling between parking

Apps + QR Code to switch on/off

INSTALL THE GPS TRACKER WITH IOT NETWORK



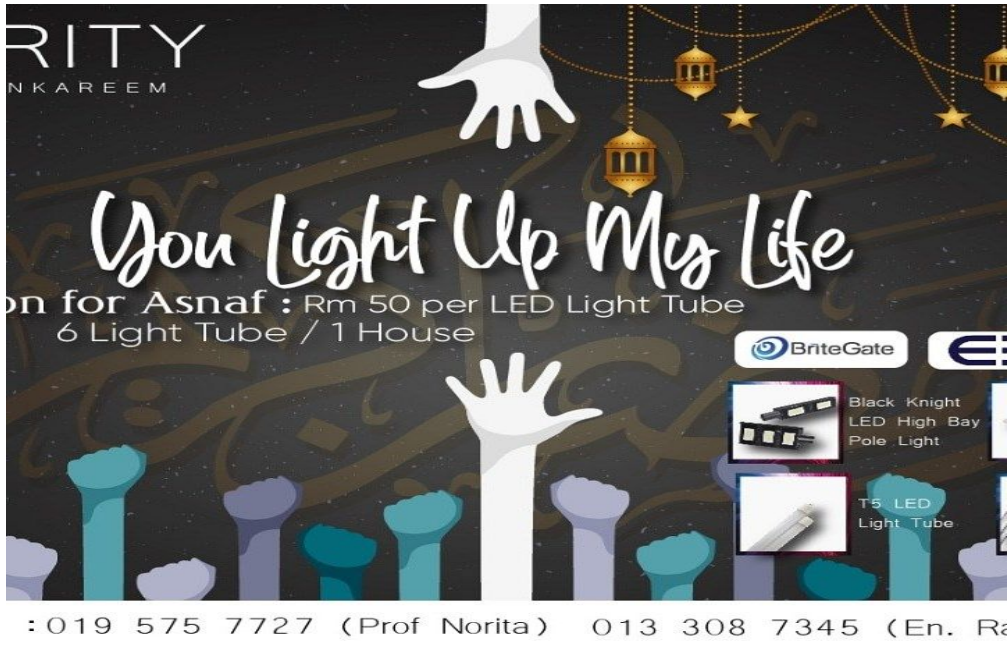
USIM GO GREEN GOING EPIDERMIC


Shoot 5 arrows for free. You get 1RM
discount to rent bikes for every arrow
that hits the target

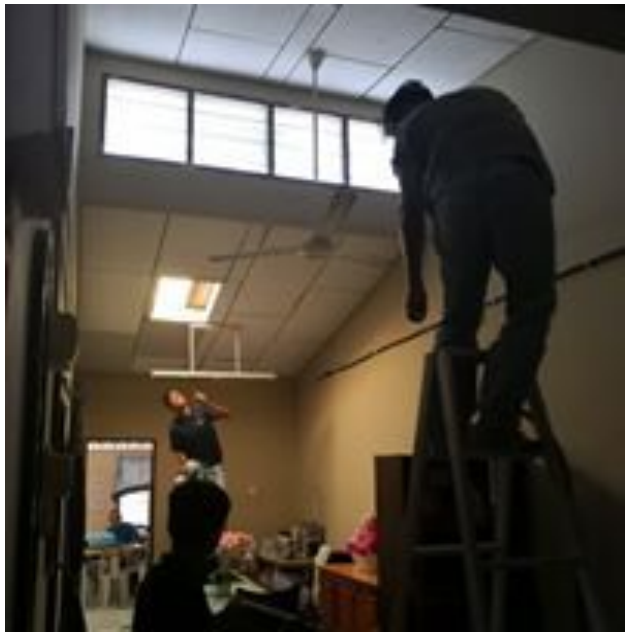

GENK
Program Tadabbur Alam untuk mahasiswa baharu USIM


FOOD BANK SISWA
UNIVERSITI SAINS ISLAM MALAYSIA
dirasmikan oleh
YB DATUK SERI SAIFUDDIN NASUTION BIN ISMAIL
MENTERI PERDAGANGAN DALAM NEGERI DAN HAL EHWAL PENGGUNA
19 September 2019
Dengan Kerjasama
NSK
TRADE CITY
FAMA
AEON
GAS
ECONSAVE


Vico
AEON
LUXURY


RITY
NKAREEM
You Light Up My Life
on for Asnaf : Rm 50 per LED Light Tube
6 Light Tube / 1 House
BriteGate
Black Knight
LED High Bay
Pole Light
T5 LED
Light Tube
: 019 575 7727 (Prof Norita) 013 308 7345 (En. Ra


VANS



VIRTUES BASED SUSTAINABLE DEVELOPMENT INTIATIVES

The same way one single tree can shelter so many people,so can your one single deed transform many lives. Be intentional with your deeds today to positively impact lives.

The value of one single tree.

Amal Soleh yang Berlanjutan

(Sustainable Amal)

Daripada Annas bin Malik r.a., Rasulullah s.a.w. bersabda: "Tujuh perkara yang seseorang itu masih berterusan mendapat pahala daripadanya, walaupun sudah meninggal dunia:

1) Ilmu yang diajarkan
2) Mata air yang dialirkan
3) Perigi yang digali
4) Pohon yang ditanam
5) Masjid yang dibina
6) Mashaf al-Quran yang ditinggalkan sebagai pusaka
7) Anak-anak yang sentiasa mendoakan keampunan untuknya"

Al-Jami' Al-Sohih: 3596
Kitab al-Targhib wal-Tarhib (Bab Sadaqah)

VIRTUES BASED SUSTAINABLE DEVELOPMENT INTIATIVES

RESEARCH

- Quran Studies for Special Needs Using Technology
- Braille, Audio Book, Apps , 3D Printing
- Psychospiritual therapy for drug addicts
- Education for Indigenous People

We are making progress insyaAllah