



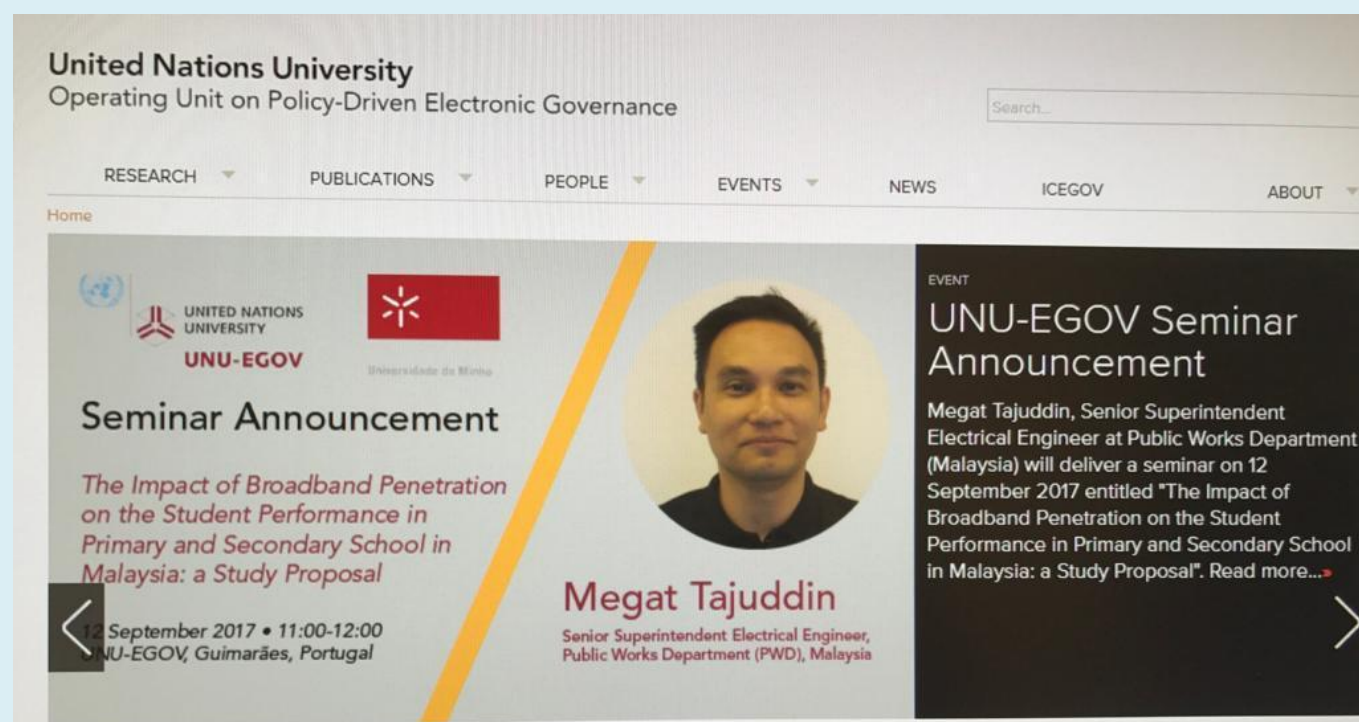
PROGRAM ECKM CPAB

Ada apa dengan Teknologi IR 4.0

Ir. Dr. MEGAT ZUHAIRY MEGAT TAJUDDIN

PENGENALAN

- **Johns Hopkins University, USA 1992-1996**
Electrical & Computer Engineering
- **Menyertai JKR tahun 1997**
Cawangan Kejuruteraan Elektrik
- **Ulm University, Germany 2003-2005**
Communications Technology
- **UiTM, Shah Alam, Malaysia 2009-2013**
Doctor of Business Administration
- **United Nations University, Portugal 2017**
Expert (Government Fellow) – Electronic Governance



LIST OF EXPERTS – UNITED NATIONS UNIVERSITY, PORTUGAL



Soares, Delfina
Head



Barbosa, Luís
Deputy Head



Carvalho, João
Adjunct Professor



Tavares, António
Adjunct Associate Professor



Velga, Linda
Adjunct Associate Professor



Ben Dhaou, Soumaya
Research Fellow



Rohman, Ibrahim
Research Fellow



Carvalho, Nuno
Postdoctoral Fellow



Lamelras, Mariana
Postdoctoral Fellow



Lopes, Nuno
Postdoctoral Fellow



Sarantis, Demetrios
Postdoctoral Fellow



Arfeen, Irfanullah
Postdoctoral Fellow



Fernandes, Sara
Special Advisor



Martins, João
Academic Fellow



Meyerhoff Nielsen, Morten
Academic Fellow



Silva, Tiago
Academic Fellow



Tajuddin, Megat
Government Fellow



Alburatmani, Salma
Government Fellow



Alarabiat, Ayman
Research Assistant



Elisabete SIMÕES
Head of Administration
Started: June 2016



José FARIA
Technology Officer
Started: May 2015



Mário MEIRA
Administrative Officer
Started: August 2014



Mário PEIXOTO
Programme Assistant
Started: August 2014



ICT to shape country's future

Megat Zuhairy Megat Tajuddin and Ibrahim Rohman
October 16, 2017 @ 11:09am

It was announced recently that Malaysia's Gross Domestic Product (GDP) growth is at a remarkable 5.8 per cent in the second quarter of this year, among the highest in the world.

Home - Opinion - Letters

7 minute read

Time to harness new and emerging technologies



The technical profession should transform in order to stay competitive. - NSTP file pic

December 29, 2019 @ 12:04am

RECOMMENDED

[VIDEO] Check Out These 14 Must-Watch Chinese New Year Ads Of 2020

[VIDEO] Aquario KLCC Brings

LETTERS: Dec 3 marked a watershed moment for the nation's technical profession fraternity. The Inaugural National Technical Profession Day was launched by Prime Minister Tun Dr Mahathir Mohamad to recognise the contribution of the technical profession in charting the nation's progressive landscape.

The prime minister stressed the key role played by the technical profession in Japan, Germany and

Our World

Brought to you by United Nations University

SECTIONS

Malaysia's 20-year Tech Investment Is Paying Off... Big Time

DEVELOPMENT & SOCIETY : Innovation, Governance, Economics, Technology, Urban Development

2018•05•24 Megat Tajuddin, Ibrahim Rohman United Nations University



Light rail transit operation control centre, Kuala Lumpur, Malaysia. Photo: International Railway Summit, Creative Commons BY-SA 2.0

Innovative changes in public sector



(File pix) The adoption of the Building Information Modelling technology by the Public Works Department facilitates the speedy completion of public infrastructure projects, such as the National Cancer Institute, which was completed 15 days ahead of schedule. NSTP Photo

By **Dr Khairil Hizar Md Khuzaimah, DR MEGAT ZUHAIRY MEGAT TAJUDDIN** - May 9, 2018 @ 11:59am

Tech excellence propels PWD



The newly opened 9km Rawang Bypass puts Malaysia on the world engineering map. FILE PIC

East or west, home still the best



(File pix) Malaysia is a wonderful place. Pix by Hafiz Sohaimi


By **MEGAT ZUHAIRY MEGAT TAJUDDIN** - October 20, 2017 @ 9:19am

PWD's I.T. expertise good for TN50



Malaysia has been focusing on ICT and continues to include it as part of the national agenda since 1996, and, with 20 years of emphasis on ICT, the effort has kicked in, resulting in tremendous success. FILE PIC

By **DR MEGAT ZUHAIRY MEGAT TAJUDDIN** - December 9, 2017 @ 10:56am



REVOLUSI INDUSTRI

- **REVOLUSI**

Perubahan kepada sesuatu atau dalam sesuatu bidang secara radikal (meluas, menyeluruh, dan cepat)



INDUSTRY 1.0

Mechanization, steam power, weaving loom



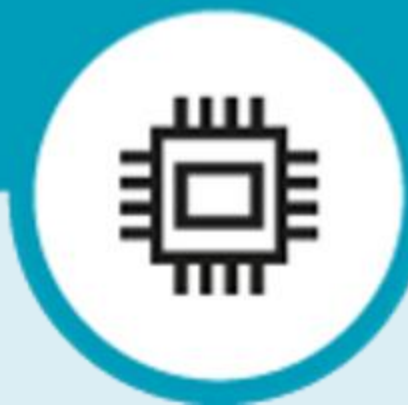
INDUSTRY 2.0

Mass production, assembly line, electrical energy



INDUSTRY 3.0

Automation, computers and electronics



INDUSTRY 4.0

Cyber Physical Systems, internet of things, networks

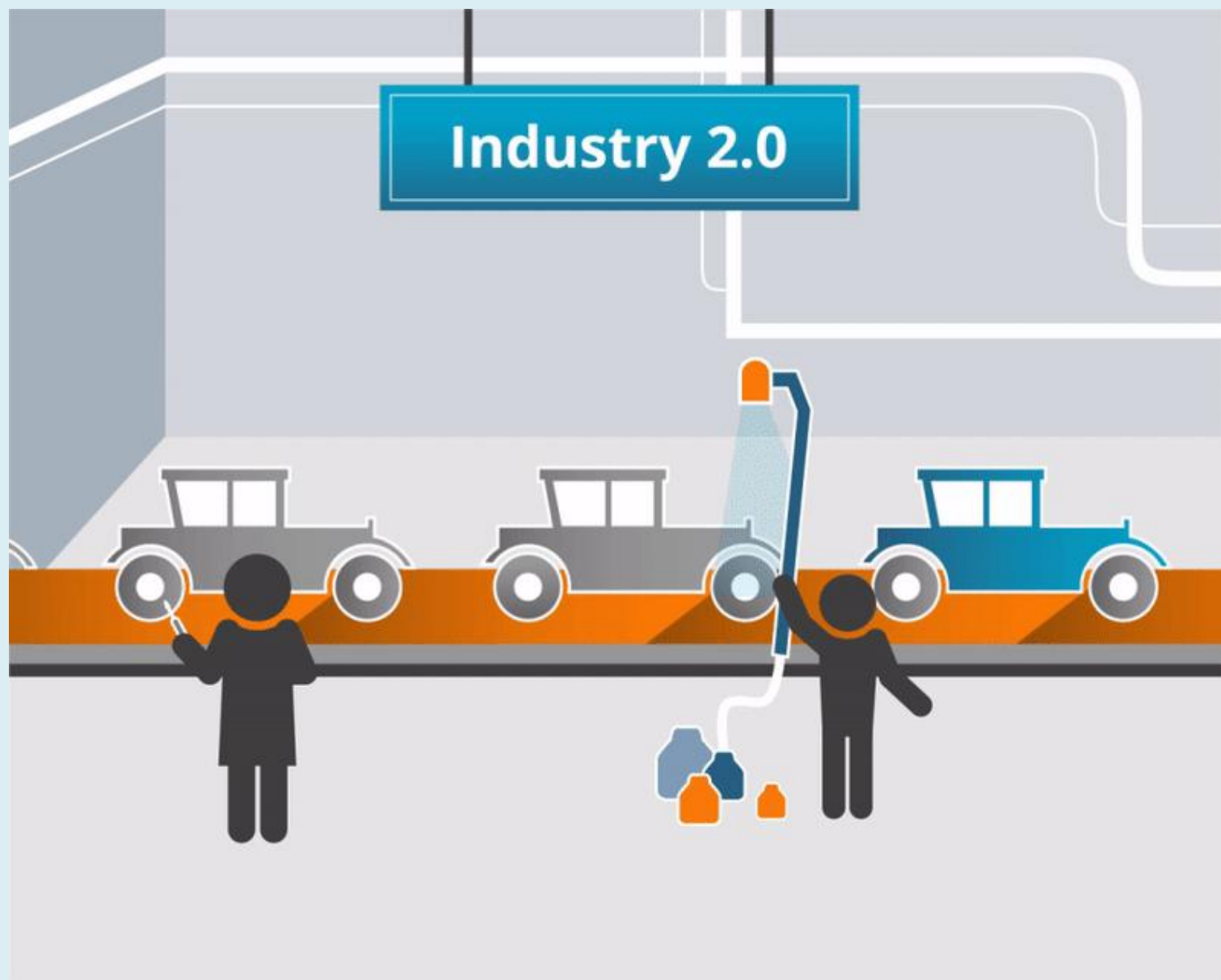


INDUSTRY 1.0



- Teknologi mekanikal dan *steam engine*
- Penggunaan tangan kepada mesin
- Industri rumah berpindah ke kilang
- Produk dipasarkan di kawasan geografi yang lebih besar
- Peningkatan produktiviti

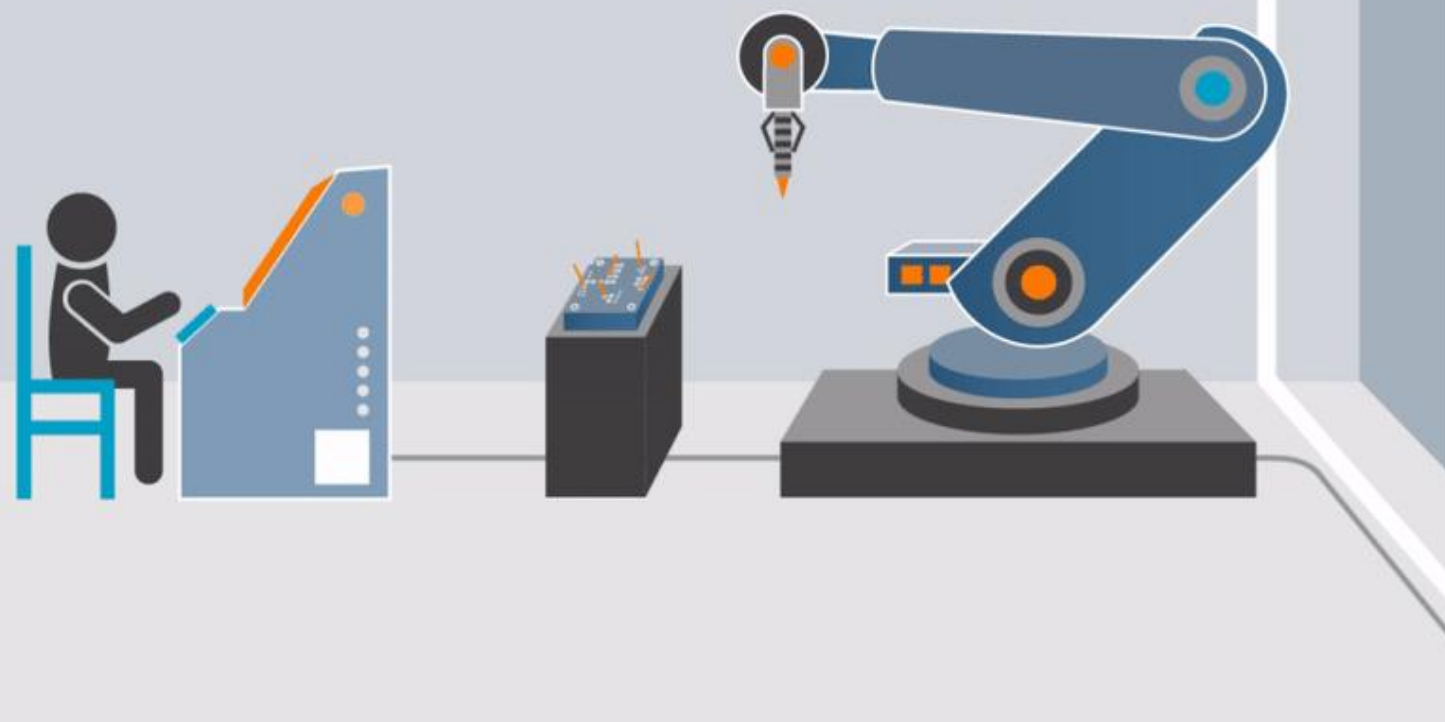
INDUSTRY 2.0



- Teknologi elektrik
- Penghasilan produk berskala besar (*mass production*) melalui *production line*
- Pengkhususan di dalam *production line*
- Efisien dan pengurangan kos

INDUSTRY 3.0

Industry 3.0



- Teknologi elektronik dan komputer
- Automasi dan robot
- Peningkatan ketepatan (*accuracy*) dan kualitas

INDUSTRY 4.0



- Teknologi internet, telekomunikasi
- Automasi pintar dan kecerdasan pembuatan
- Kebergantungan kepada manusia yang minimum

PERSAMAAN ANTARA 4 REVOLUSI

TERCETUS OLEH TEKNOLOGI

Pengenalan kepada teknologi telah mencetuskan perubahan yang besar kepada industri

PENINGKATAN PRODUKTIVITI

Pengeluaran ditingkatkan secara mendadak

FOKUS KEPADA INDUSTRI PENGILANGAN

Revolusi berlaku terutamanya di industri pengilangan

REVOLUSI INDUSTRI 4.0 (IR4.0)

MELIBATKAN SEMUA INDUSTRI

Bukan hanya pengilangan tetapi melibatkan semua industri termasuk pembinaan, kesihatan, pendidikan dan sebagainya

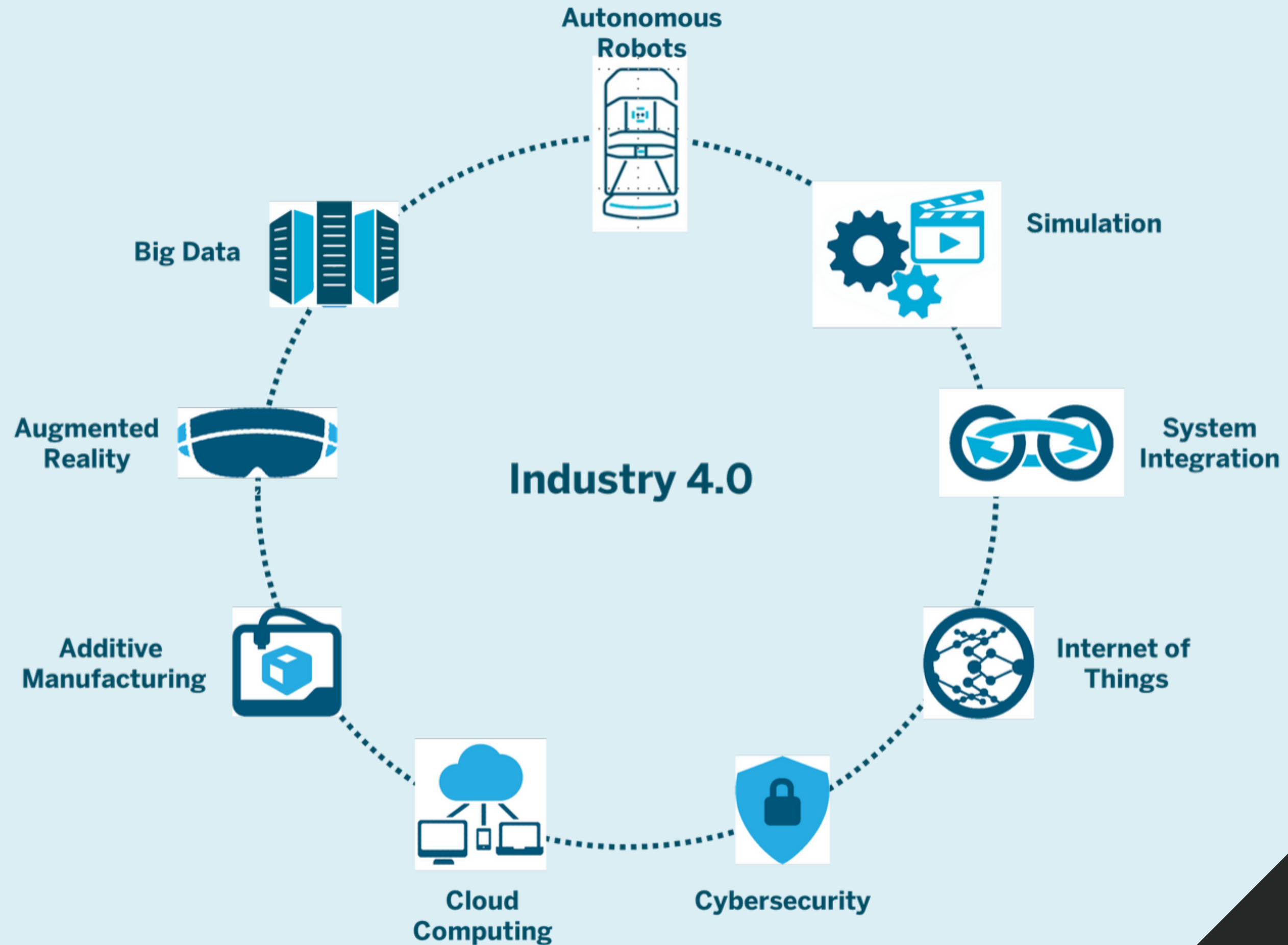
MENGUBAH CARA HIDUP

Bukan hanya industri tetapi kehidupan manusia juga berubah

PEKERJAAN DIJUMUDKAN

Lebih banyak tugas manusia diganti dengan mesin

9 TECHNOLOGY PILLARS



INTERNET OF THINGS

- Internet bukan untuk komputer sahaja
- *Connectivity* mudah dan murah
- Sensor dan alat komunikasi
- Data dan maklumat secara *real-time*

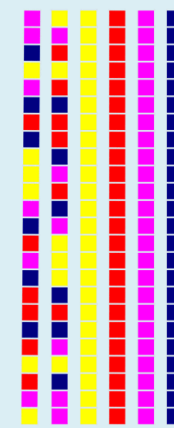
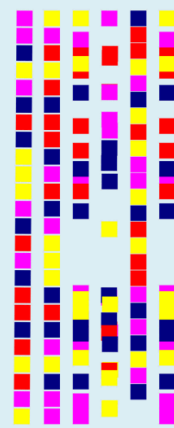


BIG DATA ANALYTICS

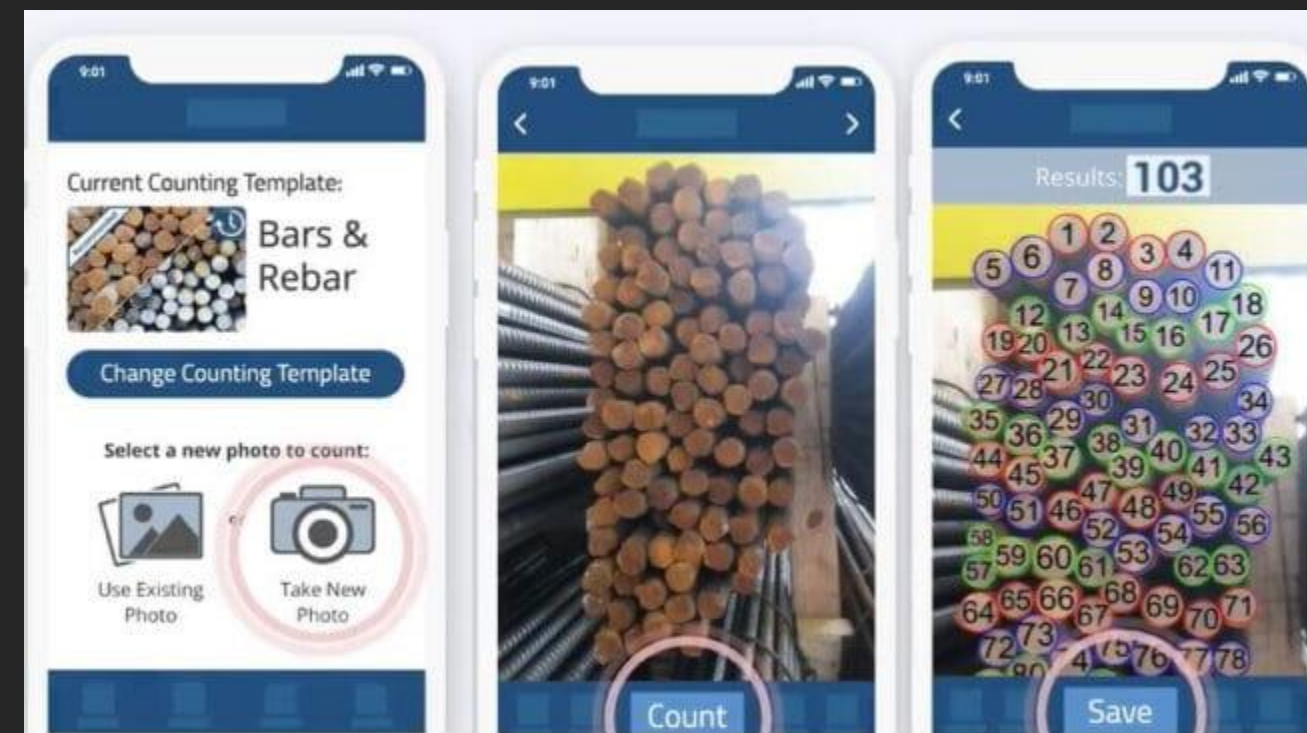
BIG DATA

ANALYTICS

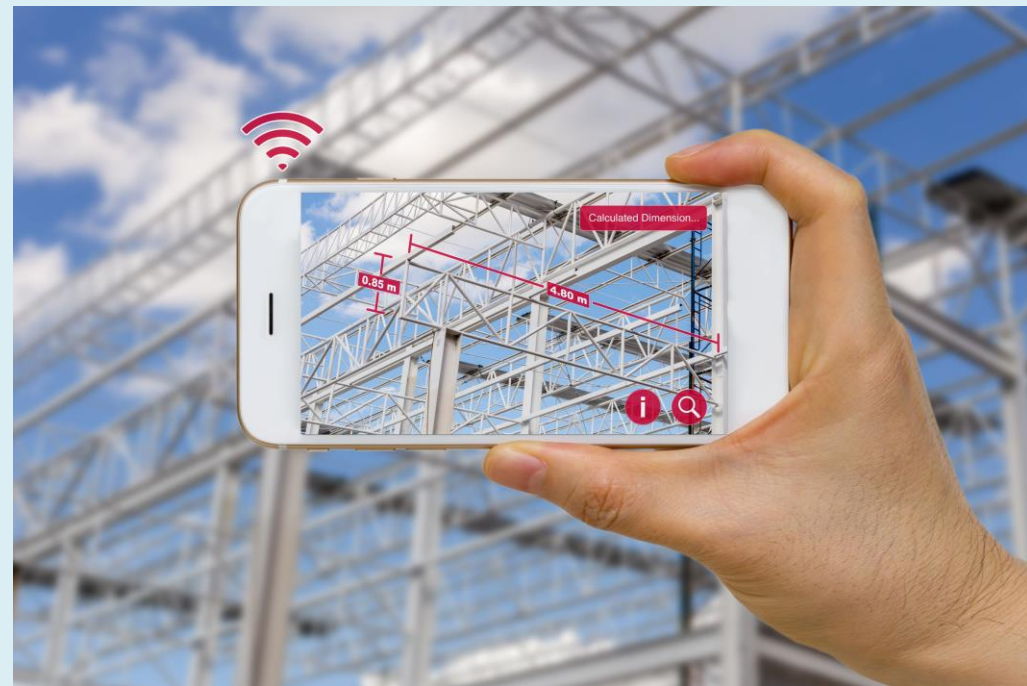
DECISIONS



- Data dianalisa untuk membuat keputusan
- Keputusan dibuat berdasarkan ramalan yang lebih tepat
- Kecerdasan pembuatan (*Artificial Intelligence*)



AUGMENTED REALITY

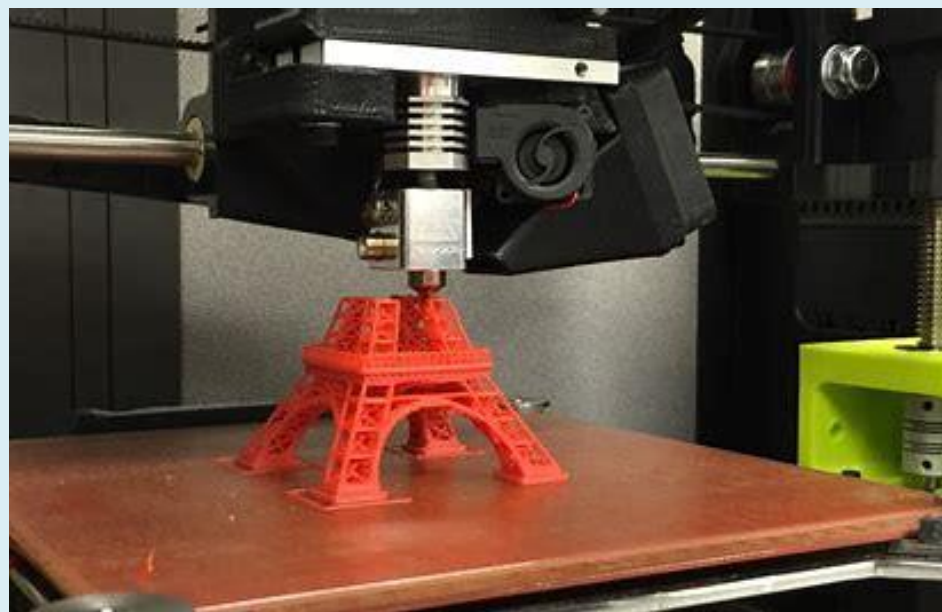


- Augmented – tambahan; meningkatkan
- *Superimposed* ke atas realiti



ADDITIVE MANUFACTURING

- *Additive vs. Subtractive Manufacturing*
- *3D Printing*
- *Customization*



AUTONOMOUS ROBOT



- Robot atau mesin yang berfungsi dengan autonomi
- Kecerdasan pembuatan (AI) menjadikannya lebih pintar



TECHNOLOGY CHARACTERISTICS

ICT AND CONNECTIVITY INTENSIVE

ICT based and demands high speed connectivity

CREATIVITY & INOVATIVENESS

Applications of the technology require user creativity and inovativeness

CHEAPER AND HIGH ADDED VALUE

Cheaper alternatives from the conventional system

9 TECHNOLOGY PILLARS



SMART TRAFFIC ANALYTICS & RECOGNITION SYSTEM

TMO ONE **JKR** **CKE KELANTAN** **STARS v2.0**
Smart Traffic Analytics & Recognition System

STARS TCUs	Description
KB-D02-DYN	TL PPR KOTA BHARU
KB-D108-DYN	TL GUCHIL BAYAM
KB-F01-DYN	TL PANJI
KB-F01-PPK	TL Taman Maju
KB-F02-PPK	TL HUSM
KB-F07-DYN	TL BILLION
KB-F14-DYN	TL SIMPANG JAMEK MERBAU
KB-F18-DYN	TL Limbat
KB-F19-DYN	TL Peringat
KB-F21-DYN	TL Pasir Tumbuh
KB-F24-DYN	TL Persimpangan Balai Islam
KB-F57-DYN	TL UDA MURNI
KB-FT34-DYN	TL JAMBATAN KG PEROL

TL CHERANG
KB-N07-DYN
Route: Dari Panji
Phase: 1
Mode: VA
Act Green Time: 20
Act Gap Time: 4
Time Plan: 5
VA Min: 10
VA Max: 00
Status: Online
Commission Date: 23/02/2018

4:16 120 Chats STARS@CKE-Kelantan 6 subscribers
2 STARS_Central, 6:16 PM

Today

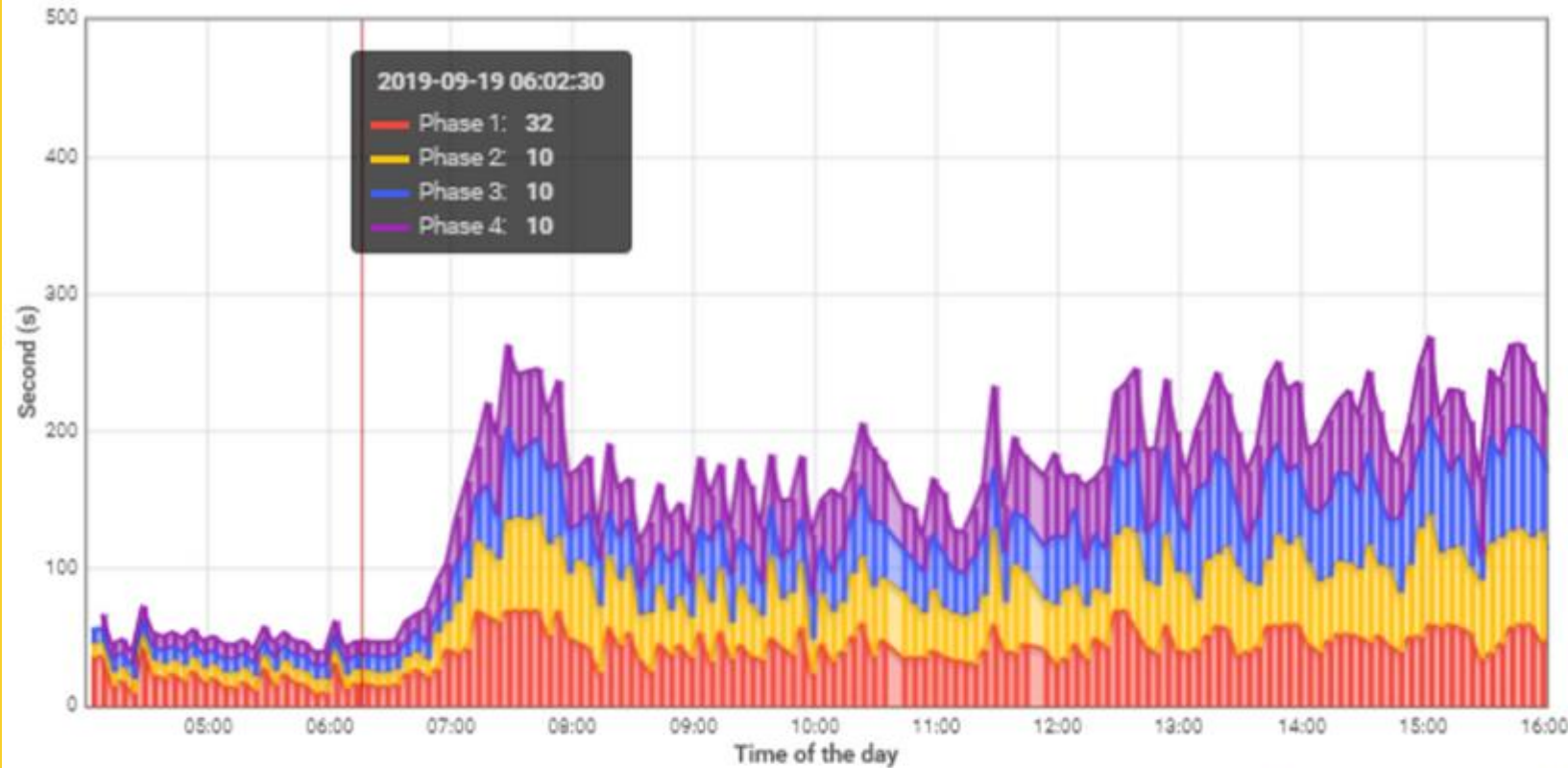
STARS@CKE-Kelantan
[NEW ALARM] @ PM-F03-DYN
Type : AMBER ALERT
Time : 19/9/2019 - 1:46:18
Detail : System is running on AMBER
Location : TL Pasir Mas Bypass
1 STARS_Central, 1:46 AM

STARS@CKE-Kelantan
[RESOLVED] @ PM-F03-DYN
Type : AMBER ALERT
Time : 19/9/2019 - 10:6:23
Detail : System is back to normal
Resolve Time : 8h 20m 5s
Location : TL Pasir Mas Bypass
2 STARS_Central, 10:06 AM

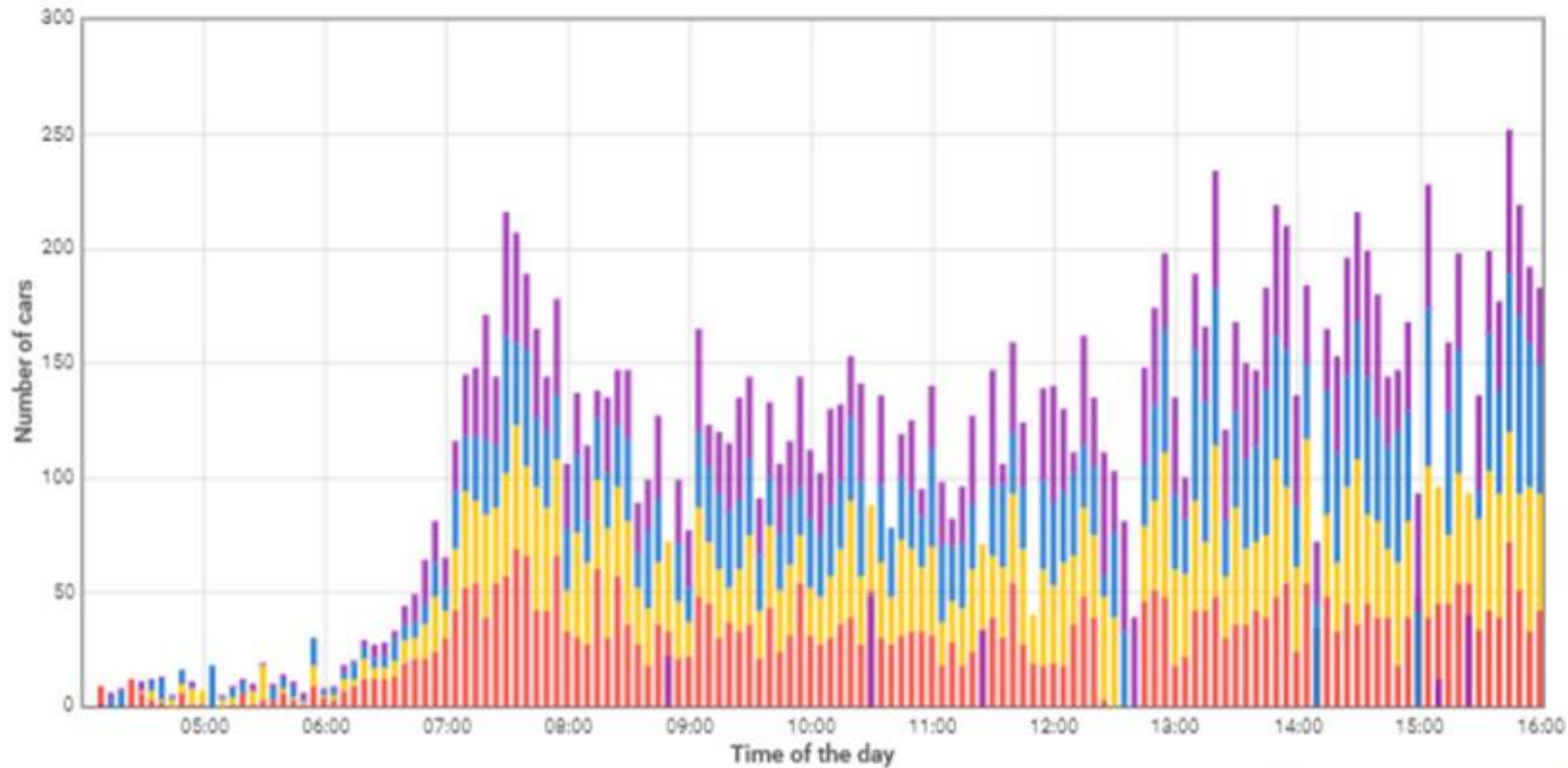
STARS@CKE-Kelantan
[NEW ALARM] @ KB-N006-DYN
Type : MP ALERT
Time : 19/9/2019 - 15:49:38
Detail : Phase 1 is running MP
Route : undefined
Location : TL BINJAI
1 STARS_Central, 3:49 PM

Broadcast

SMART TRAFFIC ANALYTICS & RECOGNITION SYSTEM

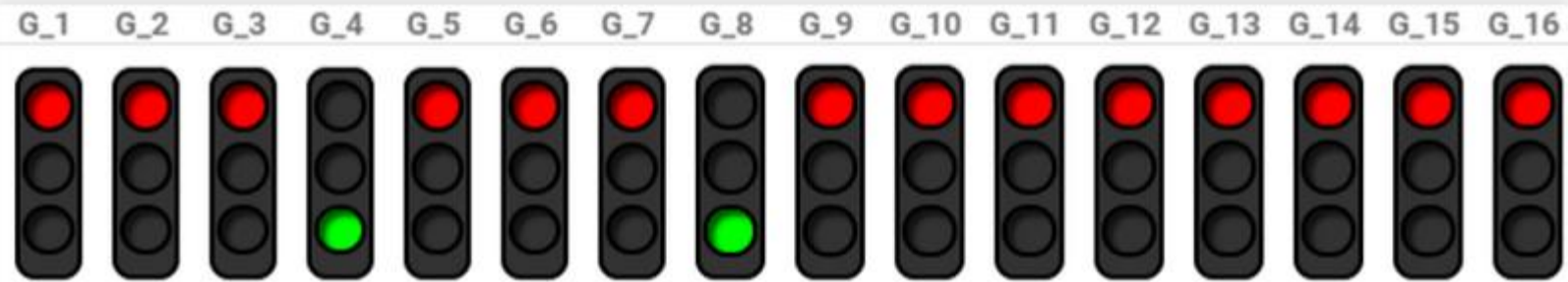


	min	max	avg	total
Phase 1	10	70	41	5863
Phase 2	10	80	41.48	5766
Phase 3	10	80	36.67	5207
Phase 4	10	60	38.44	5382
Phase 5				
Phase 6				
Phase 7				
Phase 8				

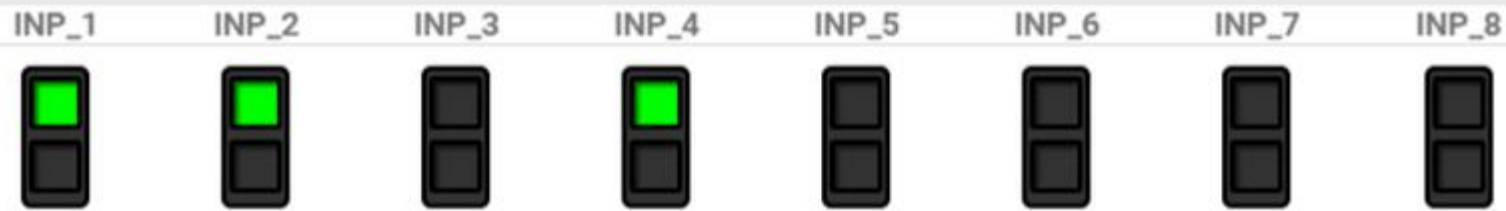


	min	max	avg	total
Phase 1	0	72	30.41	4227
Phase 2	0	72	29.24	4123
Phase 3	0	78	29.59	3935
Phase 4	0	63	27.14	3881
Phase 5				
Phase 6				
Phase 7				
Phase 8				

KB-N07-DYN



KB-N07-DYN



SPEED SIGN WITH RADAR SENSOR

OVERVIEW | Thursday Jan 23 2020 | 21:01:70

TRAFFIC COUNT

Kiraan Traffik



315

Total Count

AVERAGE SPEED

Purata Kelajuan



85

KM/H

CURRENT SPEED

Kelajuan Semasa



80

KM/H

OVER SPEED LIMIT

Melabih Had Laju

40%

Percent

BELOW SPEED LIMIT

Dibawah Had Laju

60%

Percent



PERINGATAN

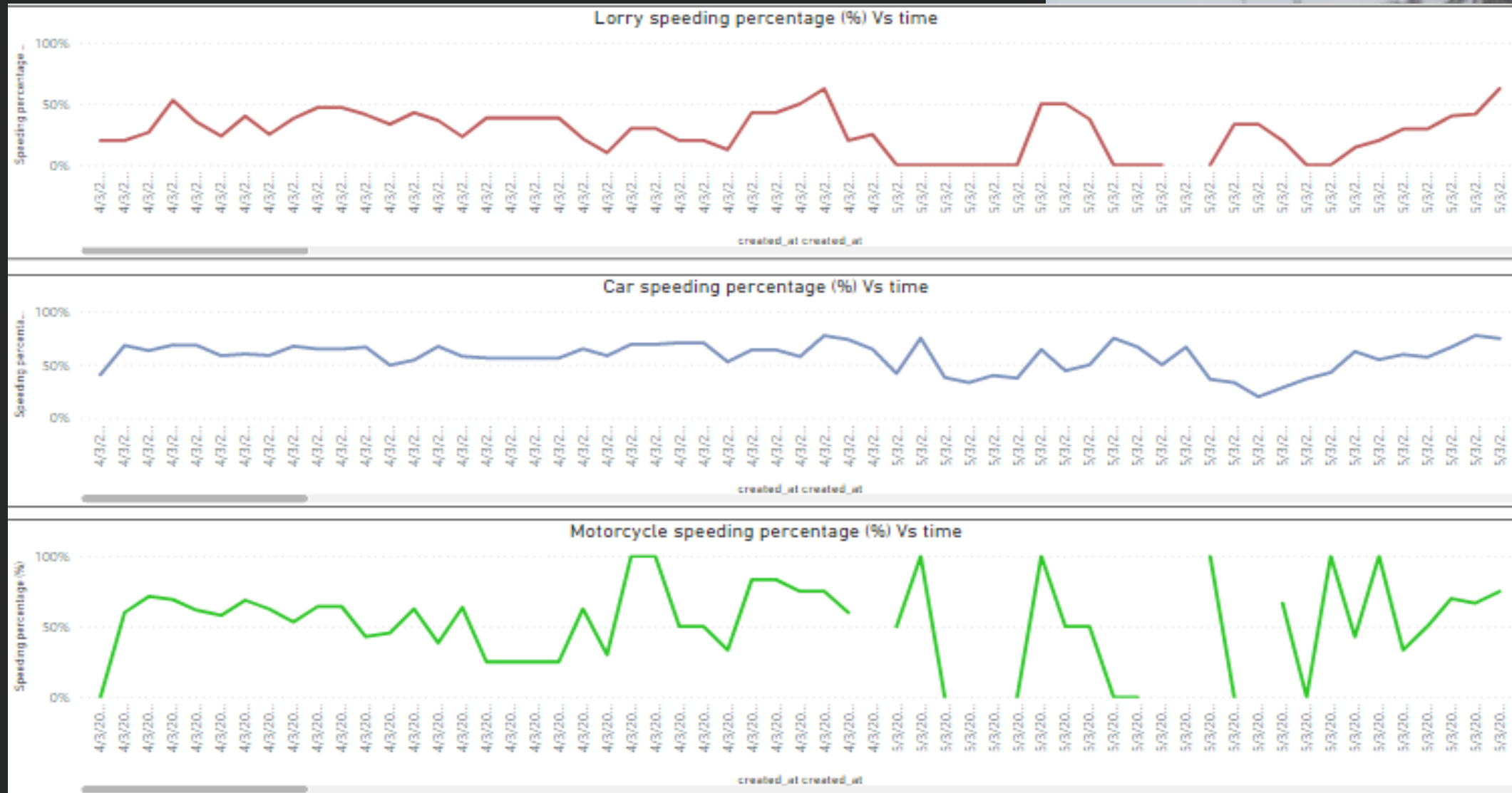


km/j

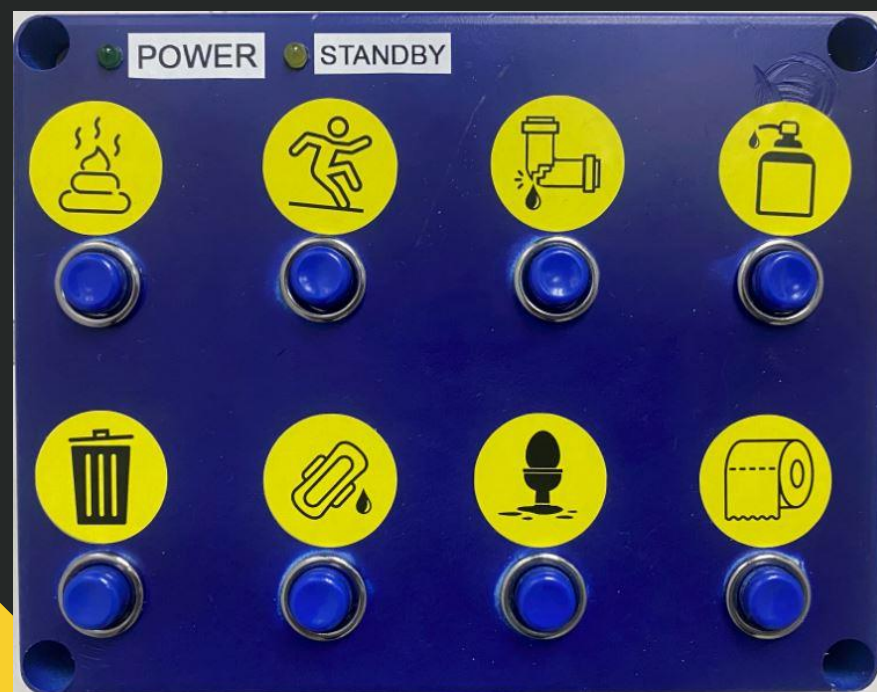
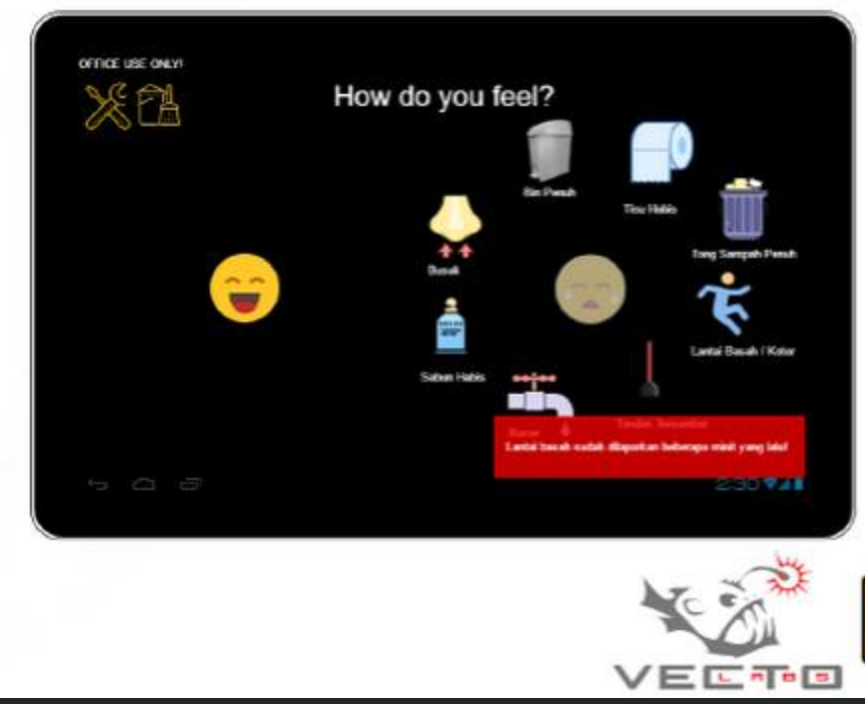
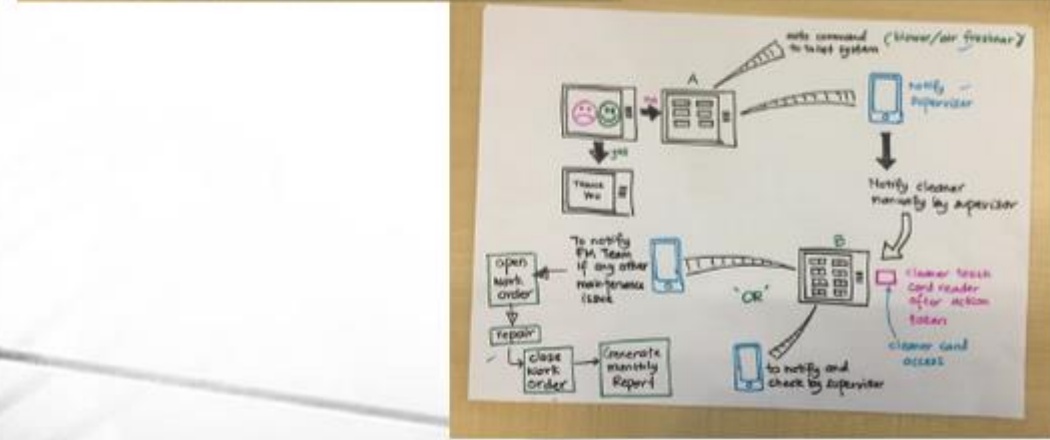
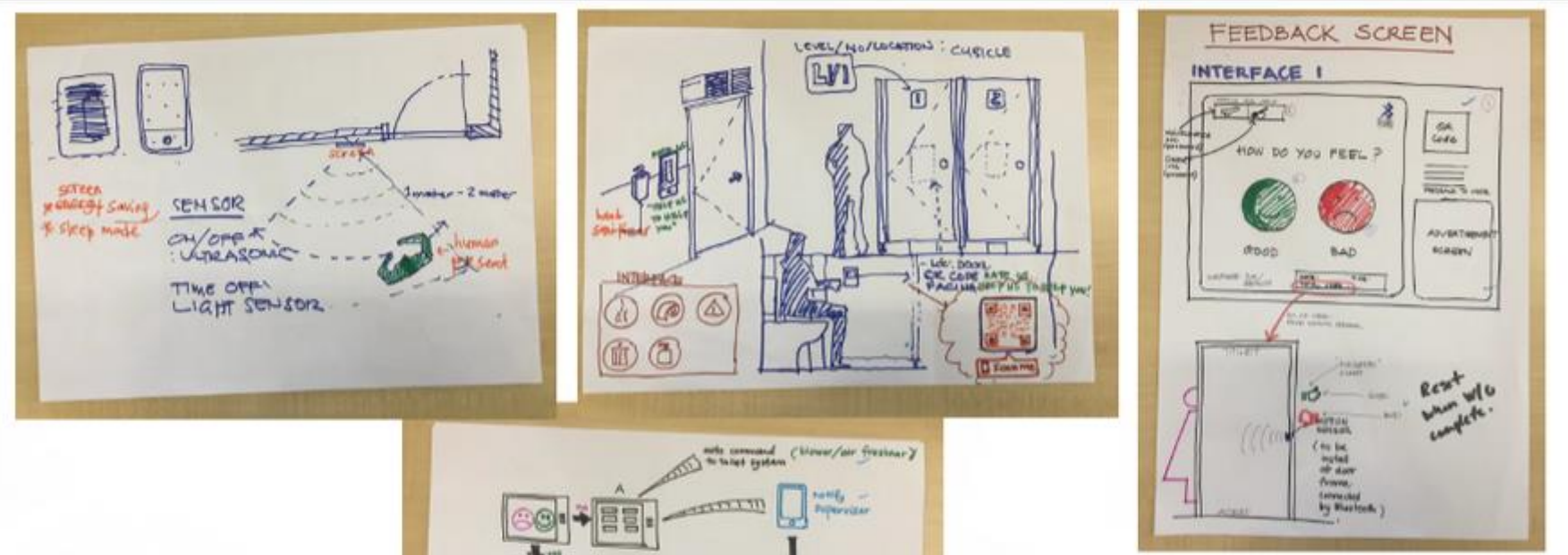
KELAJUAN
ANDA

87

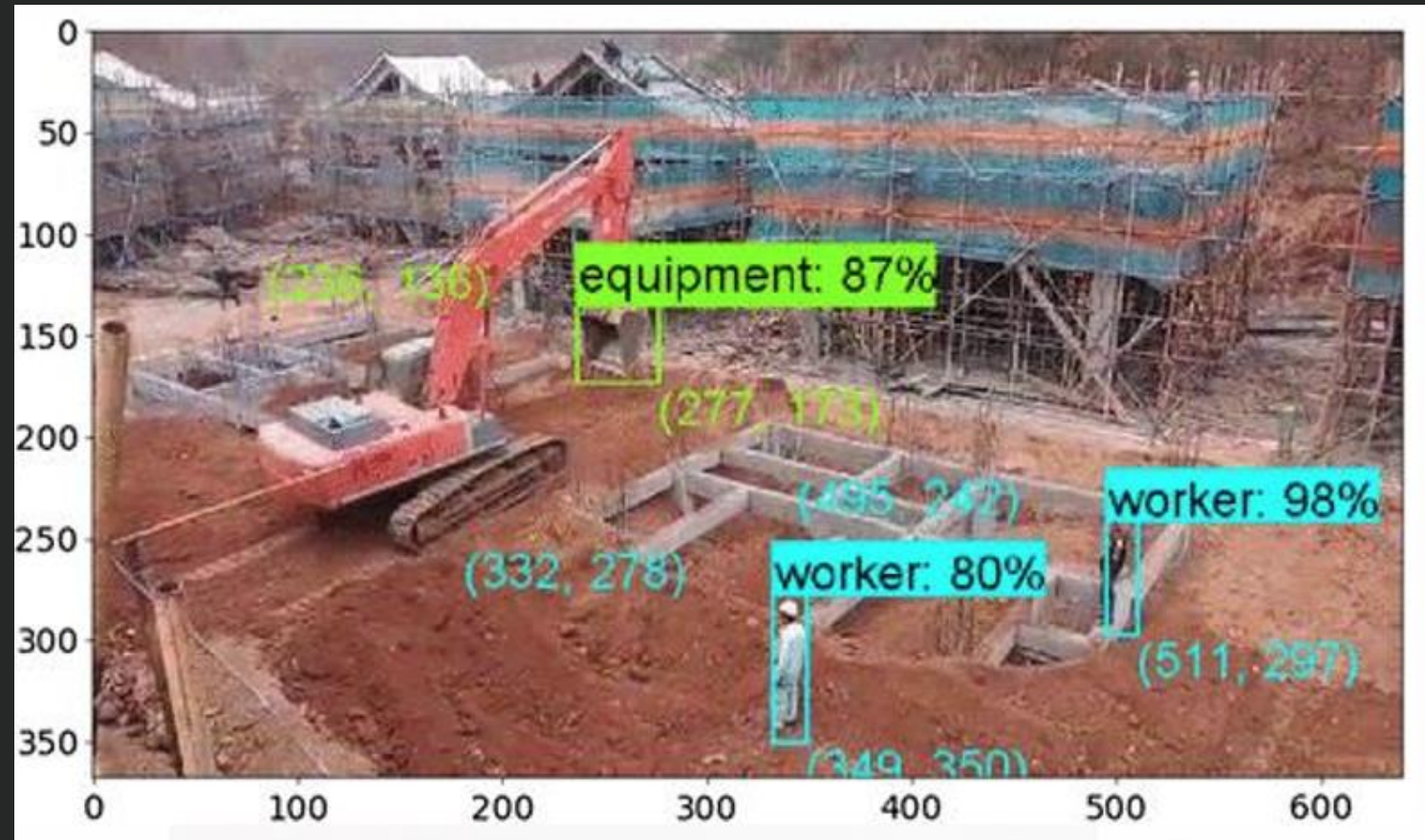
SPEED SIGN WITH RADAR SENSOR



SMART TOILET MANAGEMENT SYSTEM



NEW GENERATION I-SUPERVISION



AUGMENTED REALITY



ADDITIVE MANUFACTURING



POTENSI & PELUANG

INTERNET OF THINGS

- Sensor di dalam rekabentuk elektrikal, mekanikal, struktur, arkitek, jalan, jambatan, cerun dan geoteknik

BIG DATA ANALYTICS

- Data daripada sensor
- Perolehan
- Pengurusan trafik

AUGMENTED REALITY

- Pemantauan projek
- Penyelenggaraan peralatan
- Kursus hands-on

ADDITIVE MANUFACTURING

- 3D Printing projek PAP



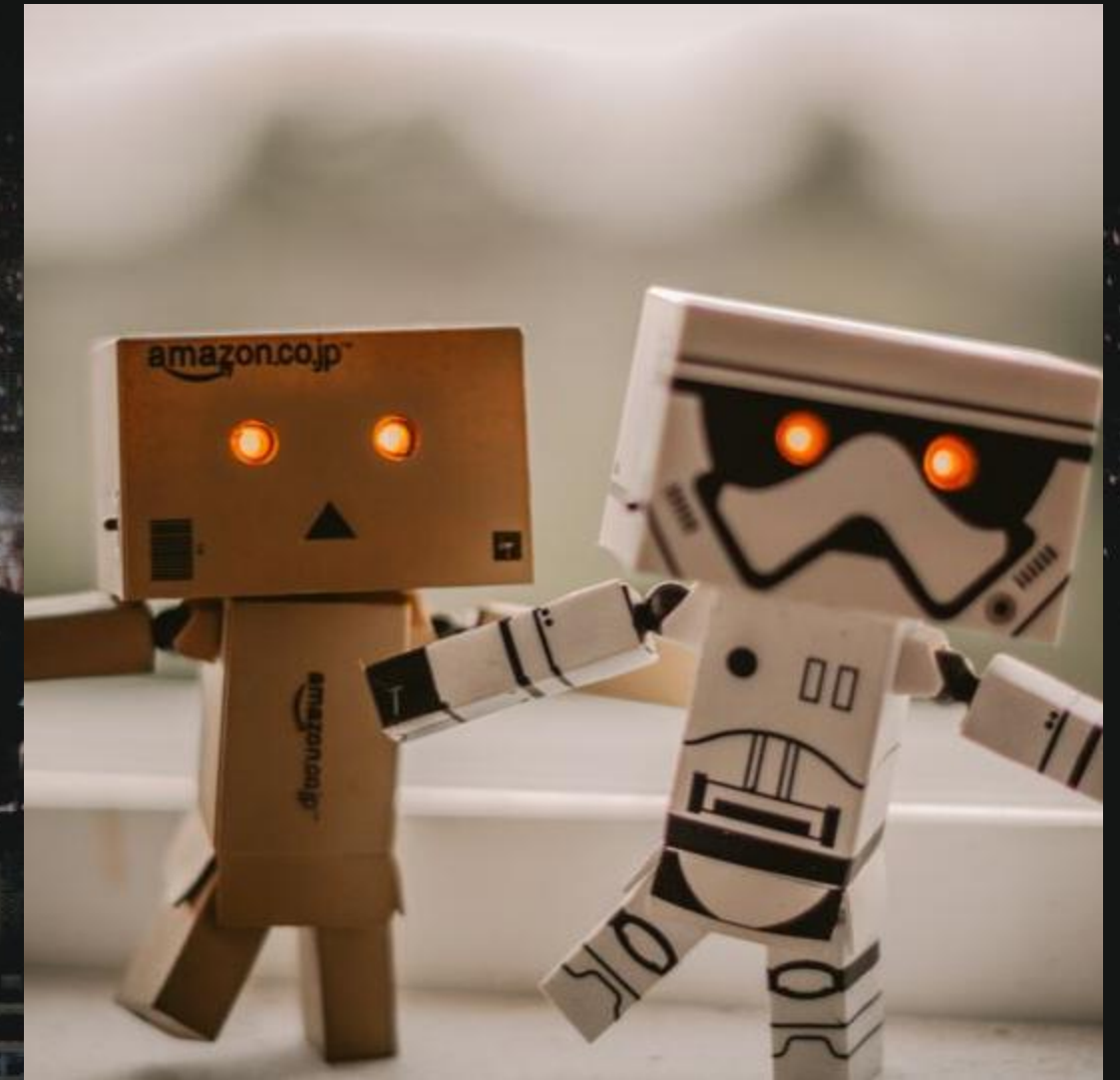
SMALL & FAST

Implement ideas fast and
in small scale



COLLABORATION

Collaborate with
technology partners



PROTOTYPING

Build prototype and get
feedbacks

VISI JKR

Kami akan menjadi pemberi perkhidmatan bertaraf dunia dan pusat kecemerlangan di dalam bidang pengurusan aset, pengurusan projek dan perkhidmatan kejuruteraan demi pembangunan infrastruktur negara melalui modal insan yang kreatif dan inovatif serta teknologi terkini.

An aerial, high-angle photograph of a city. A multi-lane highway with traffic is visible in the upper left. To the right, several tall, modern skyscrapers with glass facades rise vertically. The overall image has a dark, muted color palette with a blue-grey tint.

TERIMA KASIH

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