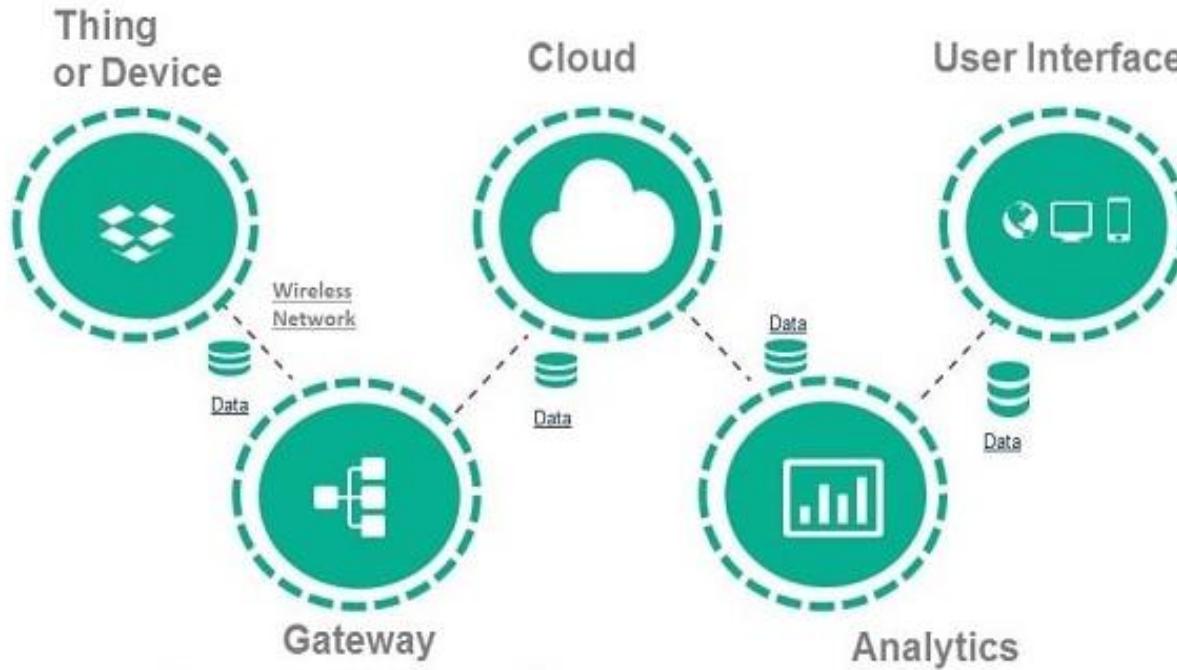


# Pengenalan Industri 4.0 dan Internet of Things (IoT)

## [Konsep dan Pendekatan Praktis]



Agus Mulyana



Phone : 082116871007

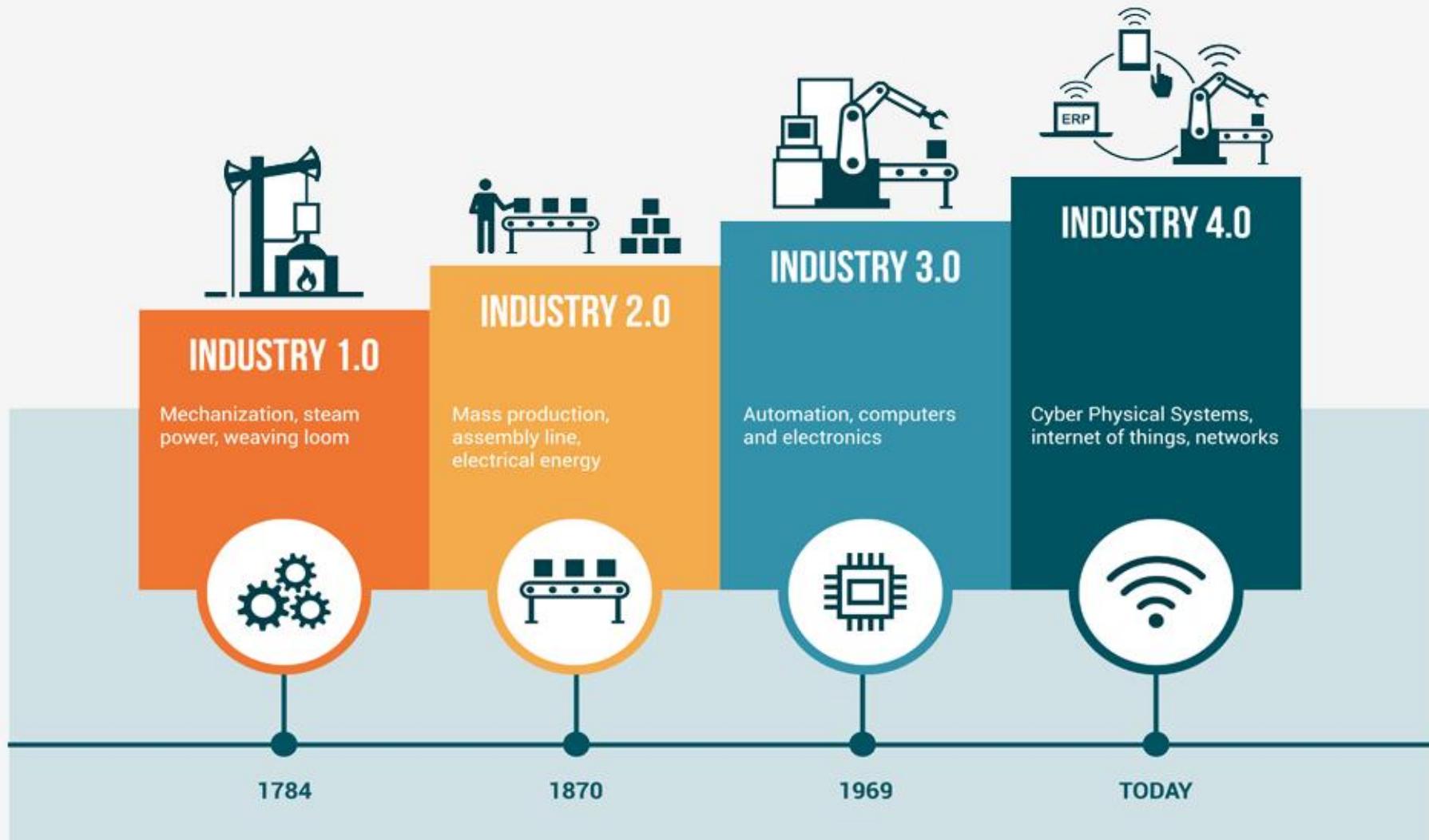


Email : bagus081@gmail.com



www.agusmulyana.net

# The Evolution of Industry

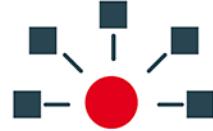


# Industri 4.0

# INDUSTRY4.0



AUTOMATION



CONNECTION



CLOUD COMPUTING



IOT



BIG DATA



SYSTEM INTEGRATION

Industry 4.0 is the evolution to cyber-physical systems, representing the fourth industrial revolution on the road to an end-to-end value chain with Industrial IoT and decentralized intelligence in manufacturing, production, logistics and the industry.

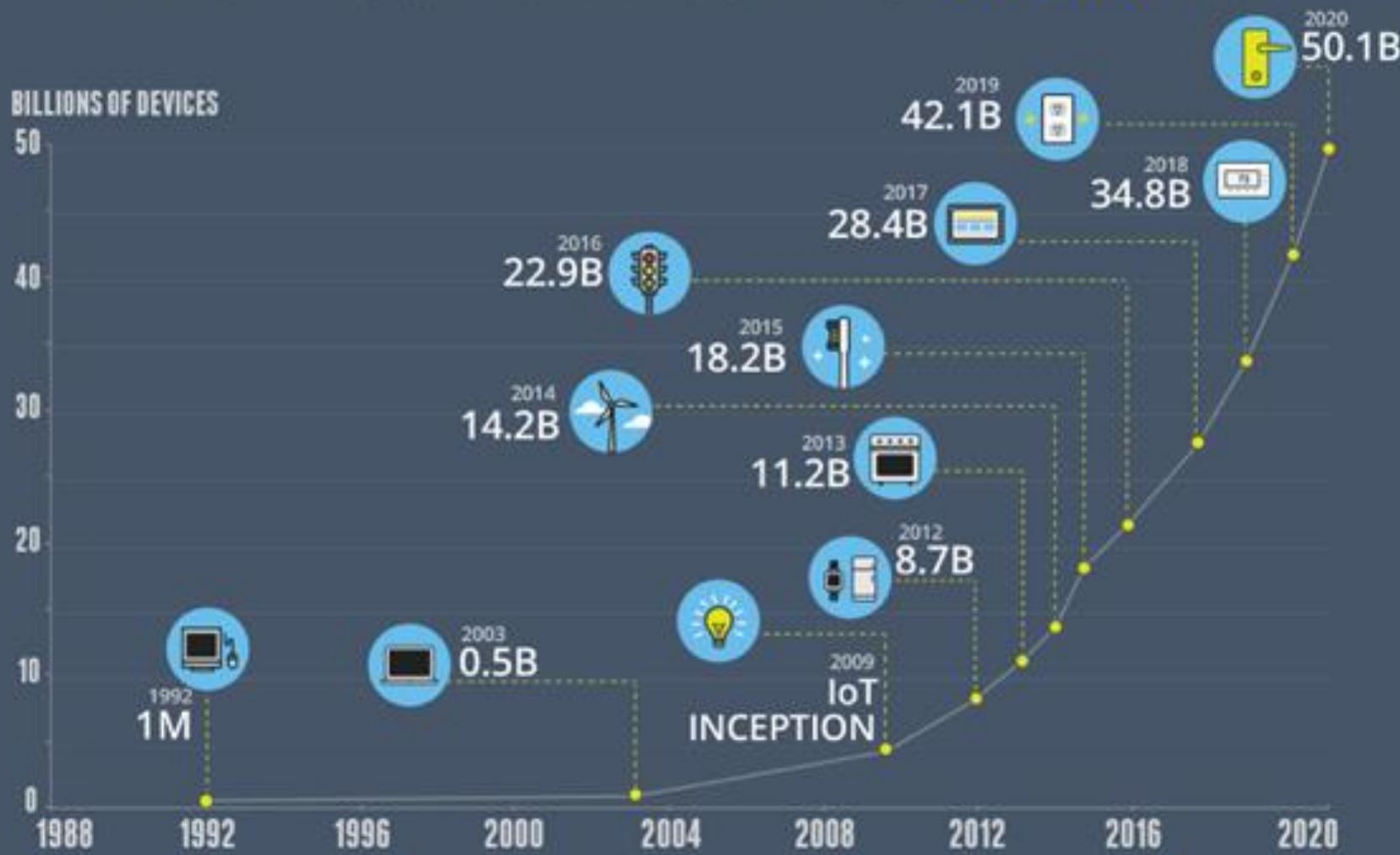
# New Wave of Computing

We are entering a  
**New Wave of Computing**

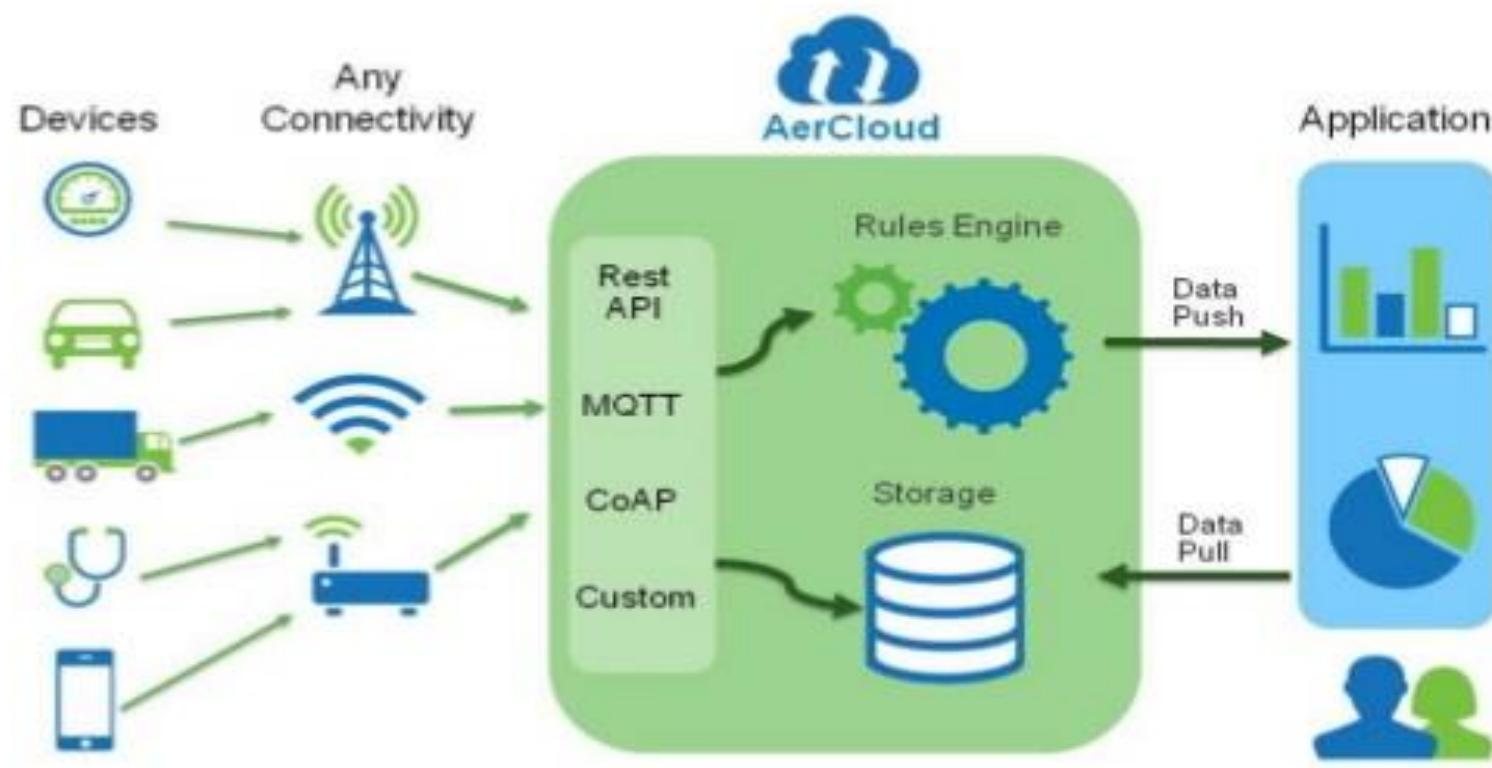


# GROWTH IN THE INTERNET OF THINGS

THE NUMBER OF CONNECTED DEVICES WILL EXCEED **50 BILLION** BY 2020



# What is The Internet of Things ?



Internet of Things is an emerging paradigm of internet connected things that allows the physical objects or things to connect, interact and communicate with one another similar to the way humans talk through web in today's environment.  
It connects systems, sensors and actuator instruments to the broader internet.

# Internet of Things Applications



Healthcare



Energy



Building



Retail



Security



Home



Education



Transportation



IoT



Agriculture



Factory



Cloud Computing



## IoT Potential Market in Indonesia

Telko.id – Indonesia saat ini memiliki populasi lebih dari 235 juta penduduk dan 297 juta pengguna mobile. Hal ini menjadikan Indonesia negara terbesar keempat di dunia, yang diperkirakan akan menjadi pemain utama dalam pertumbuhan IOT terbesar di Asia Tenggara.

# IoT Startups from Indonesia



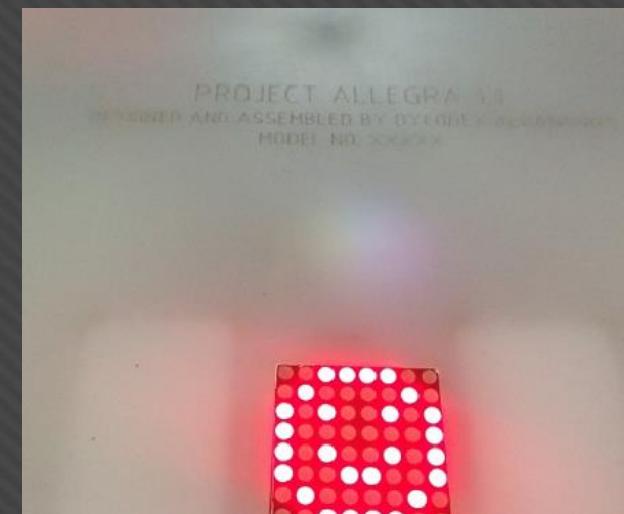
<https://cubeacon.com/>



<http://efishery.com/>

A screenshot of the Geeknesia website. The header features a red 'BETA' badge with 'GEEK NESIA' and navigation links for 'HOW IT WORKS', 'DISCOVER', 'CHALLENGES', 'EVENTS', 'TUTORIAL', and 'API'. A search bar is also present. The main content area has a blue background with a network graph on the left. The text 'Internet of Things' is centered, followed by a paragraph about Geeknesia being an IoT platform to simplify development. A 'How It Works' button is at the bottom.

<http://geeknesia.com/>

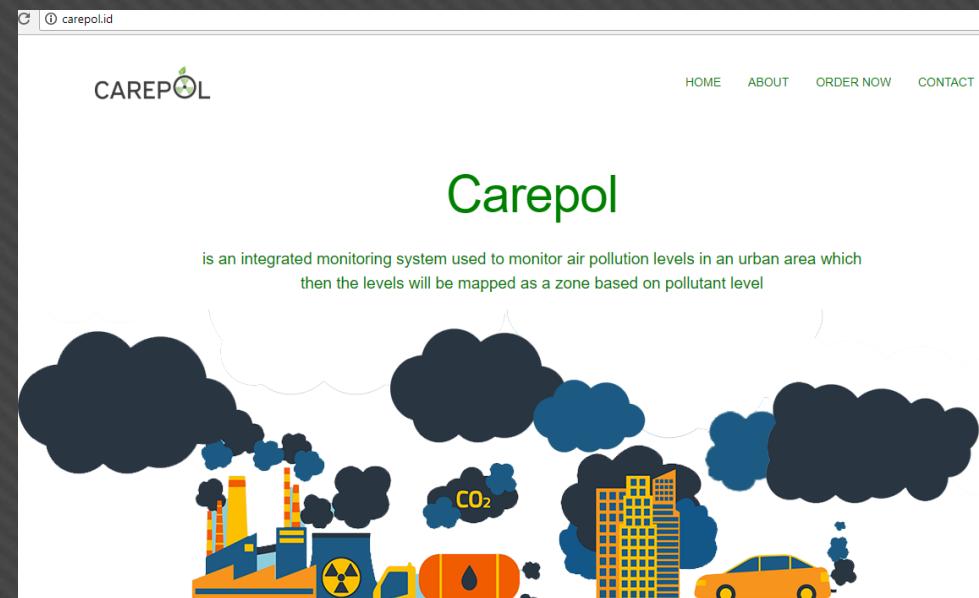
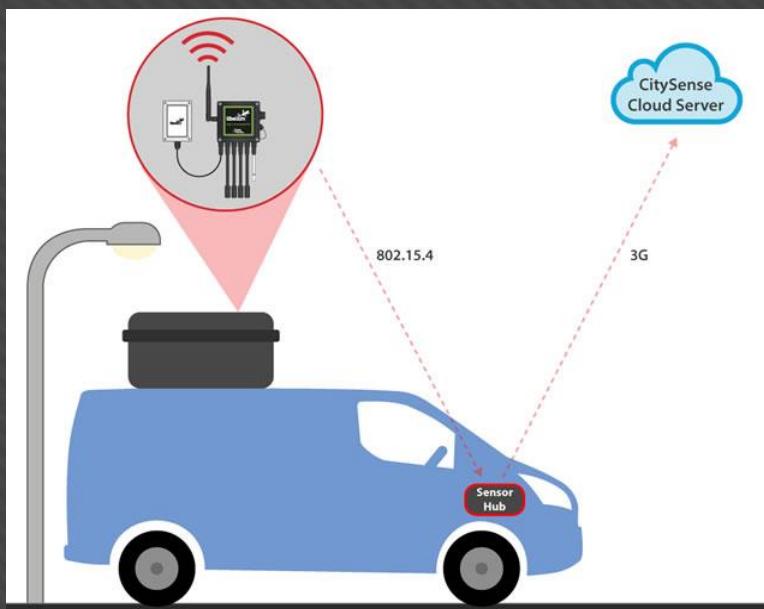


<https://dycode.co.id/>

# Pembahasan Contoh Aplikasi

# Carepol : Air Pollutant Monitoring System

- Juara 1 Nasional , Internet of Things Development , 2017
- Finalis 5 besar Nasional , Microsoft Imagine Cup 2018
- Finalis 5 Besar Nasional BOSCH Hackaton 2019



<http://polusi.id/>

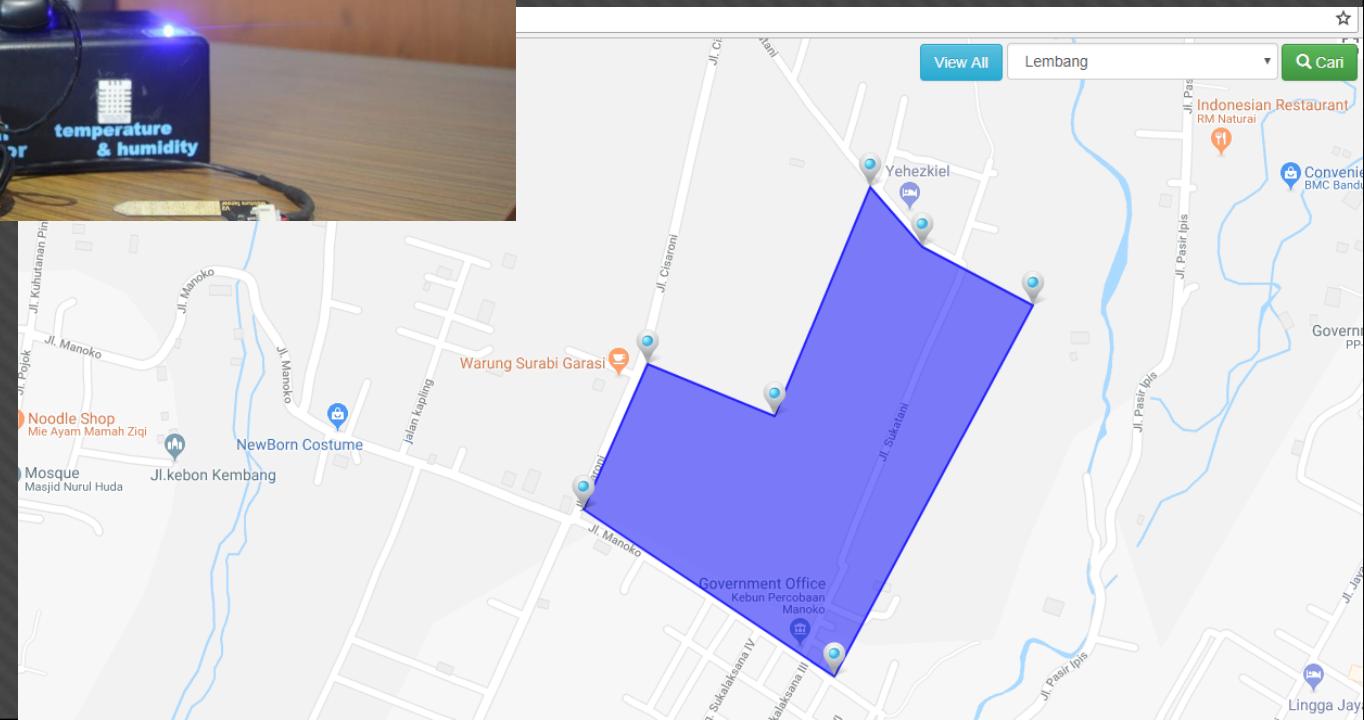
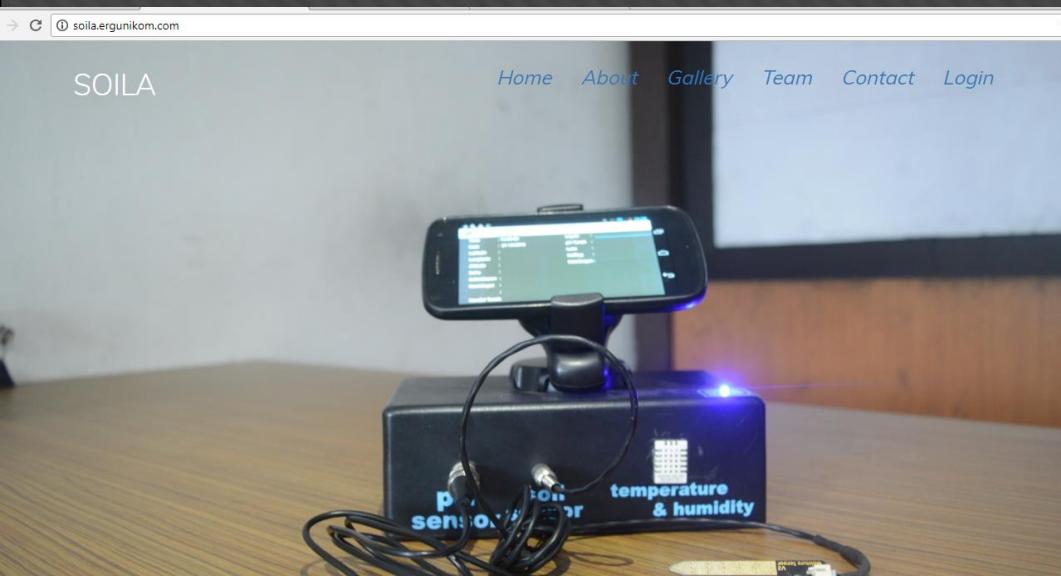
# Bidang Pertanian (Smart Farming System)

<http://farming.agusmulyana.net>

The screenshot shows the E-Farming application's dashboard. At the top, there's a header bar with the URL 'farming.agusmulyana.net/Dashboard' and a user profile icon for 'adminxix'. The main navigation bar on the left includes links for 'Dashboard', 'Pengguna', 'Tanaman', 'Stok Alat', 'Alat User', 'Mulai Penanaman', 'Panen', 'Perawatan', and 'Profile'. The dashboard itself has a title 'Dashboard Control panel' and a sub-section 'Pengguna E-Farming'. It features two maps: one of Africa and another of Southeast Asia. On the African map, a red location pin is placed over Guinea. On the Southeast Asian map, a red location pin is placed over Indonesia. To the right of the maps, there's a box containing planting details: 'Nama : Palawija || Jenis : Kacang Kedelai || Masa Tanam : 120 Hari', 'Pemilik : Ryan Firmansyah || No Seri : FEKBPCF25M', 'Waktu Tanam : 2018-07-04 23:40:40 || Jumlah Tanam : 50', 'Estimasi Panen : 2018-11-02 13:40:40', and 'Suhu : 0°C || Kelembaban : 0% || Kandungan air : 0pH'. A small image of soybeans is also present.

# Bidang Pertanahan dan Survey Tata Ruang

Soila : Sistem survey lahan terpadu dengan Pemetaan  
Mendapatkan hibah Paten Produk, BP3IPTEK Jawa Barat 2018



# Rivest : Sistem terpadu untuk keamanan dan keselamatan berkendara

- Juara 1 Nasional Internet of Thing Development, TBIG , Kategori : Smart transportation and Logistic
- Juara 3 Nasional IEEE Electronics Design Contest 2016

http://rivest.carepol.id/ps.html

**Rivest** Your Smart Driving System

HOME

DATA MASTER

MONITORING

REPORTS

Polices Station

Home > Polices Station

Map Satellite

Art Gallery NuArt Sculpture Park

Universitas Kristen Maranatha

Zoo Kebun Binatang Bandung Jawa Barat

Government Office Gedung Sate

Cake Shop Kartika Sari

Amusement Park Taman Lalu Lintas Ade Irma Suryani Nasution

Shopping Mall Trans Studio Mall

City Park Alun-Alun Kota Bandung

Tegalega Bandung

Amusement Center Upside Down World Bandung

Red Zone

Rivest Monitoring

Accidents

# Demo

- » IoT dari perspektif praktis
- » Platforms yang digunakan untuk bagian  
Embedded system, Cloud dan Apps (Android)
- » Pengiriman data dari perangkat ke Cloud (Tele  
Metry)
- » Data analytic di Cloud dengan Matlab Analysis
- » Visualisasi data
- » Pengontrolan perangkat dari Cloud (Tele  
Command)

# Platforms Embedded System (<https://www.arduino.cc/>)

The screenshot shows the Arduino website (<https://www.arduino.cc/>) in a web browser. The page features a teal header with the Arduino logo. Below the header, there's a large image of an Arduino Uno board. To the left of the board is a "WHAT IS ARDUINO?" section with a "BUY AN ARDUINO" button. To the right of the board is a "LIGHT PAINTING RIG IS A MASTERPIECE OF ARTISTIC HARDWARE HACKING" section with a "BLOG" button. On the far right, there's a "CODE ONLINE!" section with a code editor window showing basic setup and loop functions.

stem - ThingSpeak IoT   Dashboard   Contact | Agus Mulyana   Virtuino - Apps on Google Play   Arduino - Home

Secure | <https://www.arduino.cc/>

ARDUINO

WHAT IS ARDUINO?

BUY AN ARDUINO

LEARN ARDUINO

DONATE

BLOG

LIGHT PAINTING RIG IS A  
MASTERPIECE OF ARTISTIC  
HARDWARE HACKING

> ARDUINO  
> WEB EDITOR  
> CODE ONLINE!

```
void setup(){  
}  
  
void loop(){  
}
```

<https://www.arduino.cc/>

Links 8^ 9:29 AM 7/31/2018

# Platforms Web (<https://thingspeak.com>)

stem - ThingSpeak IoT   x   Dashboard   x   Contact | Agus Mulyana   x   New Tab   x

Secure | [https://thingspeak.com/channels/347992/private\\_show](https://thingspeak.com/channels/347992/private_show)

**ThingSpeak™** Channels ▾ Apps ▾ Community Support ▾ Commercial Use How to Buy Account ▾ Sign Out

Created: 9 months ago  
Updated: about 3 hours ago  
Last entry: about 3 hours ago  
Entries: 558

**Field 1 Chart**

stem

| Date   | Temperature |
|--------|-------------|
| 31.Jul | 30          |
| 02:00  | 30          |
| 04:00  | 30          |
| 06:00  | 100         |

Temperature

Date

ThingSpeak.com

**Field 2 Chart**

stem

| Date   | Humidity |
|--------|----------|
| 31.Jul | 50       |
| 02:00  | 50       |
| 04:00  | 50       |
| 06:00  | 10       |

Humidity

Date

ThingSpeak.com

Use a histogram to understand variation in da...

Histogram of Temperature Variation

| Temperature Range | Measurements |
|-------------------|--------------|
| 25-30             | 125          |
| 30-35             | 115          |
| 35-40             | 105          |

Measurements

Temperature

Links 9:26 AM 7/31/2018

# Platforms Apps Android

([https://play.google.com/store/apps/details?id=com.virtuino\\_automations.virtuino](https://play.google.com/store/apps/details?id=com.virtuino_automations.virtuino))

The screenshot shows the Google Play Store interface. The top navigation bar includes tabs for 'Dashboard', 'Contact | Agus Mulyana', and 'Virtuino - Apps on Google'. Below the navigation is a search bar with the URL [https://play.google.com/store/apps/details?id=com.virtuino\\_automations.virtuino](https://play.google.com/store/apps/details?id=com.virtuino_automations.virtuino). The main content area displays the 'Virtuino' app page. The app icon features three circular gauges and a central button. The title 'Virtuino' is displayed above the developer name 'Ilias Lamprou' and category 'Tools'. It has a rating of 4.5 stars from 1,101 reviews. A note indicates 'Offers in-app purchases' and compatibility with all devices. A green 'Installed' button is visible. Below the main image are two smaller screenshots of the app's user interface, showing various control panels and data graphs. To the right, there are sections for 'Similar' apps, including 'Reverse Image S' (THINK FREE) and 'Samsung Max - Max apps'. The bottom of the screen shows the Windows taskbar with icons for File Explorer, Edge, and other applications.

# THANK YOU!

“Innovation distinguishes between a leader and a follower.”

- Steve Jobs