

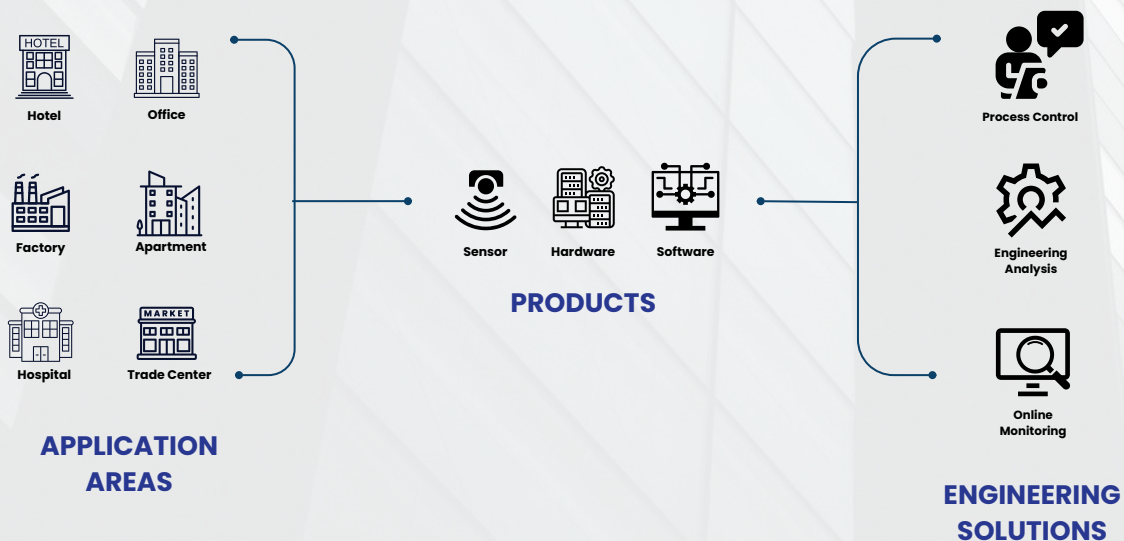
# SMART AUTOMATION BUILDING

Katalog ini menyajikan informasi mengenai sistem Smart Automation Building (SAB) yang memantau parameter seperti suhu, kelembaban, kualitas udara, energi, keamanan, dan lain lain pada bangunan.



# OVERVIEW

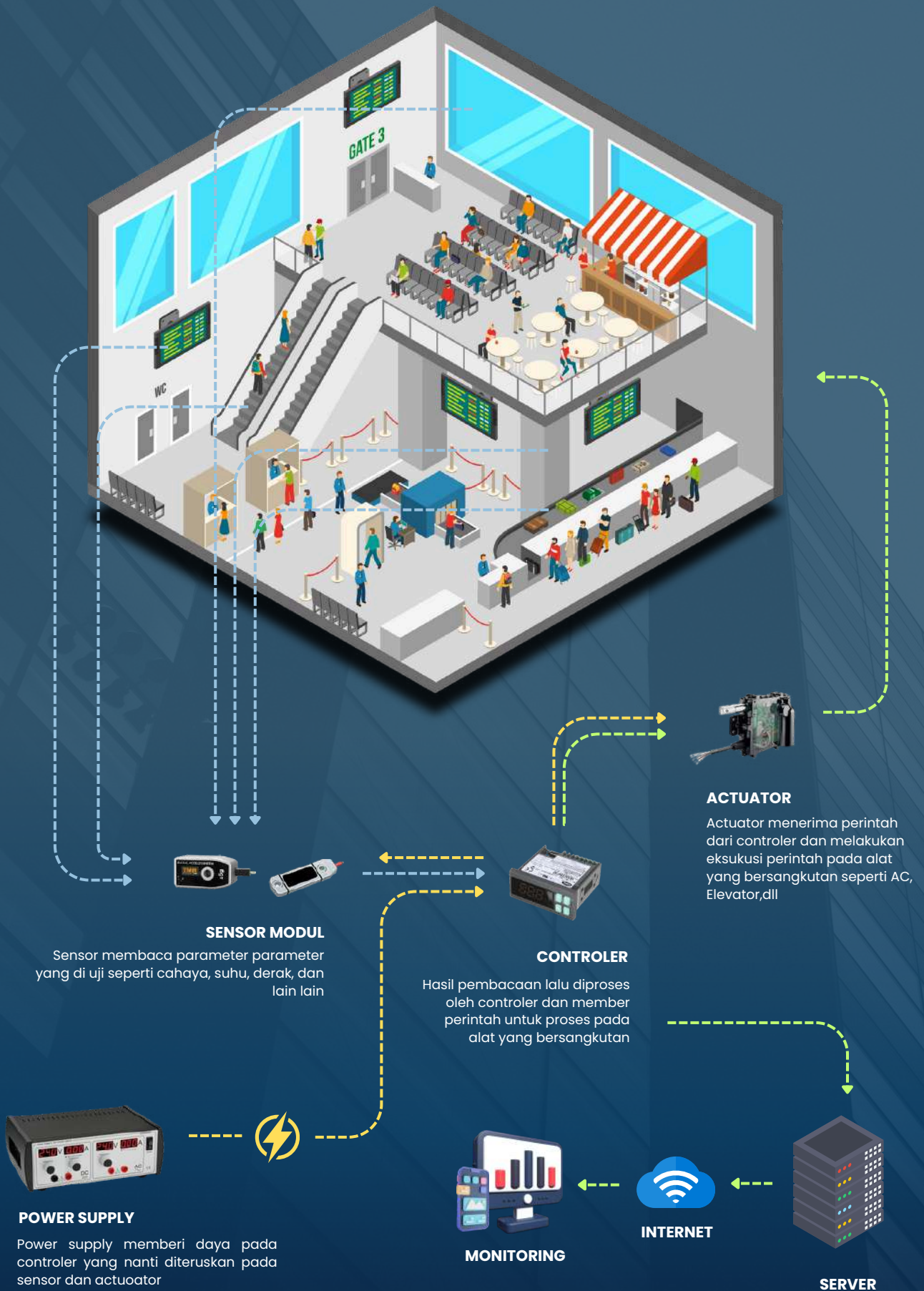
Energi yang digunakan untuk mengoperasikan bangunan adalah sektor terbesar, sekitar 40% dari penggunaan energi global. Pengukuran kinerja bangunan membantu staf teknik mengelola energi dengan lebih baik. Panduan ini fokus pada strategi dan teknik pemantauan untuk mengurangi penggunaan energi dan mengoptimalkan kinerja fasilitas, mencakup pencahayaan, HVAC, kualitas udara dalam ruangan, dan lainnya.



## MONITOR SECTION

- Plumbing
- Elevator
- Fire Alarms
- Water Quality
- Water heater
- Electricity
- Lighting
- Structural Health Monitoring
- HVACs
- Escalators
- Temperature & Humidity







# APPLICATION



## ELECTRICITY

Saving Energy, Energy Distribution, Auditing Energy

### PARAMETER

- KW/h (Power Consumption)
- Current
- Q (kVAR)
- S (kVA)
- Power Factor
- P (Watt)
- Cos-Phi
- Load Balance

### FITUR

|                     |                             |
|---------------------|-----------------------------|
| Data Aquisition Yes | Yes                         |
| Control             | On/off (based on equipment) |
| Automation Action   | Yes                         |
| Monitor             | Yes                         |
| Alert               | On the spot/sms/email       |
| Interface           | PC/Remote                   |
| Connection          | Wired/Wireless              |



## HVAC

Efficiency, Saving Energy, Human Pleasure

### PARAMETER

- Thermal Human
- Temp.
- ThRH
- CO2
- H2S
- Toxic Gas
- O2
- SO2
- CO
- Particle (ex.:PM10)

### FITUR

|                     |                        |
|---------------------|------------------------|
| Data Aquisition Yes | Yes                    |
| Control             | On/Off, Propotion, PID |
| Automation Action   | Yes                    |
| Monitor             | Yes                    |
| Alert               | On the spot/sms/email  |
| Interface           | PC/Remote              |
| Connection          | Wired/Wireless         |





## BOILER

Saving Energy, Long Time Usage

### PARAMETER

#### Input Power

- Electrical Power
- Gas Energy (volumetric flow, mass flow, fluid pressure)

#### Output:

- Steam Pressure
- Steam Temperature
- Steam Flow/Velocity
- Steam Power (Calculation)

### FITUR

|                     |                                |
|---------------------|--------------------------------|
| Data Aquisition Yes | Yes                            |
| Control             | On/off ,Proportion (Valve,etc) |
| Automation Action   | Yes                            |
| Monitor             | Yes                            |
| Alert               | On the spot/sms/email          |
| Interface           | PC/Remote                      |
| Connection          | Wired/Wireless                 |



## CHILLER

Saving Energy, Long Time Usage

### PARAMETER

#### Input Power :

Electrical Power

#### Output:

- Output water: Temp, flow, pressure
- Return Water: Temp, flow, pressure
- Cold Water Storage: Temp, Level

### FITUR

|                     |                                |
|---------------------|--------------------------------|
| Data Aquisition Yes | Yes                            |
| Control             | On/off ,Proportion (Valve,etc) |
| Automation Action   | Yes                            |
| Monitor             | Yes                            |
| Alert               | On the spot/sms/email          |
| Interface           | PC/Remote                      |
| Connection          | Wired/Wireless                 |



## LIGHTING

Lighting Control, Saving Energy, Human Pleasure, Health

### PARAMETER

- Thermal Human
- Light Intensity

### FITUR

|                     |                           |
|---------------------|---------------------------|
| Data Aquisition Yes | Yes                       |
| Control             | On/off ,Proportion<br>PID |
| Automation Action   | Yes                       |
| Monitor             | Yes                       |
| Alert               | On the<br>spot/sms/email  |
| Interface           | PC/Remote                 |
| Connection          | Wired/Wireless            |



## PLUMBING

Water Manajement, Safety Human, Preasure,Health

### FITUR

|                     |                           |
|---------------------|---------------------------|
| Data Aquisition Yes | Yes                       |
| Control             | On/off ,Proportion<br>PID |
| Automation Action   | Yes                       |
| Monitor             | Yes                       |
| Alert               | On the<br>spot/sms/email  |
| Interface           | PC/Remote                 |
| Connection          | Wired/Wireless            |

### PARAMETER

- Flow Rate
- Pressure
- Turbidity
- Dissoved O2
- Temperature





## WATER HEATER

Water Management, Saving Energy, Human Pleasure, Safety

### PARAMETER

- Temperature
- Pressure
- Flow Rate

### FITUR

|                     |                         |
|---------------------|-------------------------|
| Data Aquisition Yes | Yes                     |
| Control             | On/off, Proportion, PID |
| Automation Action   | Yes                     |
| Monitor             | Yes                     |
| Alert               | On the spot/sms/email   |
| Interface           | PC/Remote               |
| Connection          | Wired/Wireless          |



## ELEVATOR & ESCALATOR

Water Management, Saving Energy, Human Pressure, Safety

### PARAMETER

- Vibrator
- Motor Temperature
- Speed
- Chamber Temp. (Elevator Only)
- O2 Chamber (Elevator Only)

### FITUR

|                     |                       |
|---------------------|-----------------------|
| Data Aquisition Yes | Yes                   |
| Control             | On/off                |
| Automation Action   | Yes                   |
| Monitor             | Yes                   |
| Alert               | On the spot/sms/email |
| Interface           | PC/Remote             |
| Connection          | Wired/Wireless        |



## GENSET

Saving Energy, Auditing Energy

### PARAMETER

#### Input Power

- Fuel: Flowrate (volumetric, mass-flow)
- Gas Energy (volumetric flow, mass flow, fluid pressure)

#### Output Power

- Power: Electricity

#### Status

- Operating/non-operating

### FITUR

|                     |                       |
|---------------------|-----------------------|
| Data Aquisition Yes | Yes                   |
| Control             | On/off                |
| Automation Action   | Yes                   |
| Monitor             | Yes                   |
| Alert               | On the spot/sms/email |
| Interface           | PC/Remote             |
| Connection          | Wired/Wireless        |



## COLD STORAGE

Saving Energy, Auditing Energy

### PARAMETER

- Temperature
- Humidity

### FITUR

|                     |                       |
|---------------------|-----------------------|
| Data Aquisition Yes | Yes                   |
| Control             | On/off, PID           |
| Automation Action   | Yes                   |
| Monitor             | Yes                   |
| Alert               | On the spot/sms/email |
| Interface           | PC/Remote             |
| Connection          | Wired/Wireless        |





## GAS DETEVTORE

Health, Safety

### PARAMETER

- LNG
- LPG
- Flamable Gas
- Toxic Gas

### FITUR

|                     |                       |
|---------------------|-----------------------|
| Data Aquisition Yes | Yes                   |
| Control             | On/off                |
| Automation Action   | Yes                   |
| Monitor             | Yes                   |
| Alert               | On the spot/sms/email |
| Interface           | PC/Remote             |
| Connection          | Wired/Wireless        |



## STRUCTURE HEALTH MONITORING

Saving Energy, Auditing Energy

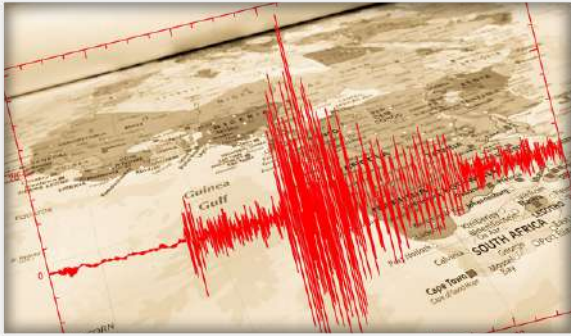
### PARAMETER

- Seismic Monitoring
- Settlement Monitoring
- Crack Monitoring
- Wind Monitoring
- Others

### FITUR

|                     |                       |
|---------------------|-----------------------|
| Data Aquisition Yes | Yes                   |
| Control             | On/off                |
| Automation Action   | Yes                   |
| Monitor             | Yes                   |
| Alert               | On the spot/sms/email |
| Interface           | PC/Remote             |
| Connection          | Wired/Wireless        |





## SEISMIC MONITORING

Structure Health Monitoring

### PARAMETER

- Seismic Strong Ground Motion Measure
- Ambient Vibration
- Operational modal Analysis

### FITUR

|                     |                       |
|---------------------|-----------------------|
| Data Aquisition Yes | Yes                   |
| Control             | -                     |
| Automation Action   | -                     |
| Monitor             | Yes                   |
| Alert               | On the spot/sms/email |
| Interface           | PC/Remote             |
| Connection          | Wired/Wireless        |



## BUILDING SETTLEMENT & TILT

Structure Health Monitoring

### PARAMETER

- Settlement measure and monitoring for building, pile, tower, etc
- Capable of detecting minor static changes in angle

### FITUR

|                     |                       |
|---------------------|-----------------------|
| Data Aquisition Yes | Yes                   |
| Control             | -                     |
| Automation Action   | -                     |
| Monitor             | Yes                   |
| Alert               | On the spot/sms/email |
| Interface           | PC/Remote             |
| Connection          | Wired/Wireless        |

- 0.001° Resolution
- ±15 - ±30 Range
- Excellent stability over temperature and time





## CRACK MONITORING

Structure Health Monitoring

### PARAMETER

- Capable of detecting minor increases/decreases in existing crack
- 50 – 700 mm measuring size
- $\pm 0.05\%$  linearity
- 100 million motion lifetimes
- Infinite resolution
- $<0.01$  mm repeatability

### FITUR

|                      |                       |
|----------------------|-----------------------|
| Data Acquisition Yes | Yes                   |
| Control              | -                     |
| Automation Action    | -                     |
| Monitor              | Yes                   |
| Alert                | On the spot/sms/email |
| Interface            | PC/Remote             |
| Connection           | Wired/Wireless        |



## WIND MONITORING

Structure Health Monitoring

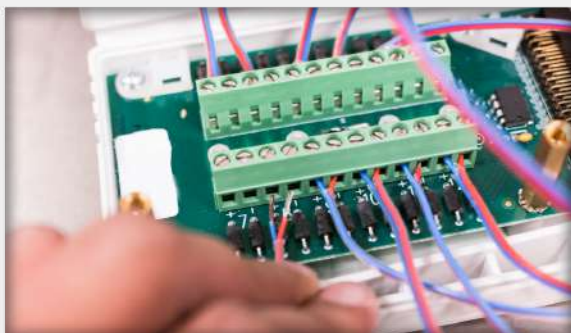
### PARAMETER

- Wind direction
- Wind flow
- 0.7 ... 50 m/s measurement range
- Wind speed scale 0 ... 60 m / s
- 0 ... 360 degree measurement range

### FITUR

|                      |                       |
|----------------------|-----------------------|
| Data Acquisition Yes | Yes                   |
| Control              | -                     |
| Automation Action    | -                     |
| Monitor              | Yes                   |
| Alert                | On the spot/sms/email |
| Interface            | PC/Remote             |
| Connection           | Wired/Wireless        |





### OTHER SENSOR

Structure Health Monitoring

#### PARAMETER

- Cable Tension
- Dynamic / static load
- Stress-strain,
- Surface temperature, etc

#### FITUR

|                     |                       |
|---------------------|-----------------------|
| Data Aquisition Yes | Yes                   |
| Control             | -                     |
| Automation Action   | -                     |
| Monitor             | Yes                   |
| Alert               | On the spot/sms/email |
| Interface           | PC/Remote             |
| Connection          | Wired/Wireless        |



### FIRE ALARM

Safety

#### PARAMETER

- Flame
- Heat
- Smoke

#### FITUR

|                     |                       |
|---------------------|-----------------------|
| Data Aquisition Yes | Yes                   |
| Control             | On/off, PID           |
| Automation Action   | -                     |
| Monitor             | Yes                   |
| Alert               | On the spot/sms/email |
| Interface           | PC/Remote             |
| Connection          | Wired/Wireless        |





## **CCTV**

Building management memantau CCTV untuk mencegah kejahatan, mengidentifikasi ancaman, dan merespons insiden dengan cepat. Mereka mengelola penyimpanan rekaman, berkoordinasi dengan pihak keamanan, dan melakukan perawatan rutin perangkat untuk memastikan sistem berjalan optimal dan bangunan tetap aman.



## **ACCES DOOR**

Building management mengelola akses pintu untuk keamanan dan efisiensi dengan mengontrol izin masuk, memantau akses, melakukan pemeliharaan rutin, serta menyiapkan prosedur darurat. Mereka juga mengintegrasikan sistem akses dengan CCTV dan alarm, serta melatih pengguna tentang sistem ini.



## **AUDIO PHONE**

Building management menggunakan sistem audio phone untuk komunikasi dan keamanan. Mereka mengelola pemasangan, pemeliharaan, dan penggunaan interkom, termasuk verifikasi pengunjung, komunikasi darurat, dan pengumuman. Integrasi dengan sistem keamanan lainnya juga dilakukan untuk meningkatkan efektivitas.



# PROJECT EXPERIENCE



*Building Monitoring System at PT Toyota Astra Motor*



*Warehouse Temperature Monitoring System Cooling PT Jasa Angkasa Semesta*



*Analysis of Production Machine Vibration Effects on Buildings*



*Structural Health Monitoring System Suramadu*

## TESTIMONIALS



We are satisfied with PT Taharica's know-how and knowledge transfer to us, the engineer service in after sales service is very responsive. The monitoring tools designed by PT Taharica has been tried at PLN Sulawesi and PLN Papua and has proven to be reliable because it provides guidelines for solving, which will then be developed for other generating Steam Power Plants within PLN.  
**(Tedjo Leono, Senior Specialist I, PT PLN PUSHARLIS BANDUNG)**



PT TAHARICA's work team is reliable. Very good in implementation in the field. In general we are satisfied with the service!  
**(Andre, Engineering Senior - Chevron HSE)**



The undulating monitoring tool designed by PT Taharica is very useful for us and mining companies in general because it makes tire life longer because early road damage is detected, fuel consumption will be reduced, productivity will increase.  
**(Dwi Setyono, Deputy Project Manager of PAMA ADARO)**





# **TAHARICA**

**Your Industrial Solution**

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