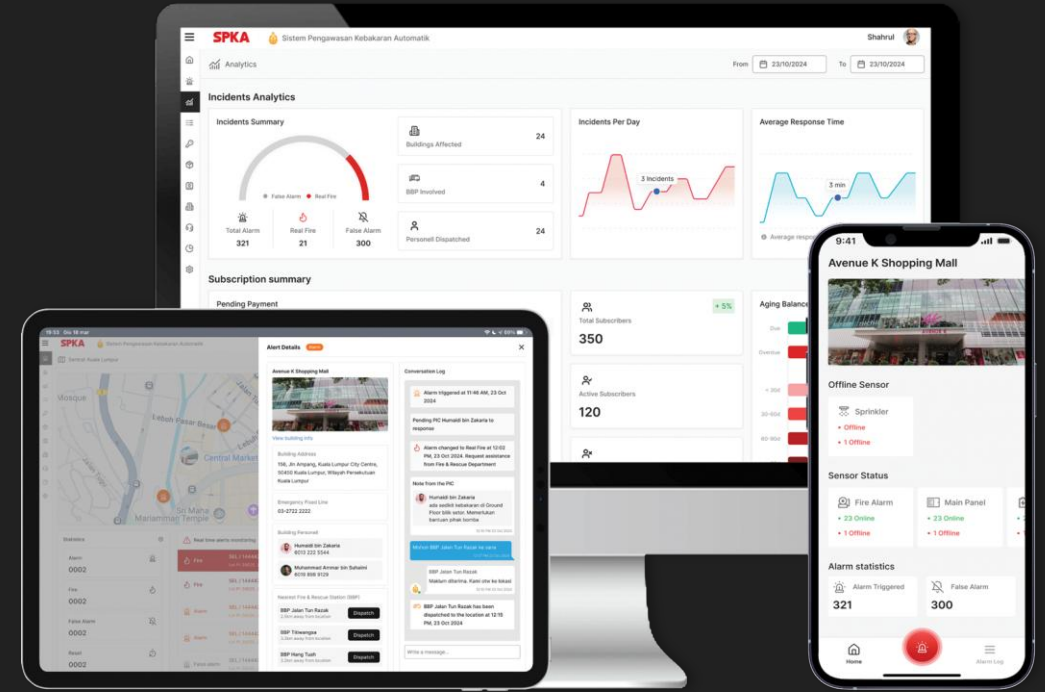


SPKA

Crystal Solaris Sdn Bhd

Perkhidmatan Merancang, Membangun, Membekal, Memasang, Menguji, Mentauliah, Mengoperasi, Menyelenggara dan Menaiktaraf Sistem Pengawasan Kebakaran Automatik (SPKA) Kepada Jabatan Bomba dan Penyelamat Malaysia



**1**

Perkhidmatan Teknologi Maklumat & Aplikasi (IT)

Menyediakan penyelesaian IT yang komprehensif, termasuk pengurusan rangkaian, keselamatan siber, penyelenggaraan sistem, serta sokongan teknikal bagi memastikan kelancaran operasi digital.

**2**

Pembekalan Peralatan & Sistem Keselamatan

Menyediakan dan memasang peralatan serta sistem keselamatan berkualiti tinggi, termasuk kamera pengawasan, sistem kawalan akses, pengesanan kebakaran, dan teknologi pemantauan pintar.

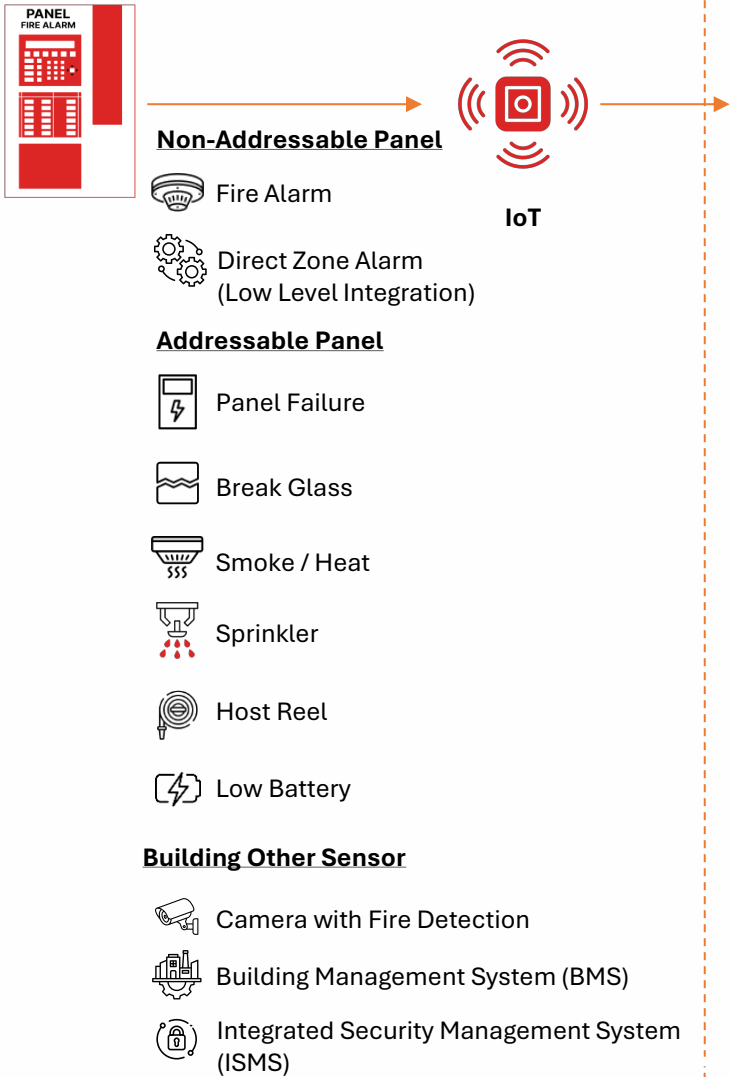
**3**

Latihan Teknikal & Keselamatan

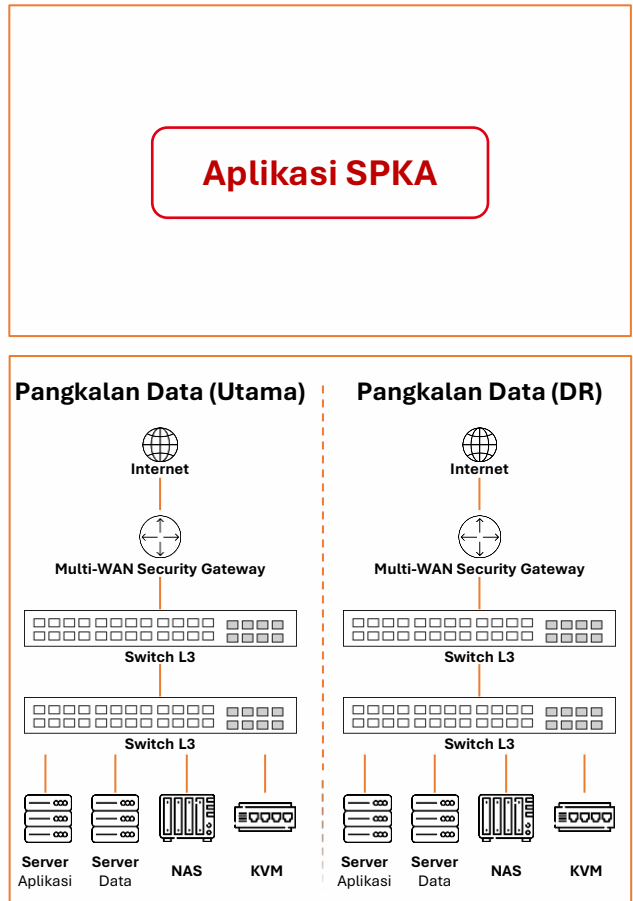
Program latihan untuk meningkatkan kemahiran teknikal dan kesedaran keselamatan dalam pengendalian sistem, teknologi maklumat, serta perlindungan data bagi menghadapi ancaman digital dan fizikal.

Enterprise Architecture Keseluruhan Sistem

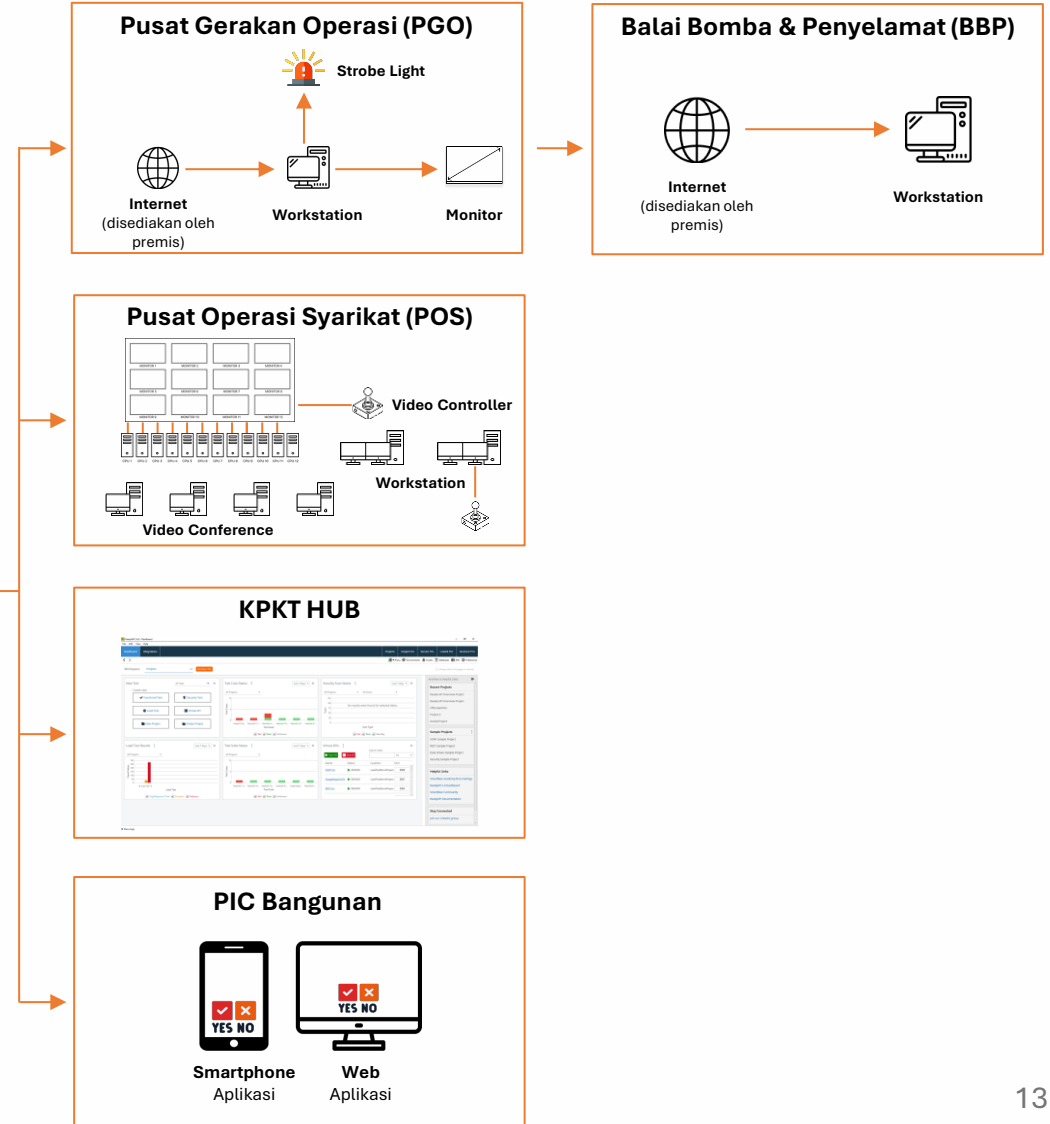
PREMIS / BANGUNAN

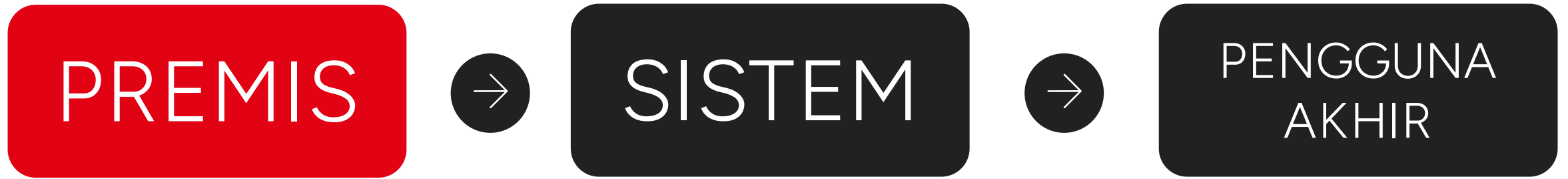


SISTEM



PENGGUNA AKHIR













PREMIS / BANGUNAN






Non-Addressable Panel

-  Fire Alarm
-  Direct Zone Alarm (Low Level Integration)

Addressable Panel

-  Panel Failure
-  Break Glass
-  Smoke / Heat
-  Sprinkler
-  Host Reel
-  Low Battery

Building Other Sensor

-  Camera with Fire Detection
-  Building Management System (BMS)
-  Integrated Security Management System (ISMS)

Komponen di dalam Peranti IoT



Panel Fire Alarm

Non-Addressable Panel

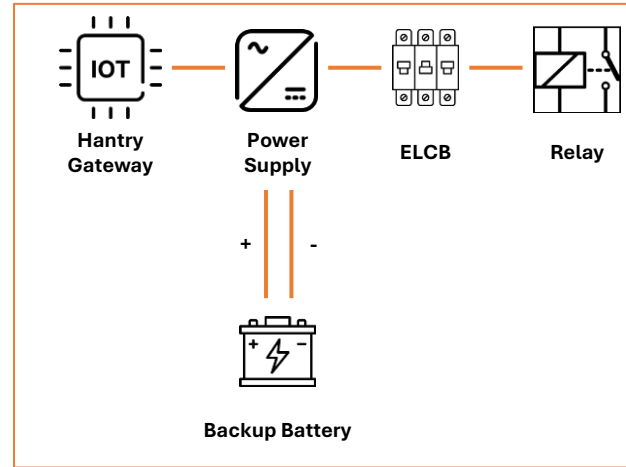
- Fire Alarm
- Direct Zone Alarm (Low Level Integration)

Addressable Panel

- Panel Failure
- Break Glass
- Smoke / Heat
- Sprinkler
- Host Reel
- Low Battery

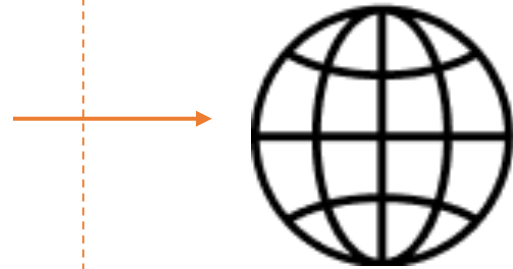
Building Other Sensor

- Camera with Fire Detection
- Building Management System (BMS)
- Integrated Security Management System (ISMS)



IoT

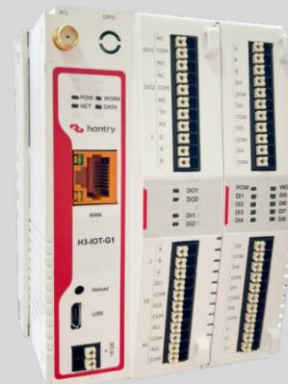
Dilengkapi backup battery yang menyokong sehingga 24 jam tanpa bekalan kuasa utama.



Internet

Peranti IoT

1. Menghubungkan pelbagai **jenis protokol dan dry-contact**
2. **Mengoptimumkan penghantaran data** untuk kelancaran operasi
3. Semua data dihantar menggunakan **encrypted protokol**
4. Peranti ini **dipilih khusus** untuk memenuhi keperluan Projek SPKA

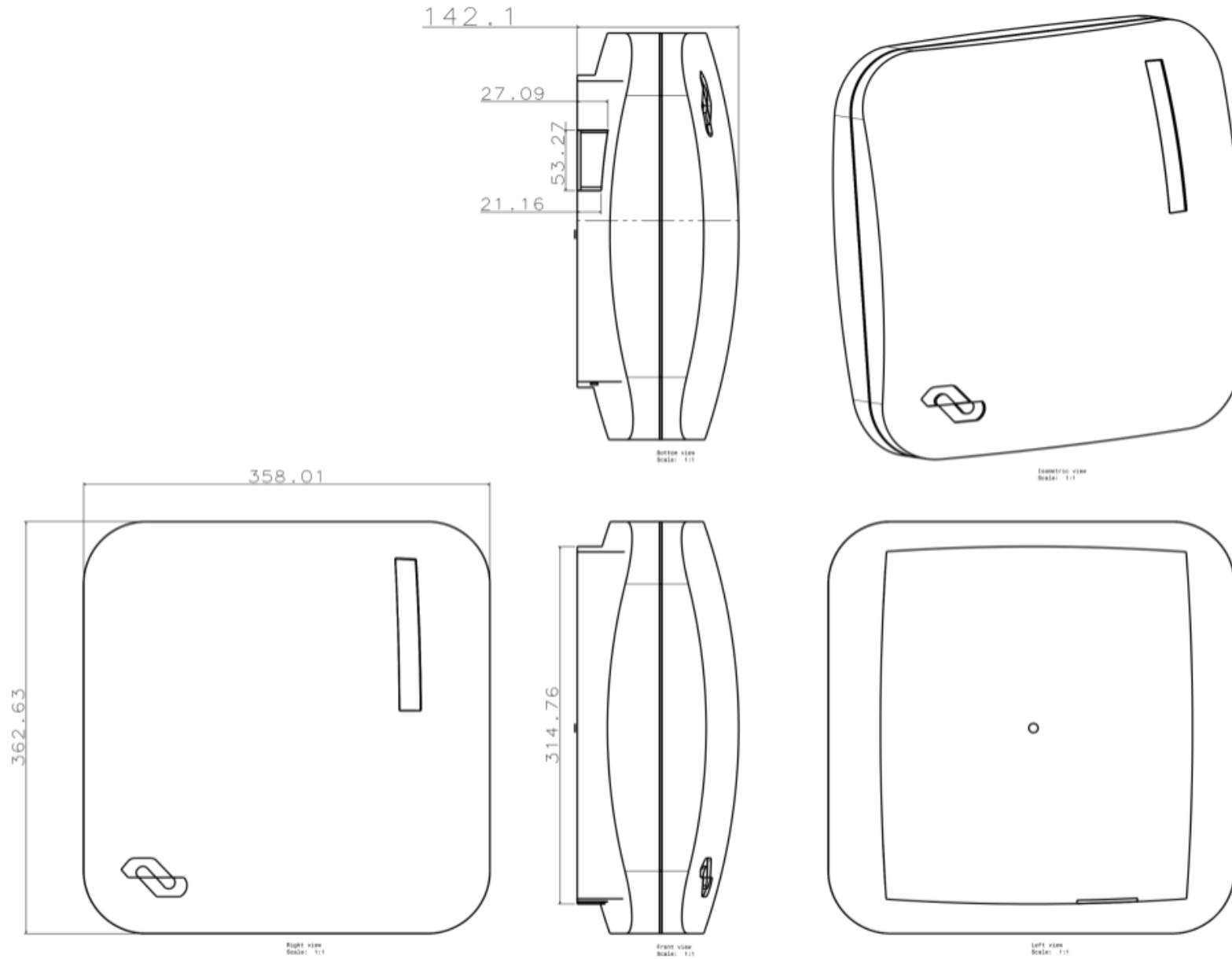


Komponen dalam Peranti IoT



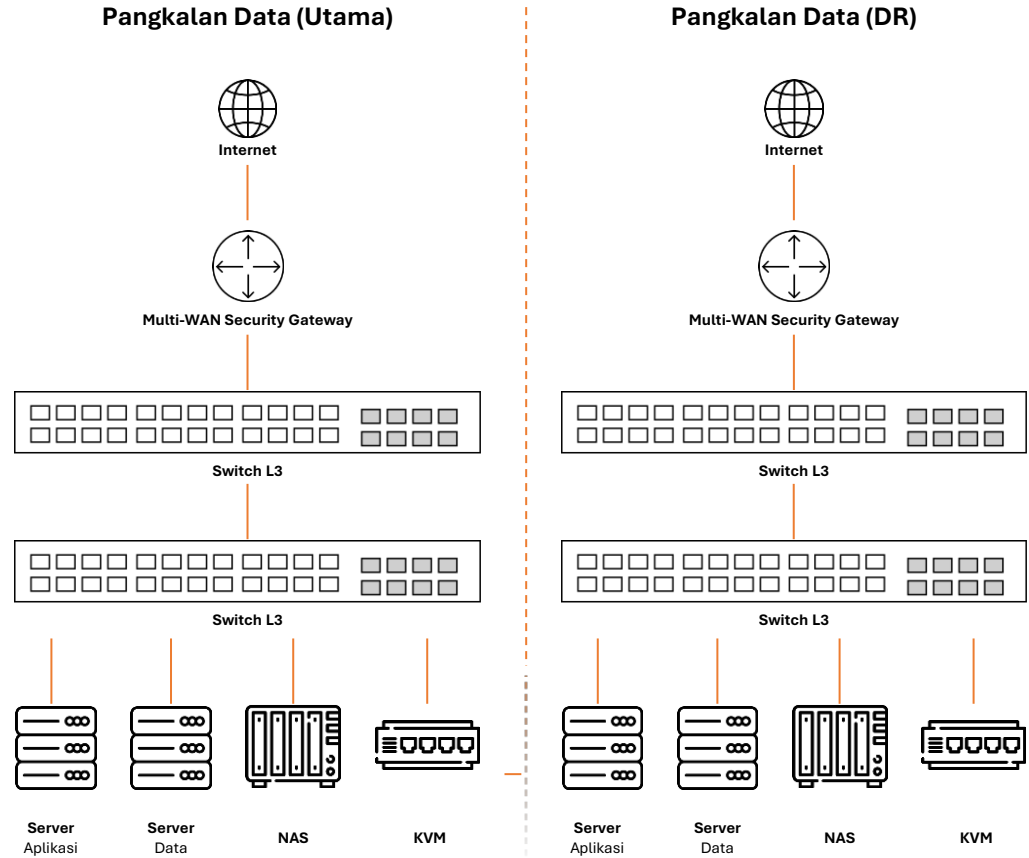
Peranti IoT

Dimensi Luaran Peranti IoT



SISTEM

Aplikasi SPKA



Ringkasan Fungsi dan Modul-Modul Sistem



Sistem SPKA yang dibangun akan mempunyai

88 Modul

Keseluruhan Modul-Modul Sistem

Unified View Dashboard	Analytics	Activity Management	Helpdesk System	Access Management	Asset Management	Vendor Management	Billing	Reports	API Management
Real-Time Monitoring and Alerts	False Alarm Reduction Analytics	Task and Activity Assignment Activity Tracking and Logging	User Management and Roles	User Role Management	Asset Tracking	Contract Management	Rate Management Usage Tracking	Report Chart Report Template	API Gateway API Analytics and Monitoring Tools
Interactive Map and Geospatial Visualization	Incident Analytics Sensor and System Performance Analytics	Incident Management and Follow-Up Preventive Maintenance & Inspection Management	Incident Handling Tracker Ticket Management	Granular Permissions Authentication Mechanisms	Devices Tree Site List	Vendor Compliance	Invoicing Payment Processing	Display Columns Chart Options	API Lifecycle Management Tools
Alarm Validation and Decision Support	Response Time Analytics	Workforce and Resource Management	Multi-Channel Support	Access Logs and Monitoring	Health & Asset Tracking	Vendor Selection	Billing Cycle Management	Show Query	
Emergency Response Management	Predictive Analytics and Risk Assessment	Training and Drill Management	Knowledge Base	User Provisioning and Deprovisioning	Inventory Management	Vendor Performance Monitoring	Customer Account Management		
Automation Flow Tracker	Environmental and Contextual Analytics Resource Allocation and Optimization Analytics Compliance and Regulatory Reporting Multi-Region Comparison & Benchmarking Incident Correlation and Root Cause Analysis User Behavior and System Interaction Analytics Integration with Emergency Response Agencies		Issue Categorization and Prioritization Automated Notifications and Alerts Collaboration and Communication Tools Reporting and Analytics SLA Management Feedback and User Satisfaction Audit Trails and Compliance	Access Requests and Approvals Emergency Access Management Multi-Tenant Support Policy Management Data Encryption and Protection Notifications and Alerts User Self-Service Options	Maintenance Scheduling Compliance Management Automation Scenario Management	Quality Assurance Risk Management Vendor Communication	Reporting and Analytics Compliance and Regulatory Requirements		

Sistem SPKA yang dibangun akan mempunyai

88 Modul

Fasa 1

Pengesanan Amaran Kebakaran di Premis



Fasa 2

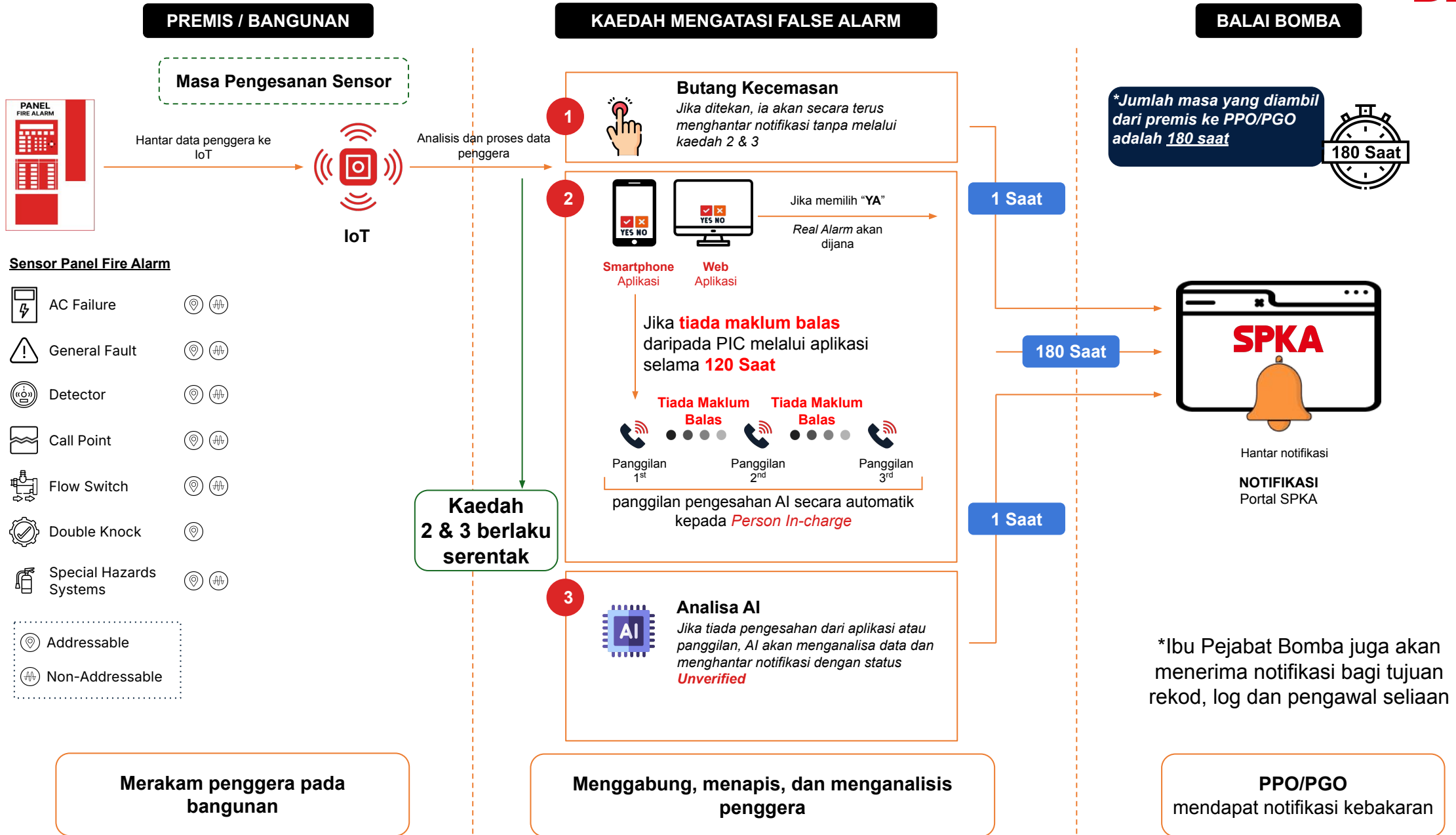
Penilaian Amaran Kebakaran



Fasa 3

Notifikasi kepada Pihak Bomba dan Pemilik Premis

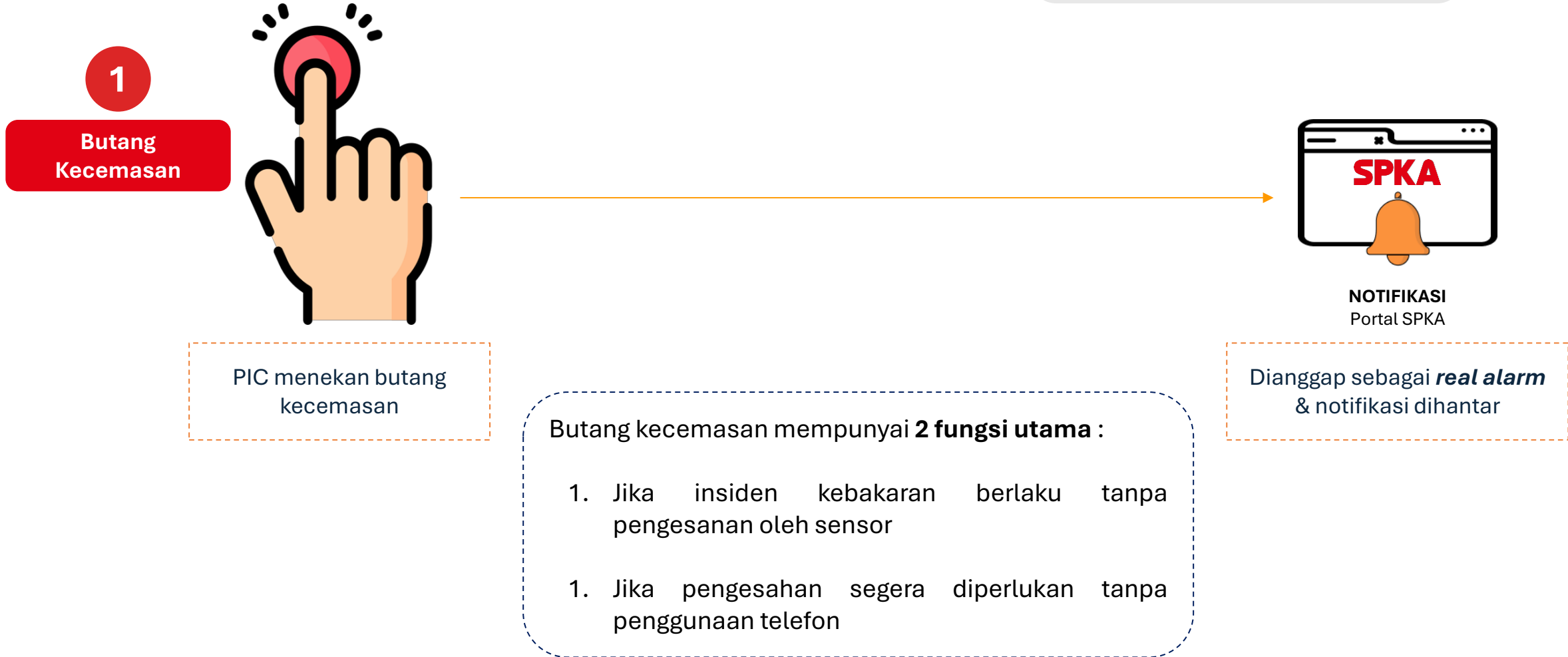




Pengesahan Melalui Kaedah 1 : **Butang Kecemasan**



Jumlah masa yang diambil dari premis ke PPO/PGO adalah **10 saat*



1

Butang Kecemasan



PIC menekan butang kecemasan

Butang kecemasan mempunyai **2 fungsi utama** :

1. Jika insiden kebakaran berlaku tanpa pengesanan oleh sensor
1. Jika pengesanan segera diperlukan tanpa penggunaan telefon

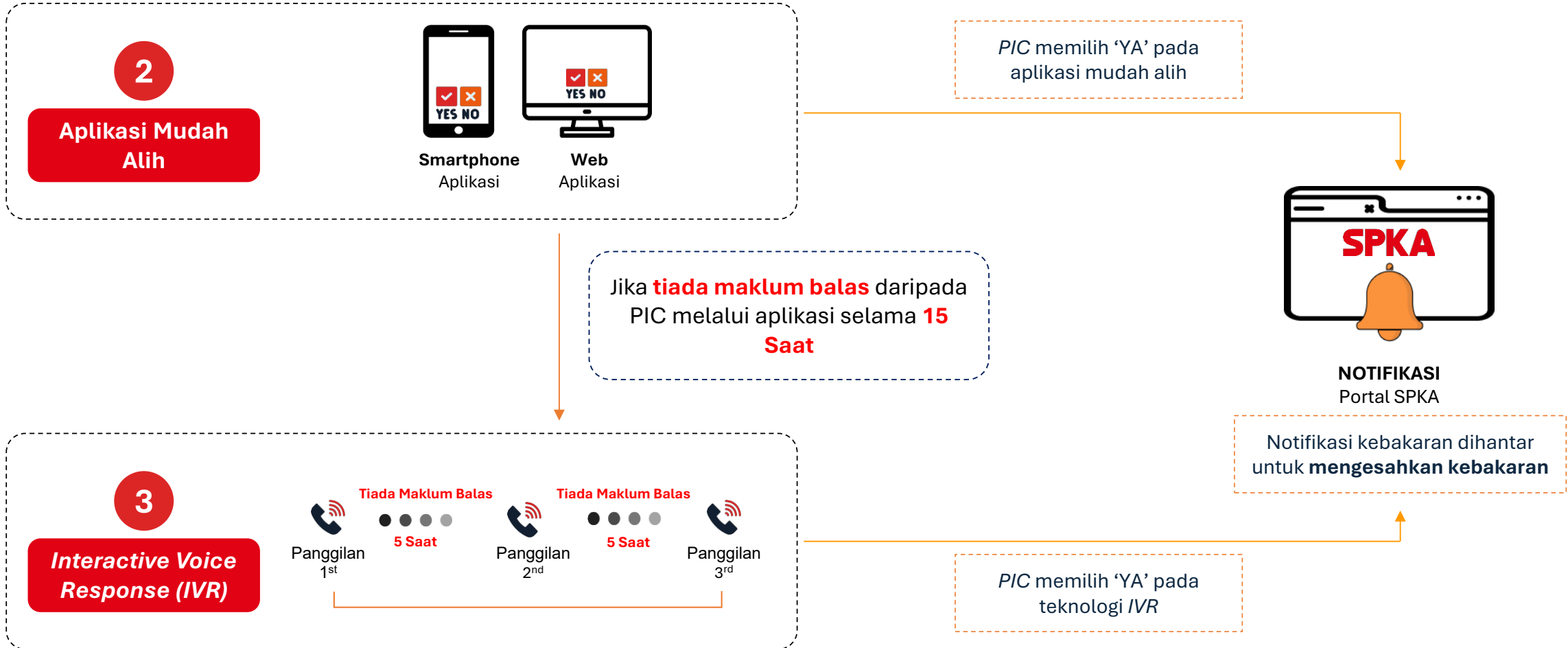


NOTIFIKASI Portal SPKA

Dianggap sebagai *real alarm* & notifikasi dihantar

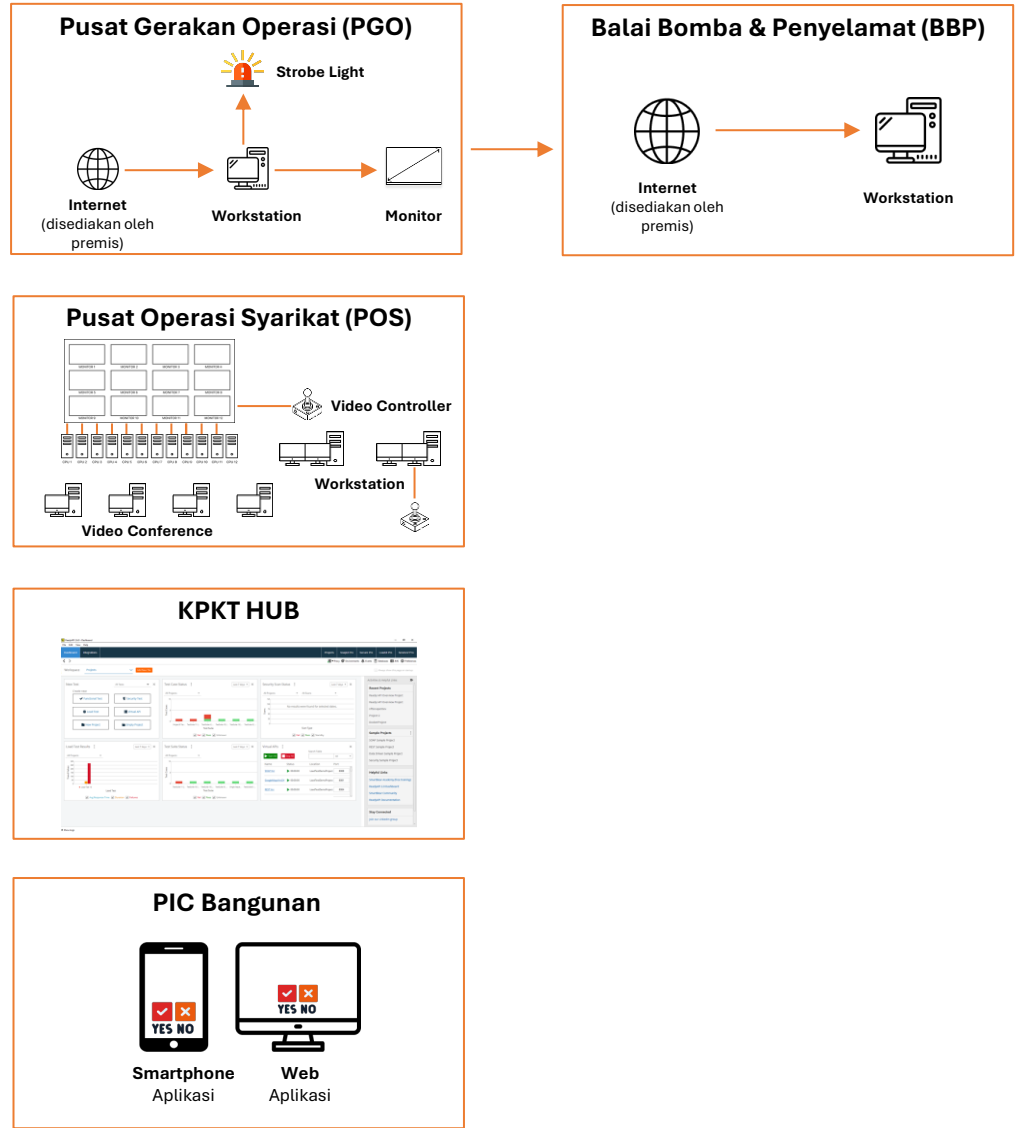
Pengesahan Melalui Kaedah 2 : Aplikasi dan IVR

*Jumlah masa yang diambil dari premis ke PPO/PGO adalah **39 saat**



System Architecture – Pengguna Akhir (End-User)

PENGGUNA AKHIR



The dashboard displays a map of Sentral, Kuala Lumpur, with several alert icons (fire, alarm, false alarm) overlaid on the map. The map includes labels for 'Mosque', 'Central Market', 'Sri Maha Mariamman Temple', 'Plaza Rakyat', and 'Jalan Alor Foo'. A 'Highlight by: State' dropdown menu is visible on the map.

Statistics

Alarm	0002
Fire	0002
False Alarm	0002
Reset	0002

Real time alerts monitoring

Alert Type	Location	Time
Fire	SEL / 1444425 Sentral City Lot Pt 38626, Jln PJU 10/9, Prima Damansara	00:09:02
Fire	SEL / 1444425 Sentral City Lot Pt 38626, Jln PJU 10/9, Prima Damansara	00:09:02
Alarm	SEL / 1444425 Sentral City Lot Pt 38626, Jln PJU 10/9, Prima Damansara	00:09:02
Alarm	SEL / 1444425 Sentral City Lot Pt 38626, Jln PJU 10/9, Prima Damansara	00:09:02
False alarm	SEL / 1444425 Sentral City Lot Pt 38626, Jln PJU 10/9, Prima Damansara	00:09:02

Rajah 2 : Cadangan Menu Utama SPKA dengan panel modul, lokasi, dan amaran.

The screenshot shows the SPKA dashboard for Avenue K Shopping Mall. The interface includes a navigation menu on the left, a header with the SPKA logo and user profile (Shahrul), and a main content area divided into several sections.

Sensor Status:

Sensor Type	Online	Offline
Fire Alarm	23 Online	1 Offline
Main Panel	Online	Offline
Battery	Online	Offline
Sprinkler	23 Online	3 Offline
Hose Reel	10 Online	3 Offline
Smoke/Heat	26 Online	4 Offline

Alarm Summary:

Alarm Type	Count
Alarm Triggered	321
False Alarm	300
Real Alarm	21

Real time alarm monitoring:

- Fire alarm triggered: 9:35AM, 23/10/2024
- Sprinkler triggered: 6:35AM, 23/10/2024
- Battery need to be replaced: 6:35AM, 23/10/2024
- False alarm: 12:35AM, 23/10/2024
- False alarm: 10:52PM, 22/10/2024
- False alarm: 7:35PM, 22/10/2024
- Smoke alarm triggered: 5:21PM, 22/10/2024
- False alarm

Overview:

- Building Address: 156, Jln Ampang, Kuala Lumpur City Centre, 50450 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur
- GPS Coordinate: 3.1595° N, 101.7135° E
- Emergency Fixed Line: 03-2722 2222
- Certificate of Completion of Construction (CCC): [View/download certificate](#)
- Occupancy: 10,000 people
- SPKA Status: Active

Building Personell:

- Humaidi bin Zakaria** (Security Manager)
 - Phone: 6013 222 5544
 - Email: security@avenuek.com
- Muhammad Ammar bin Suhaimi** (Building manager)
 - Phone: 6019 898 9129
 - Email: admin@avenuek.com

Rajah 4 : Antaramuka SPKA memantau keselamatan premis dengan maklumat masa nyata.

Paparan Maklumat Amaran secara *real-time*

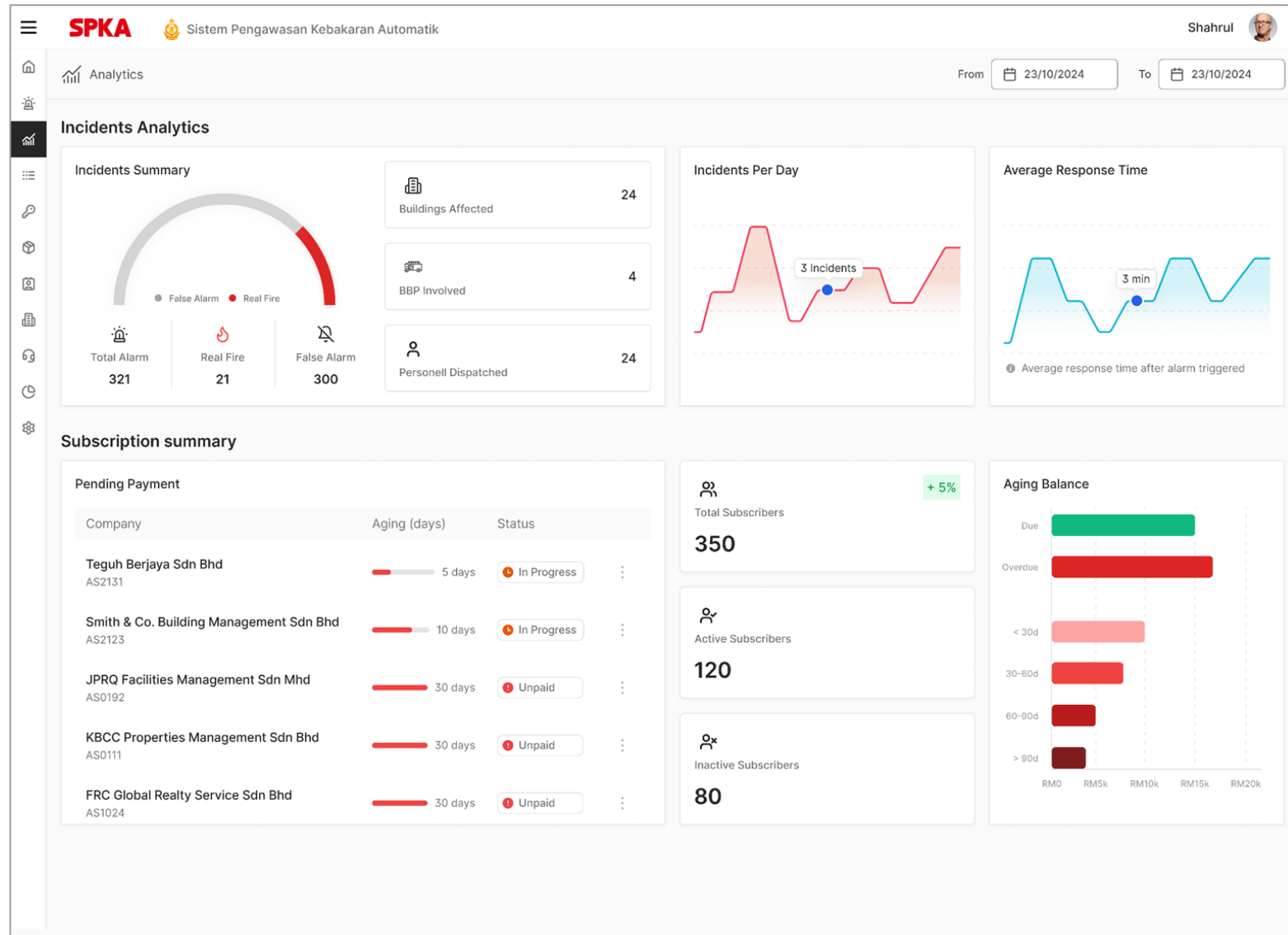
The screenshot displays the SPKA (Sistem Pengawasan Kebakaran Automatik) interface. On the left, a map shows the location of Avenue K Shopping Mall in Kuala Lumpur. Below the map, there are statistics for Alarm (0002), Fire (0002), and False Alarm (0002). The main alert details for Avenue K Shopping Mall include:

- Alert Details:** Avenue K Shopping Mall
- Building Address:** 156, Jln Ampang, Kuala Lumpur City Centre, 50450 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur
- Emergency Fixed Line:** 03-2722 2222
- Building Personell:** Humaidi bin Zakaria (6013 222 5544) and Muhammad Ammar bin Suhaimi (6019 898 9129)
- Nearest Fire & Rescue Station (BBP):** BBP Jalan Tun Razak (2.5km away), BBP Titivangsa (3.2km away), and BBP Hang Tuah (3.2km away).

The **Conversation Log** shows the following sequence of events:

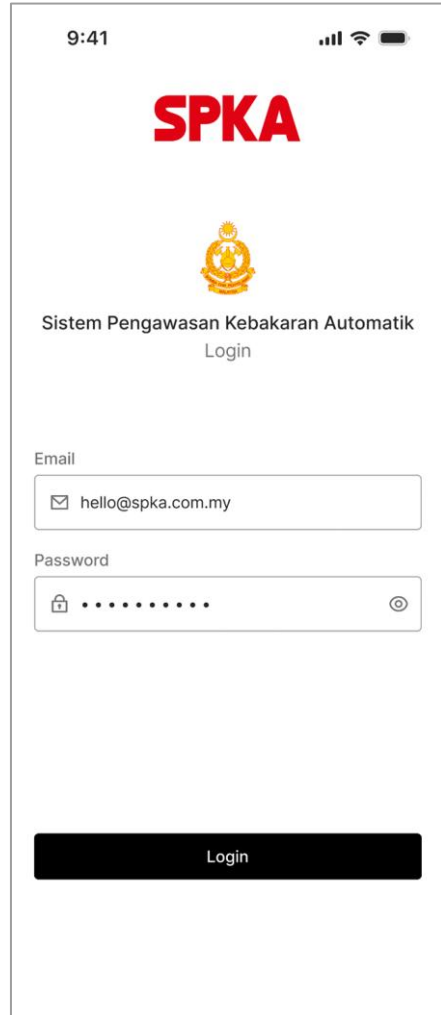
- Alarm triggered at 11:46 AM, 23 Oct 2024
- Pending PIC Humaidi bin Zakaria to response
- Alarm changed to Real Fire at 12:02 PM, 23 Oct 2024. Request assistance from Fire & Rescue Department
- Note from the PIC: Humaidi bin Zakaria reports a small fire on the ground floor and requests fire department assistance.
- Message: "Mohon BBP Jalan Tun Razak ke sana" (Request BBP Jalan Tun Razak to come here).
- Response: "BBP Jalan Tun Razak Maklum diterima. Kami otw ke lokasi" (BBP Jalan Tun Razak acknowledged. We are on our way to the location).
- Status: "BBP Jalan Tun Razak has been dispatched to the location at 12:15 PM, 23 Oct 2024"

Rajah 3 : Paparan SPKA menunjukkan amaran, chat PGO-PIC, dan balai bomba terdekat.



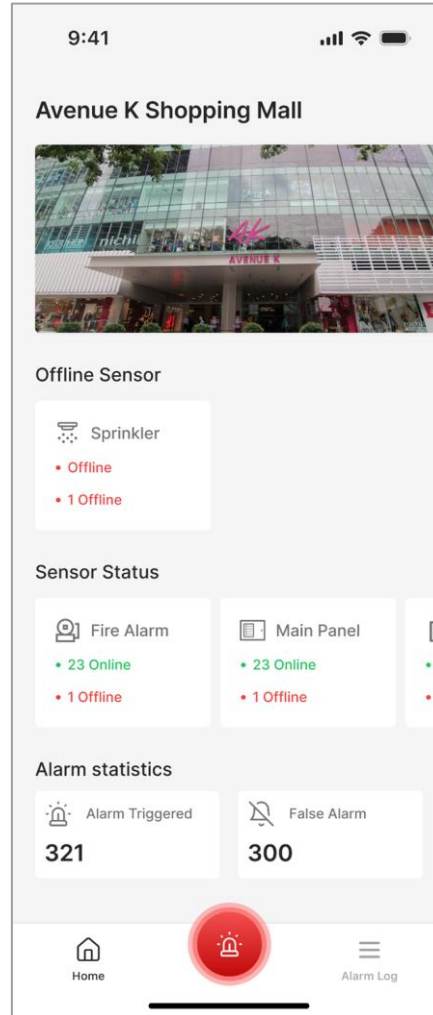
Rajah 5 : Analisis insiden kebakaran, amaran, status langganan, dan tunggakan pelanggan.

Paparan Aplikasi Telefon – OKK



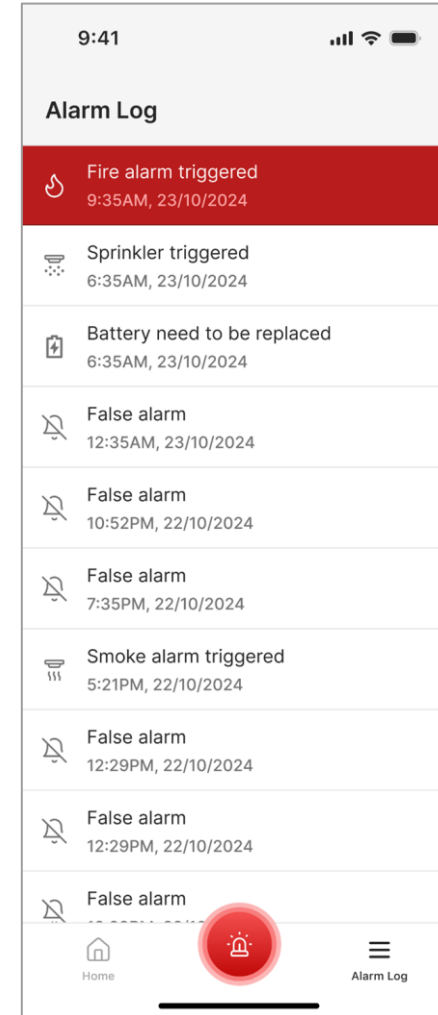
Paparan Login

Pengguna perlu masukkan nama & kata laluan yang telah ditetapkan



Paparan Utama

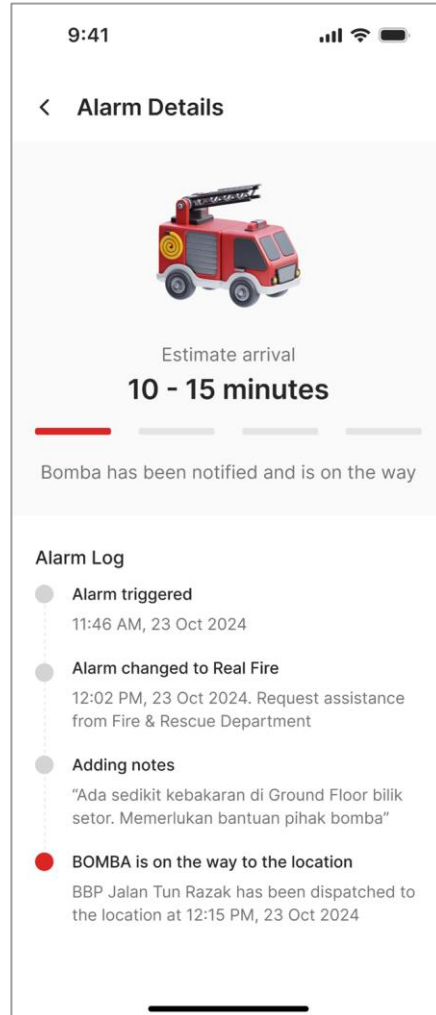
Menunjukkan nama premis serta status sensor yang *online/offline*



Paparan Log Penggera

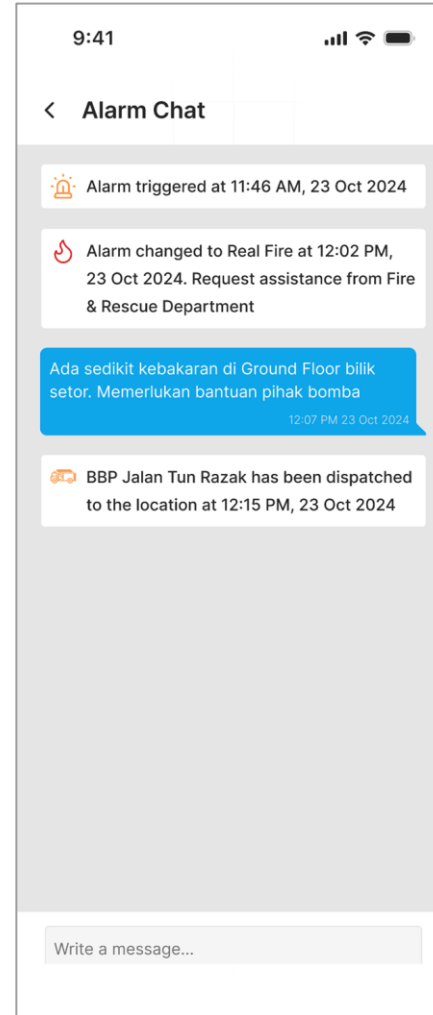
Menunjukkan waktu dan tarikh bila berlakunya penggera tercetus

Paparan Aplikasi Telefon – OKK



Paparan Pergerakan Bomba

Menunjukkan log penggera & waktu perjalanan bomba ke tempat kejadian



Paparan Perbualan

Menunjukkan perbualan antara pengguna (PIC) dengan anggota yang bertugas

Rumusan Paparan Keseluruhan – Light Mode

Komputer

The desktop monitor displays the SPKA dashboard in light mode. The header includes the SPKA logo, the title 'Sistem Pengawasan Kebakaran Automatik', and the user name 'Shahrul'. The main content area is divided into several sections: 'Incidents Analytics' with a summary card showing 321 Total Alarm, 21 Real Fire, and 300 False Alarm; 'Incidents Per Day' with a line chart showing 3 incidents; 'Average Response Time' with a line chart showing 3 min; 'Subscription summary' with a table of pending payments; and 'Aging Balance' with a bar chart showing a +5% increase. A table below shows subscriber aging details with columns for Company, Aging (days), and Status.

SmartPhone

Tablet

Laptop

The laptop displays a map view of the SPKA system. The map shows various locations in Kuala Lumpur, including Mosque, Leboh Pasar Besar, Central Market, and Plaza Rakyat. Below the map, there is a 'Real time alerts monitoring' section with a table of active alarms. The table has columns for Alarm ID, Type, Location, and Time.

Alarm	Type	Location	Time
0002	Fire	SEL / 1444425 Sentral City Lot P1 28626, Jln PJU 1/18, Prima Damansara	00:09:02
0002	Fire	SEL / 1444425 Sentral City Lot P1 28626, Jln PJU 1/18, Prima Damansara	00:09:02
0002	Alarm	SEL / 1444425 Sentral City Lot P1 28626, Jln PJU 1/18, Prima Damansara	00:09:02
0002	Alarm	SEL / 1444425 Sentral City Lot P1 28626, Jln PJU 1/18, Prima Damansara	00:09:02

The tablet displays the 'Alert Details' screen for an incident at Avenue K Shopping Mall. It includes a map, building information (156, Jln Ampang, Kuala Lumpur City Centre), emergency contact numbers (09-2722 2222), and a list of personnel (Hamidi bin Zakaria, Muhammad Ammar bin Suhaimi, and BSP Hang Tuan). A 'Conversation Log' section shows the timeline of the incident, including the alarm triggered at 11:46 AM, the pending PIC response, and the alarm changing to Real Fire at 12:02 PM. It also lists nearby fire and rescue stations (BSP Jalan Tun Razak, BSP Titewangsa, and BSP Hang Tuan) with their distances.

The smartphone displays the 'Sensor Status' screen for Avenue K Shopping Mall. It shows the status of various sensors: Sprinkler (23 Online, 1 Offline), Fire Alarm (23 Online, 1 Offline), and Main Panel (23 Online, 1 Offline). The 'Alarm statistics' section shows 321 Alarm Triggered and 300 False Alarm.

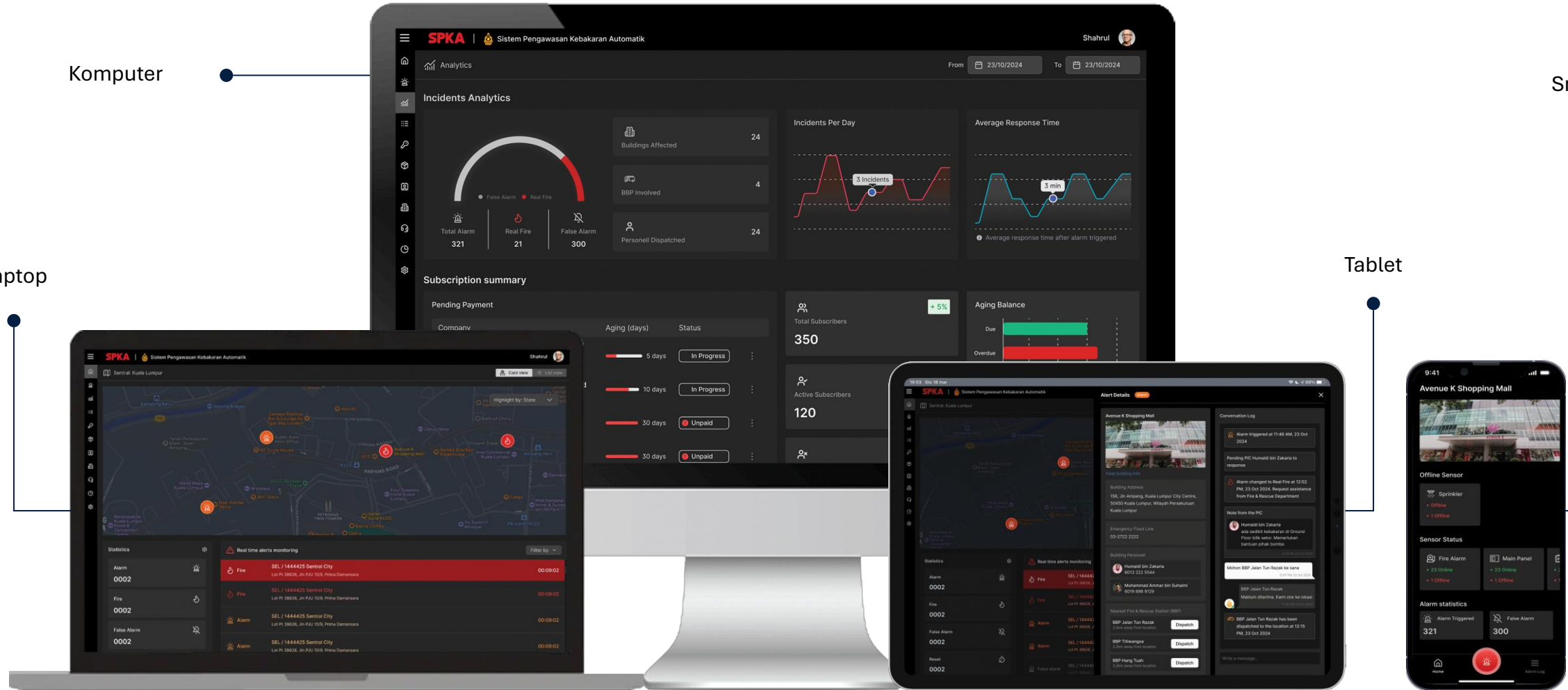
Rumusan Paparan Keseluruhan – Dark Mode

Komputer

SmartPhone

Laptop

Tablet



Rumusan Kelebihan Teknikal & Sistem

1

Sokongan Aplikasi di Pelbagai Peranti

Boleh digunakan pada semua peranti seperti smartphone, tablet, laptop & monitor.

2

Maklumat Bangunan Lengkap, Integrasi Fire Hydrant & GPS

Pangkalan data terperinci untuk memudahkan pengurusan keselamatan.

3

Integrasi Lokasi Fire Hydrant & GPS

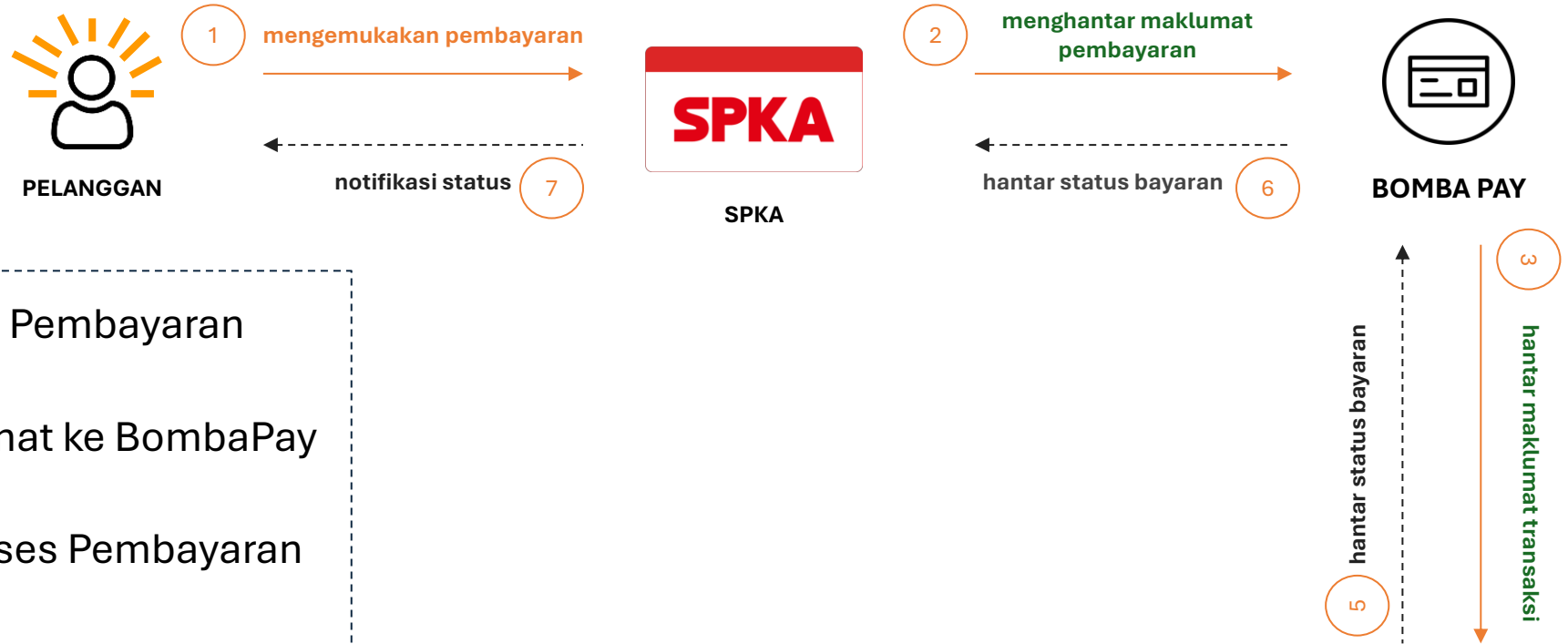
Lokasi pili bomba dan balai bomba terdekat terus dipaparkan dalam sistem.

4

Kaedah Mengatasi False Alarm yang pantas; Fungsi Panggilan Automatik

Mengurangkan keperluan tenaga kerja untuk pusat panggilan dengan sistem panggilan automatik.

Aliran *Payment Gateway*



Langkah 1 : Pelanggan Membuat Pembayaran

Langkah 2 : SPKA Hantar Maklumat ke BombaPay

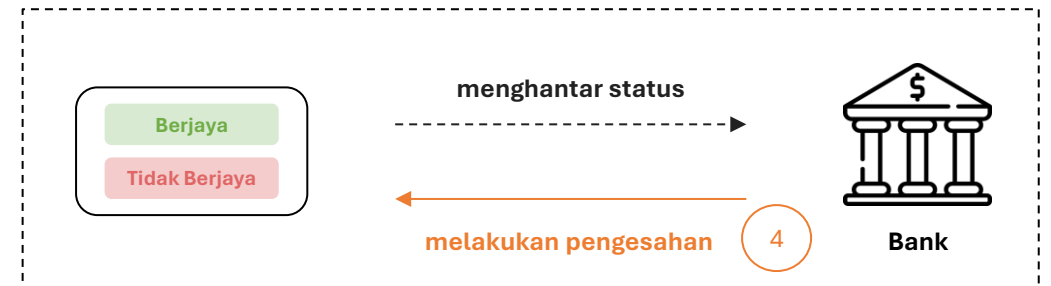
Langkah 3 : BombaPay Memproses Pembayaran

Langkah 4 : Bank Mengesahkan Pembayaran

Langkah 5 : Status Bayaran Diterima

Langkah 6 : Makluman ke SPKA

Langkah 7 : Makluman ke Pelanggan



SPKA

Terima Kasih