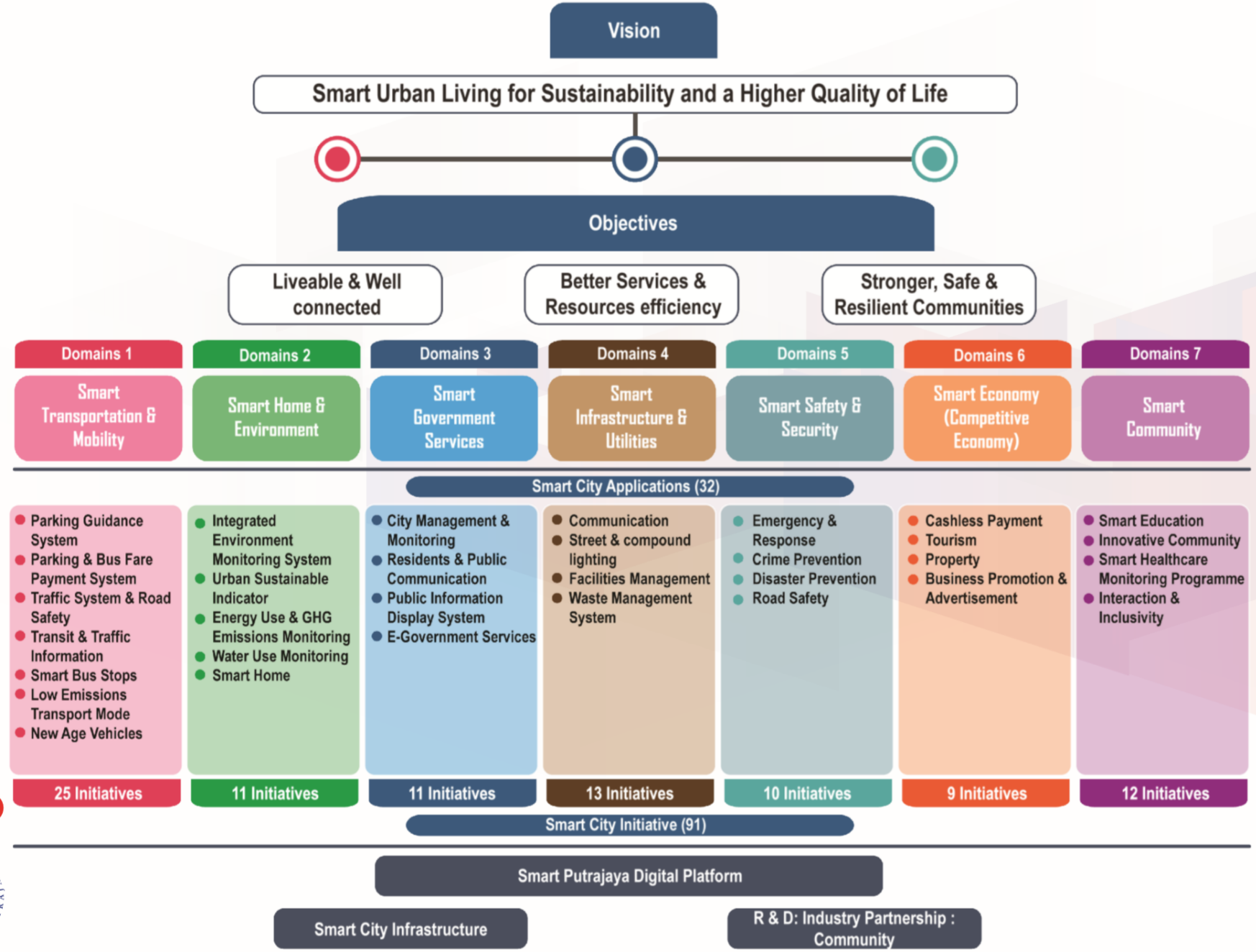
PUTRAJAYA SMART CITY

SMART URBAN LIVING FOR SUSTAINABILITY & A HIGHER QUALITY OF LIFE

THE OBJECTIVES


Vision
Smart Urban Living for Sustainability and a Higher Quality of Life
Objectives
Liveable & Well connected
Better Services & Resources efficiency
Stronger, Safe & Resilient Communities
Domains 1
Smart Transportation & Mobility
Parking Guidance System
Parking & Bus Fare Payment System
Traffic System & Road Safety
Transit & Traffic Information
Smart Bus Stops
Low Emissions Transport Mode
New Age Vehicles
25 Initiatives
Domains 2
Smart Home & Environment
Integrated Environment Monitoring System
Urban Sustainable Indicator
Energy Use & GHG Emissions Monitoring
Water Use Monitoring
Smart Home
11 Initiatives
Domains 3
Smart Government Services
City Management & Monitoring
Residents & Public Communication
Public Information Display System
E-Government Services
11 Initiatives
Domains 4
Smart Infrastructure & Utilities
Communication
Street & compound lighting
Facilities Management
Waste Management System
13 Initiatives
Domains 5
Smart Safety & Security
Emergency & Response
Crime Prevention
Disaster Prevention
Road Safety
10 Initiatives
Domains 6
Smart Economy (Competitive Economy)
Cashless Payment
Tourism
Property
Business Promotion & Advertisement
9 Initiatives
Domains 7
Smart Community
Smart Education
Innovative Community
Smart Healthcare Monitoring Programme
Interaction & Inclusivity
12 Initiatives
Smart City Applications (32)
Smart City Initiative (91)
Smart Putrajaya Digital Platform
Smart City Infrastructure
R & D: Industry Partnership : Community

SMART TRANSPORTATION & MOBILITY

SMART TRANSPORTATION & MOBILITY - OBJECTIVES

- Provide information on available car parking spaces and their location in the city.
- Facilitate commuter's information on availability and frequency of public transport in the city.
- Reduce carbon emission and air pollution through the use of efficient modes of public transportation.
- Alleviate traffic congestion issues through effective planning and enforcement
- Smart services for community in order to reduce the use of transportation mode.

Medium term

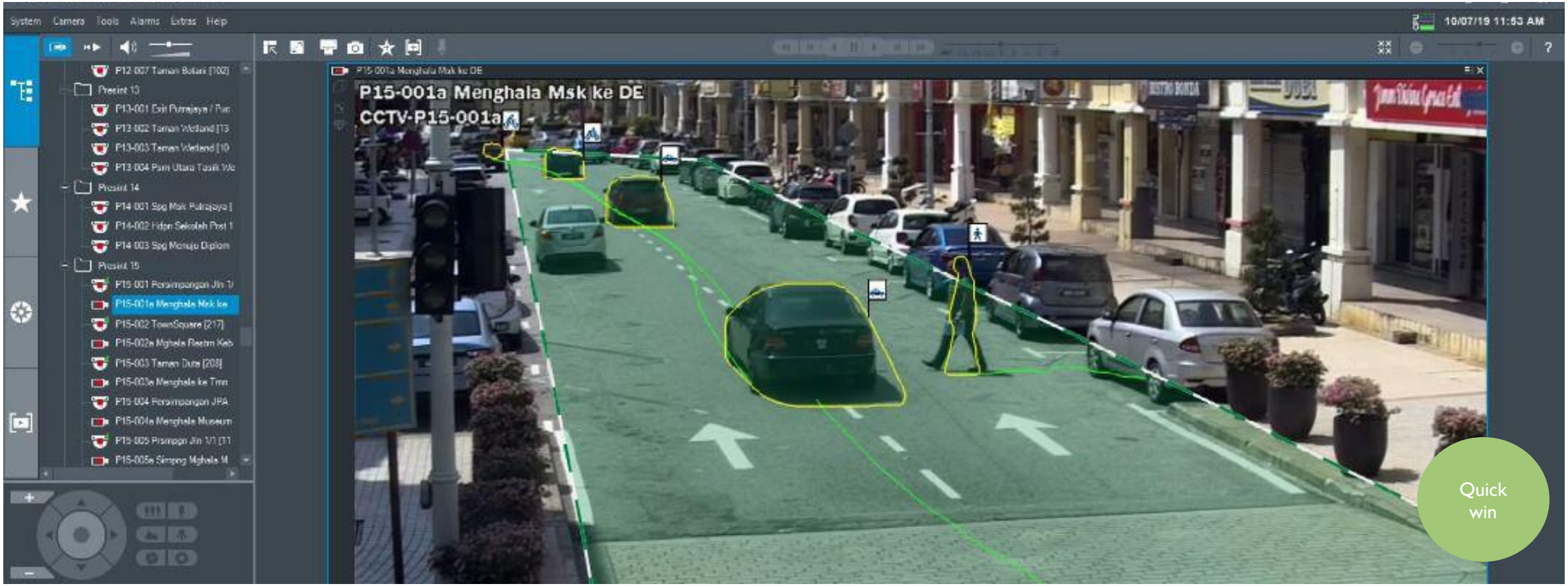
PARKING GUIDANCE SYSTEM

- Electronic Board displays to inform on available car parking spaces by location.
  - Efficient use of car parking spaces available in the city especially during peak hours and during events to avoid road congestions.
  - Functions for facilitating Putrajaya Command Centre in management of the traffic using advisory parking facility.
  - Provide API & integration with Parking Owner.
  - Wireless based systems
  - Low powered LED with aesthetic design

PARKING GUIDANCE SYSTEM

Quick win

- Mobile apps for parking guidance.
  - Reduces circulating traffic searching for parking
  - Real-time information and select areas to guide drivers to available parking spaces.
  - Ability to toggle between availability and price, including real-time updates as prices are changed or updated.
  - Easy access to rates, hours, and time limits for on-street, and gated parking.
  - Search field with enhanced ability to find parking by address or points of interest.
  - Enhanced filters allowing drivers to set criteria, such as EV charging stations, on-street or gated lots only, or specific payment options (coins, credit card, mobile payments) – 2nd phase.
  - Set reminders, and other options including mobile payment (where available).



ILLEGAL PARKING CONTROL

Prevention of illegal parking along roads.

Making use of CCTV IVA

Making use of Horn Speaker

Long term

PARKING & BUS FARE PAYMENT SYSTEM

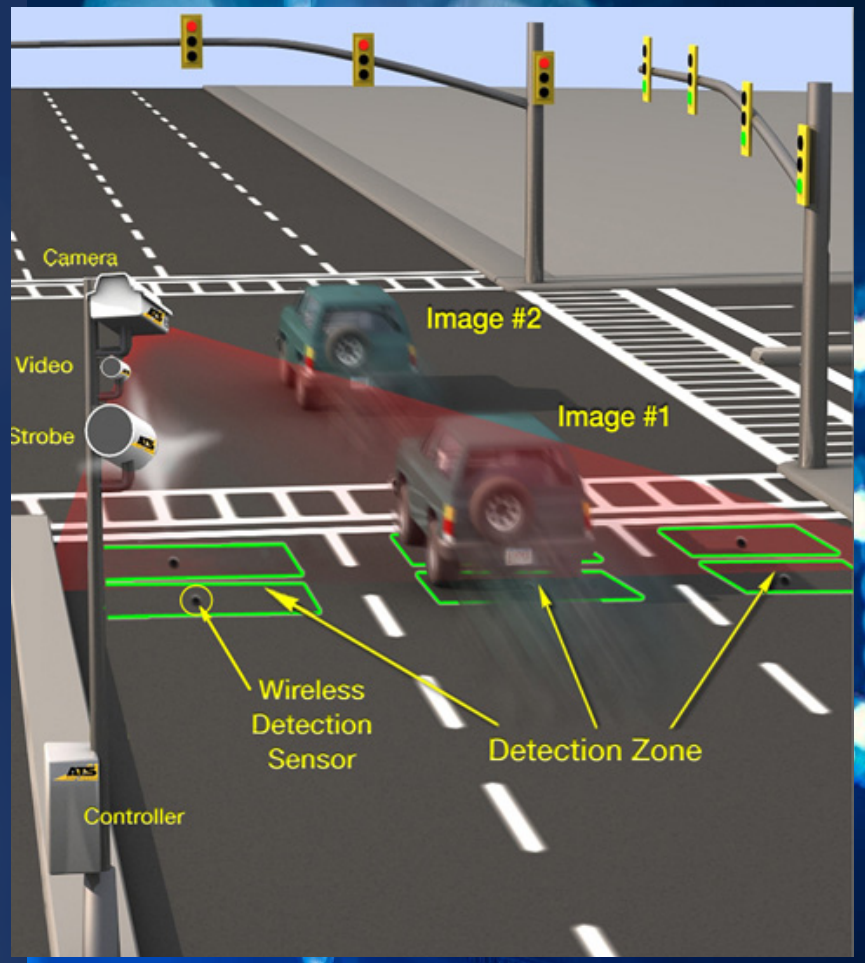
- Pay by phone (to be integrated with Putrajaya Mobile)
- Automation Ticketing & payment System
- Cashless bus fare payment system (e.g: e-wallet)
  - Maximize the convenience of use of public transportation
  - Putrajaya Mobile App as payment aggregator

Quick win

Short term

TRAFFIC SYSTEM & ROAD SAFETY

- Smart Traffic Lights (Advance Traffic Control System)
  - Continuous traffic flow for emergency vehicles
  - Improve emergency respond time
  - Using traffic information to control traffic
  - Predicting traffic conditions



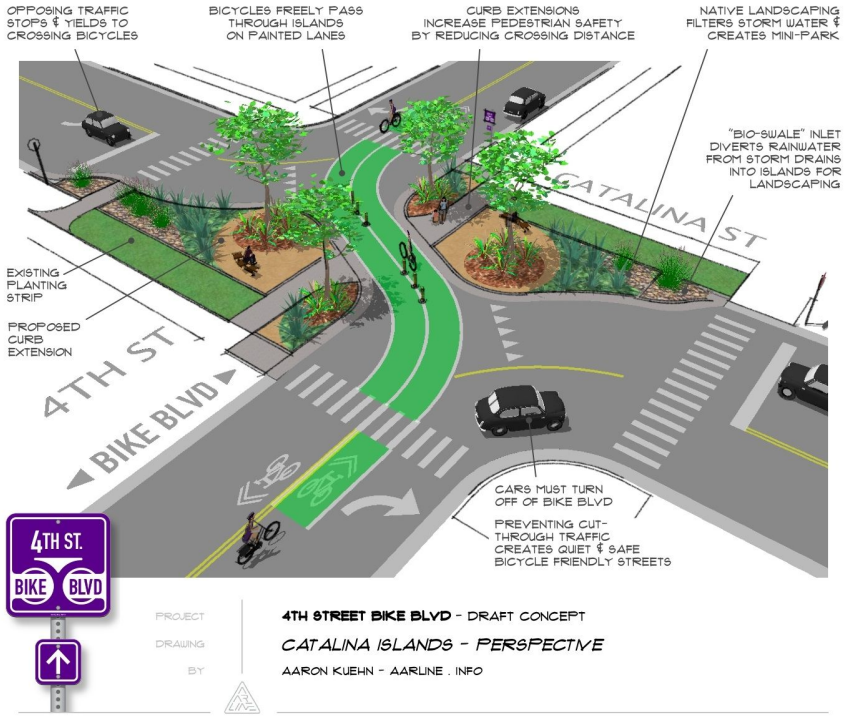
TRAFFIC SYSTEM & ROAD SAFETY

Medium term

- Traffic condition & safety monitoring (Smart CCTV)
  - Increase and enhance road effectiveness and efficiency
  - A more responsive system to events on the road system.
  - Better information to road users
  - More effective data for forecasting
  - Bringing data mining and other machine-learning techniques into the traffic management arena.
  - Analysis techniques to play a more important role in real-time traffic management.
  - Safety evaluation
  - Alternate routing

TRAFFIC SYSTEM & ROAD SAFETY

Long term



- Traffic calming
  - Improve road safety
  - Reduce accident rate
  - Traffic flow option.
  - Customised traffic management plan.

TRAFFIC SYSTEM & ROAD SAFETY

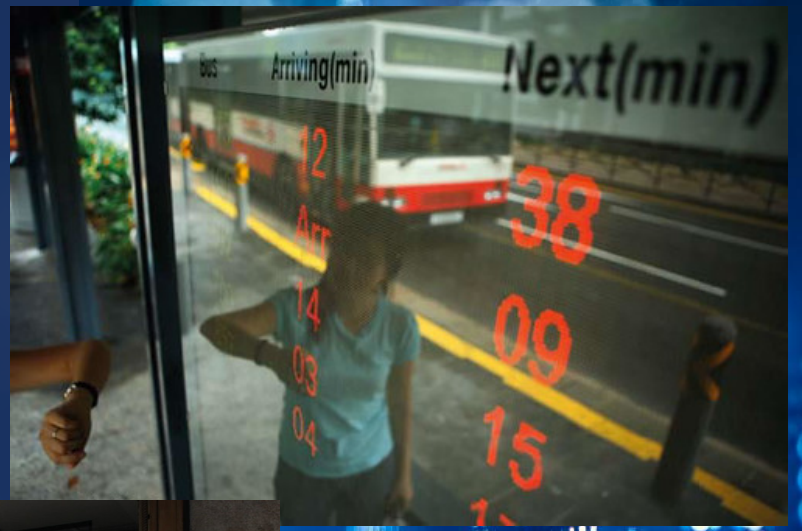
Quick win

- Dedicated lane for all categories of vehicles
  - Reduce public transport travel time and improve safety
  - Reduce congestion and to keep traffic flowing

TRANSIT & TRAFFIC INFORMATION

- Bus arrival information
- Real-time bus arrival information system

Medium term



- Provide bus loading info using colour coding (e.g: green+available seats; yellow=standing space; red = limited
  - Maximizing the convenience of use of public transportation and general private transport user

Long term

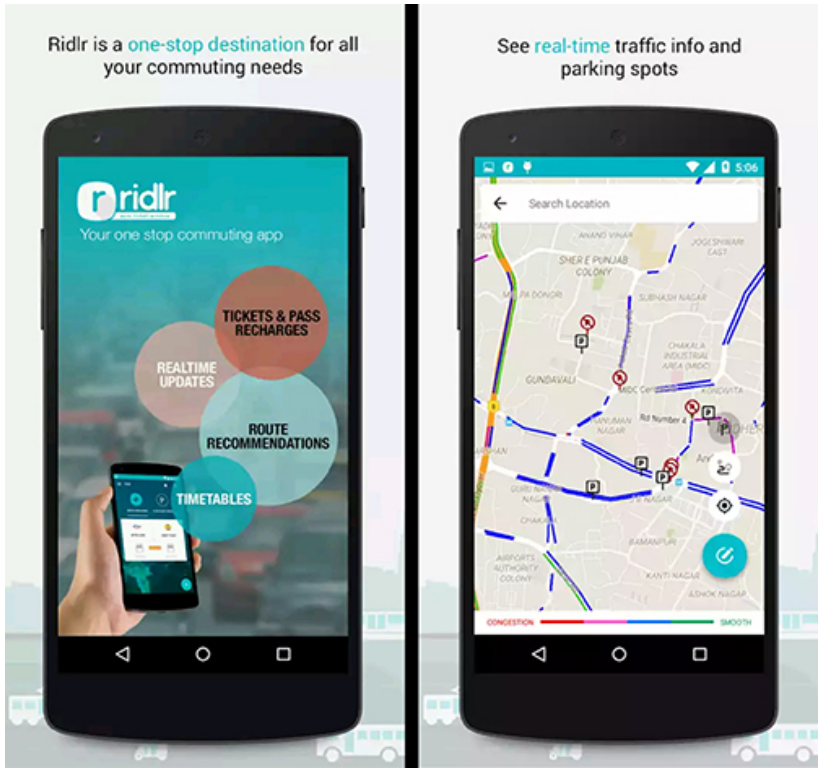
TRANSIT & TRAFFIC INFORMATION

- App to provide real-time information on public transport
  - Estimated arrival times
  - Service updates
  - Directions to the nearest stops, stations, and routes
  - All the details on accessibility

Long term

- Journey Planner

Quick win



TRANSIT & TRAFFIC INFORMATION

Variable Message Signs to display short traffic condition messages

- Send message to multiple panels
- Map-based and user friendly GUI
- Traffic Data Collection Integration
- Travel Time Integration

TRANSIT & TRAFFIC INFORMATION

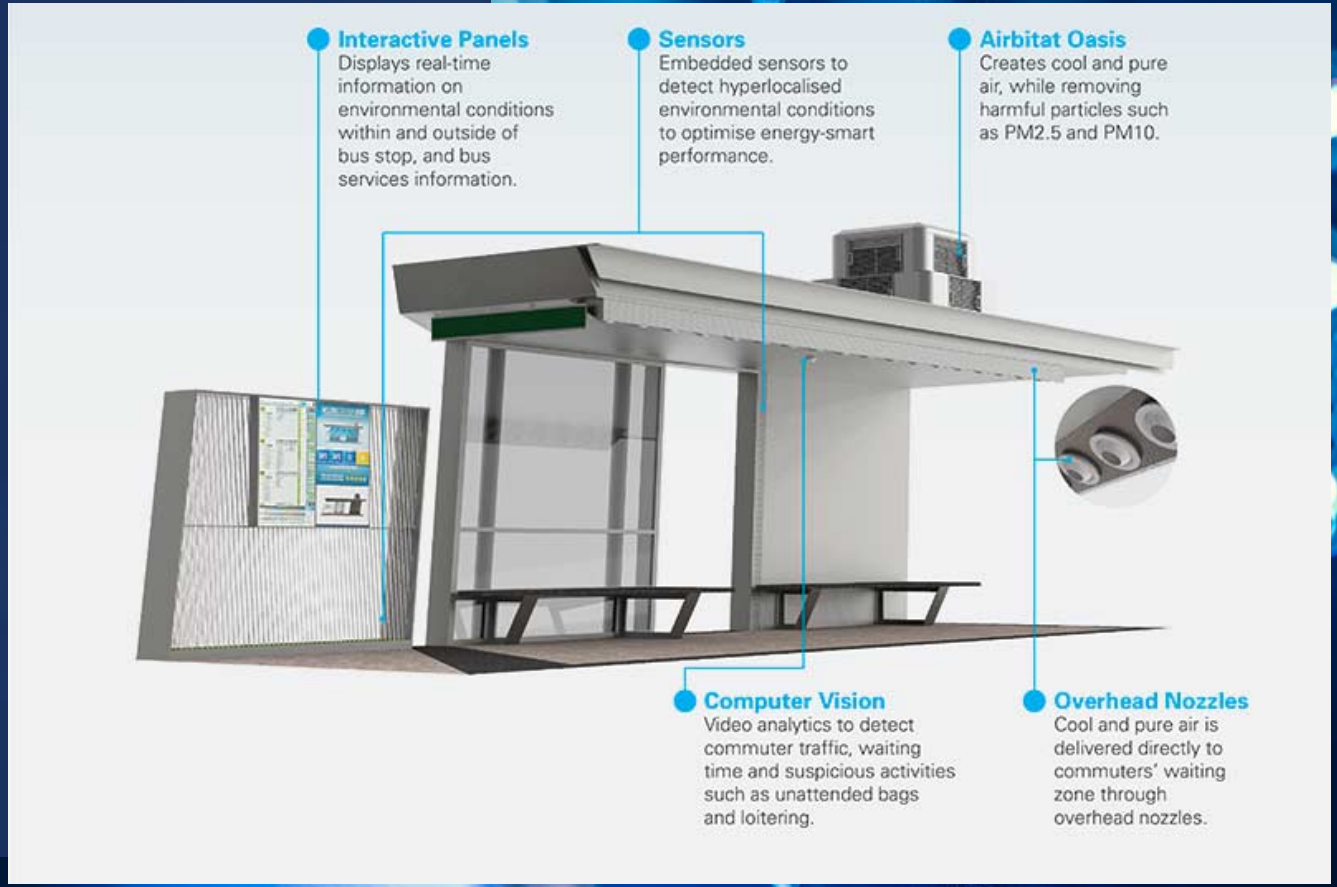
Quick win

- Traffic count using smart CCTV
  - Not even during LIVE traffic, by u**sing** the **CCTV** system, users can easily verify the **vehicle counts** by watching the video playback and seeing the **counts** increase as the cars pass.

Medium term

SMART BUS STOPS

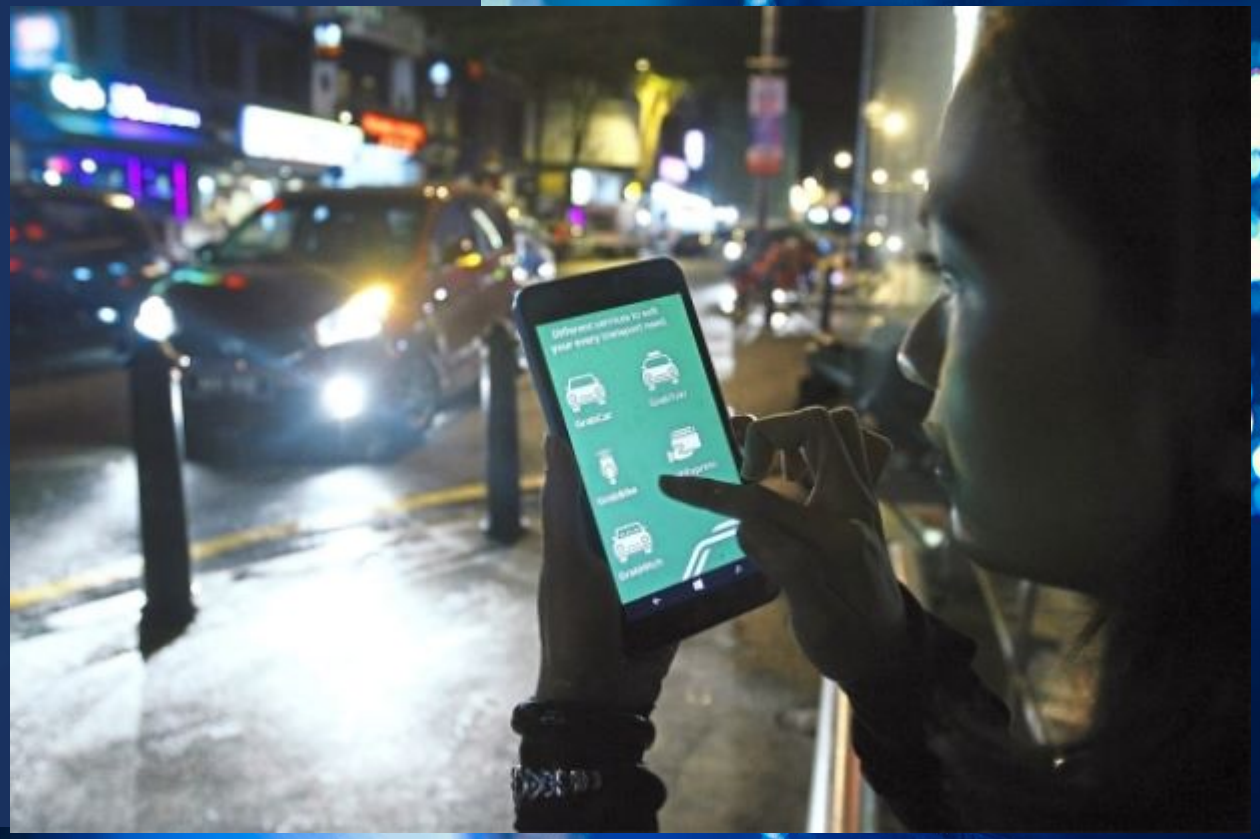
- Motion sensors (night time) for energy saving
- Sensor to monitor real time facility problems
- Smart CCTV
- Panic Button
- Wi-Fi
- Digital Directory
- Digital Advertisement & Emergency Information
- Rooftop Solar Panel
- Ventilation
- USB Charging Port



LOW EMISSIONS TRANSPORTATION MODE

- Ride sharing
- Car sharing

Quick win

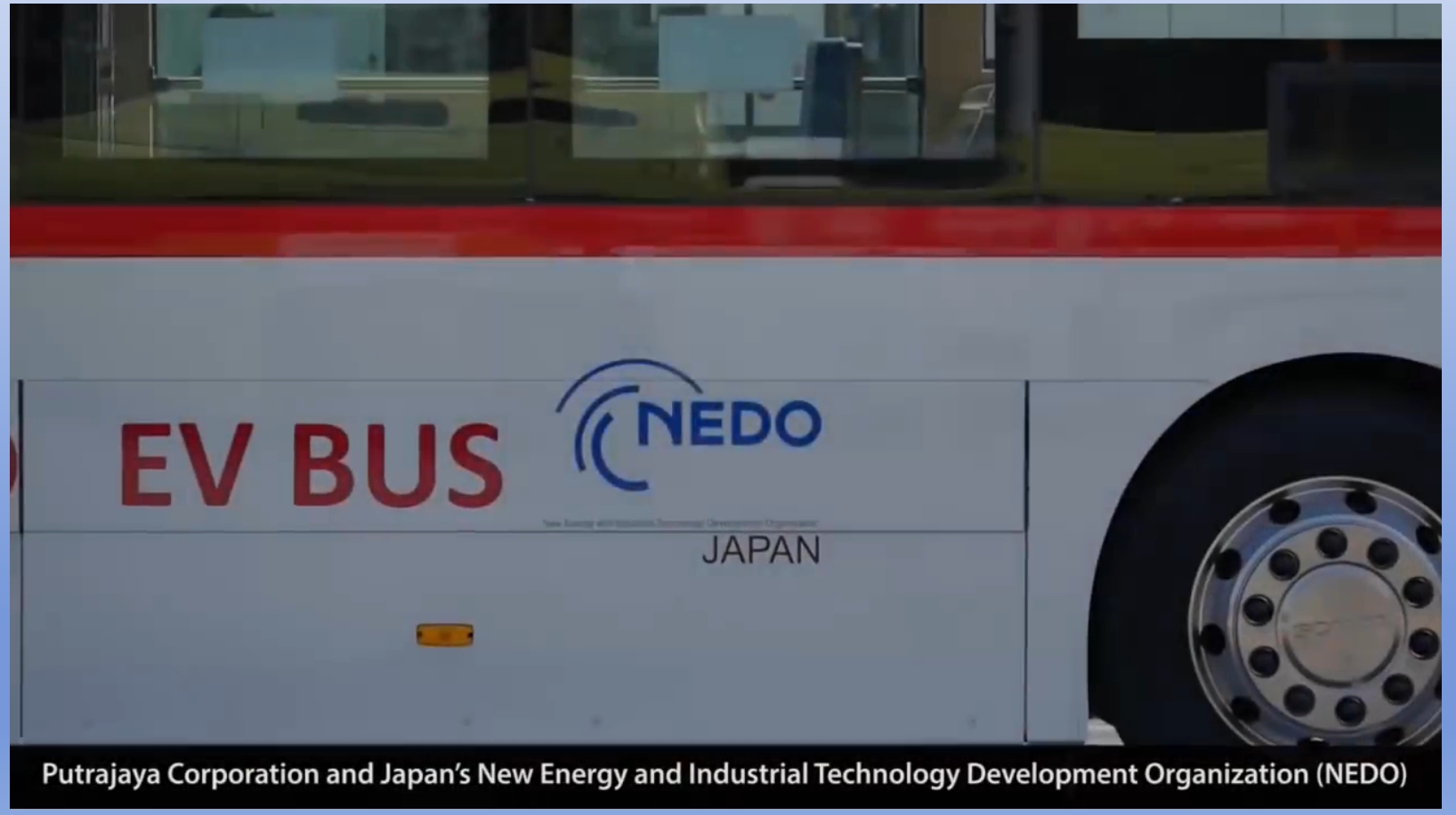


LOW EMISSIONS TRANSPORTATION MODE

Long term

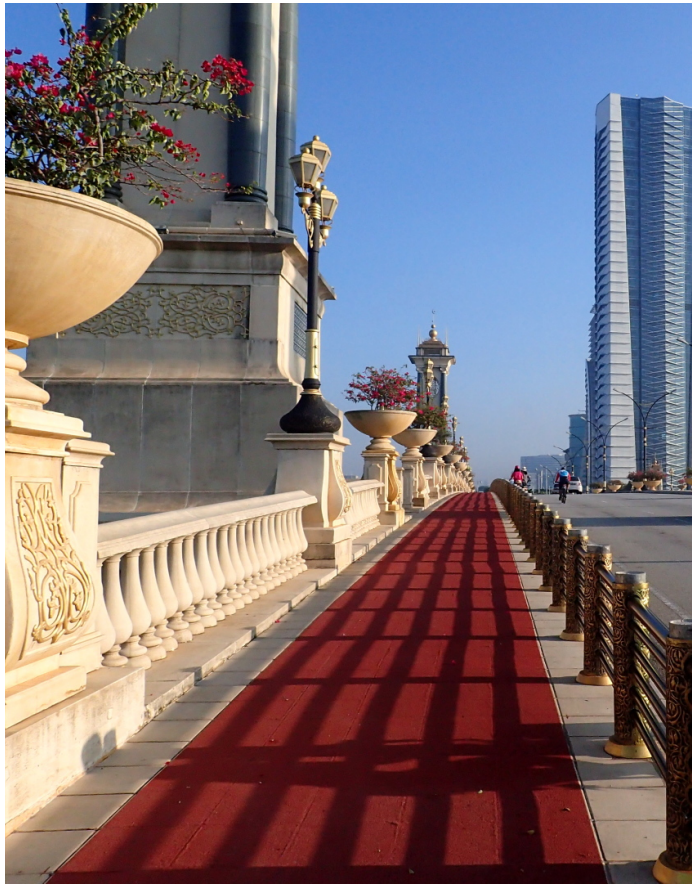
- **Eco ride**
- **NGV & EV**

PUTRAJAYA EV BUS



IMPROVEMENT OF BICYCLE LANE AND PEDESTRIAN WALKWAYS

Medium term



- Increase number of people walking & cycling
  Improve safety for user

NEW AGE VEHICLES

Long term

- Autonomous Vehicles
  - Providing the people with an alternative clean energy vehicular mode through autonomous vehicles

SMART HOME & ENVIRONMENT

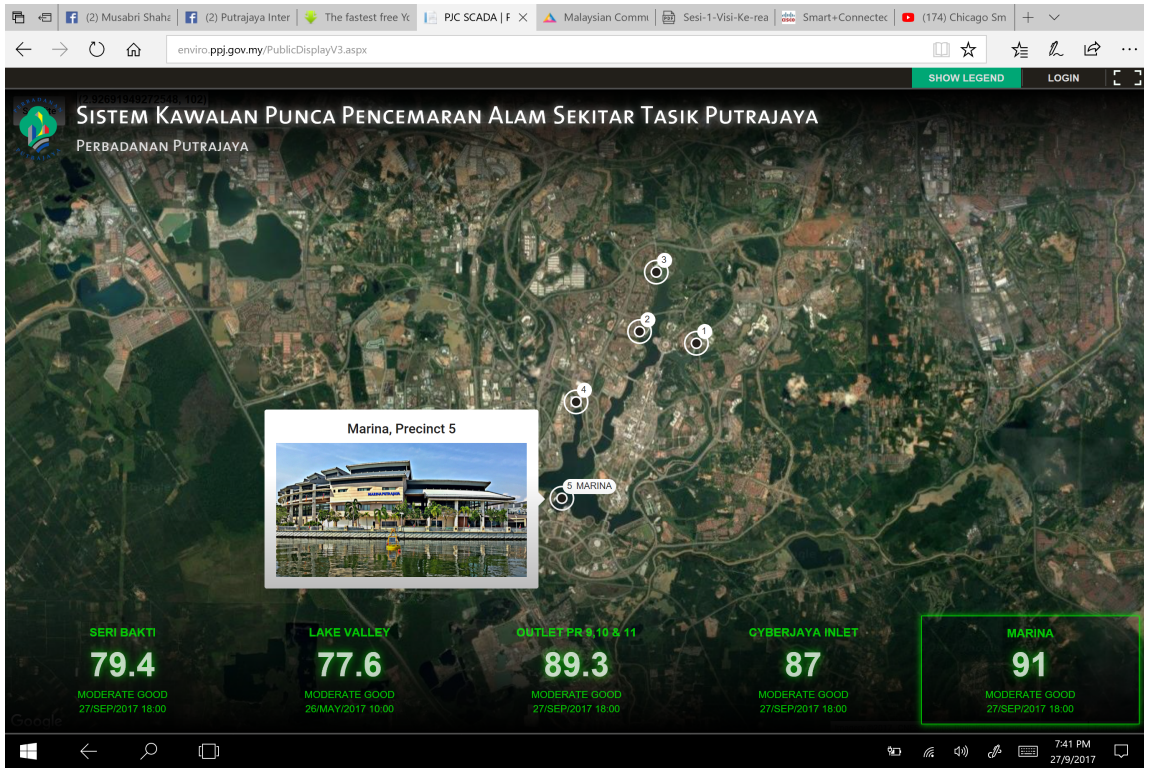
SMART AIR QUALITY SYSTEM

SMART WATER QUALITY SYSTEM

OBJECTIVES

- Ensuring that the environmental conditions of Putrajaya will be constantly monitored to allow for a high quality environment
- Provide for effective & efficient water management to reduce wastage
- Monitoring the energy use of buildings in the city so as to reduce consumption and save on carbon emission

INTEGRATED ENVIRONMENTAL MONITORING SYSTEM

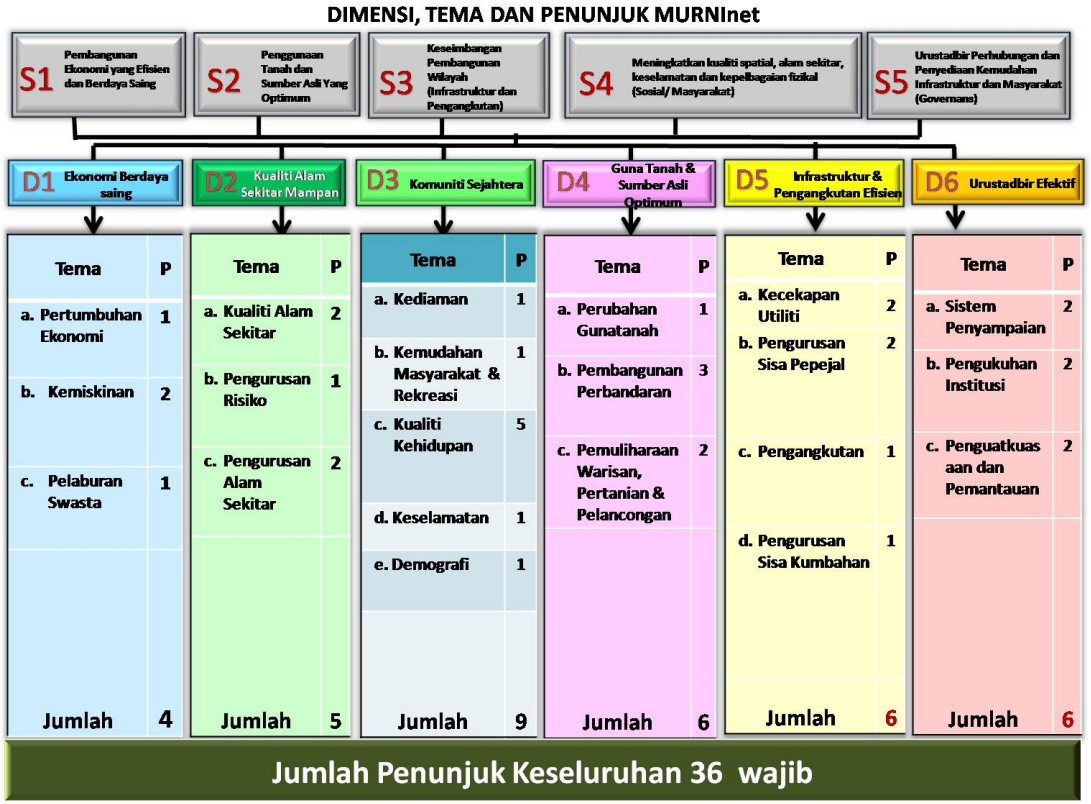


- Weather monitoring (temperature, rainfall, wind speed and humidity)
- Air quality monitoring
- Supervisory control and data acquisition (SCADA) for pollution prevention control
- Putrajaya lake and wetland management operational system (PLWMOS) – lake water quality, flora and fauna


SISTEM KAWALAN PUNCA PENCEMARAN ALAM SEKITAR TASIK PUTRAJAYA
87.7
88.1
86.8
90.2
88.0

URBAN SUSTAINABILITY INDICATOR

- Malaysia Urban-Rural (MURNInet) National Indicators Network for Sustainable Development
- Proposed opportunities & potential improvements to improve the sustainability of a city



ENERGY USE & CHG EMISSIONS MONITORING

- Real time energy use monitoring for buildings
- Real time monitoring solar PV performance for government buildings

- City scale GHG inventory system
- Building Sector Energy Use & Carbon Reporting Programme (BECO2R) for non residential building (online system & apps)

WATER USE, SUPPLY AND MONITORING

- Real time water use monitoring
- Waterefficiency message to the people by the water utility company

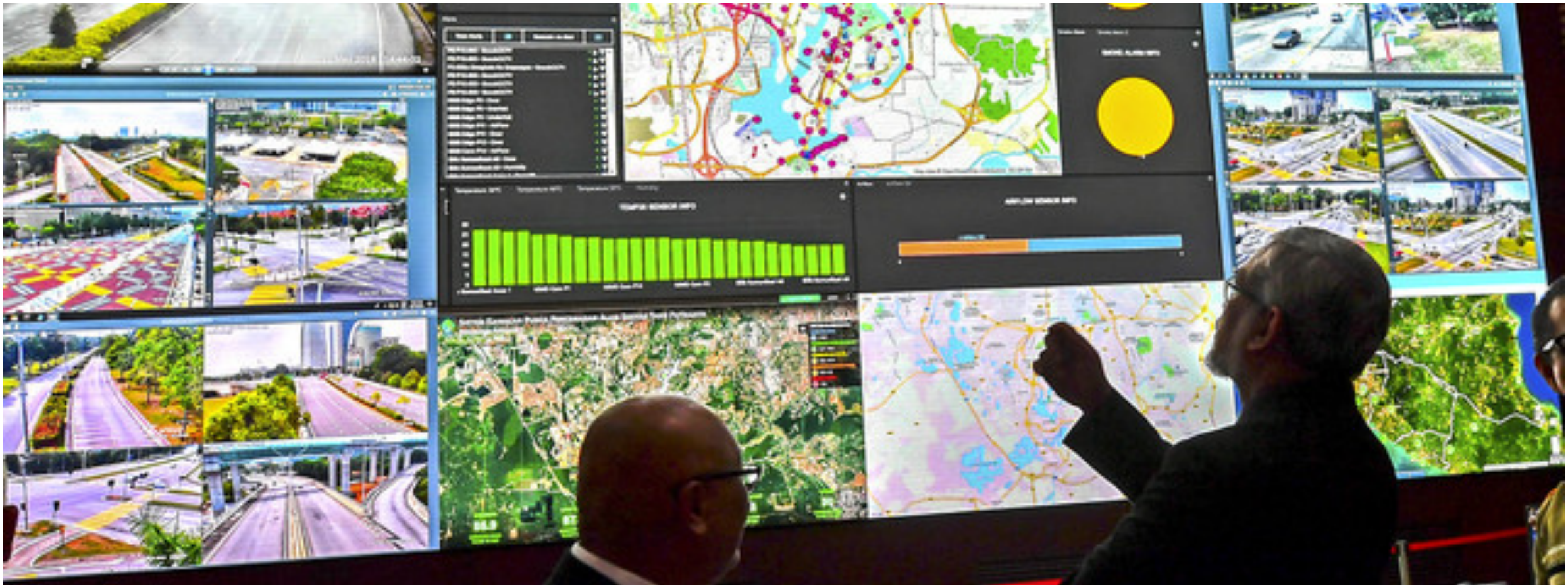
SMART HOME

- Smart home systems (sensors, solar panel, smart card access wi-fi, phone coverage, smart TV, CCTV, Home watch by smartphone), Smart Energy/Green Initiatives (solar panel, SPAH, Invertor electrical appliances),
- Create a special zone to implement Smart Home concept in Precinct 12,15 & 19.

SMART GOVERNMENT SERVICE

OBJECTIVES

- Provide the basic infrastructure to upgrade the city's capabilities and capacities towards a Smart City status;
- Provides the basis for a more vibrant economy;
- Creates a more efficient management and maintenance;

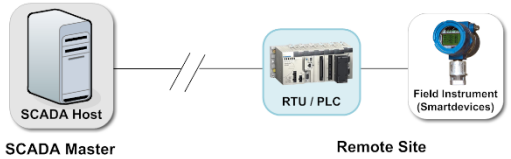


CITY MANAGEMENT & MONITORING

Putrajaya Command Centre (PCC)

FULL ANALYTIC CCTV
(SMART CCTV)

PARKING INFORMATION
SYSTEM



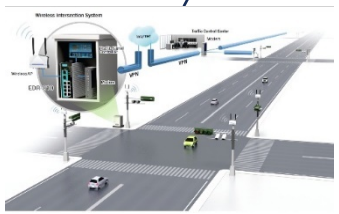
SCADA SYSTEM

PUTRAJAYA COMMAND
CENTER

VARIABLE MESSAGING
SYSTEM

INTEGRATED
ENVIRONMENTAL
MONITORING SYSTEM

PANIC BUTTON

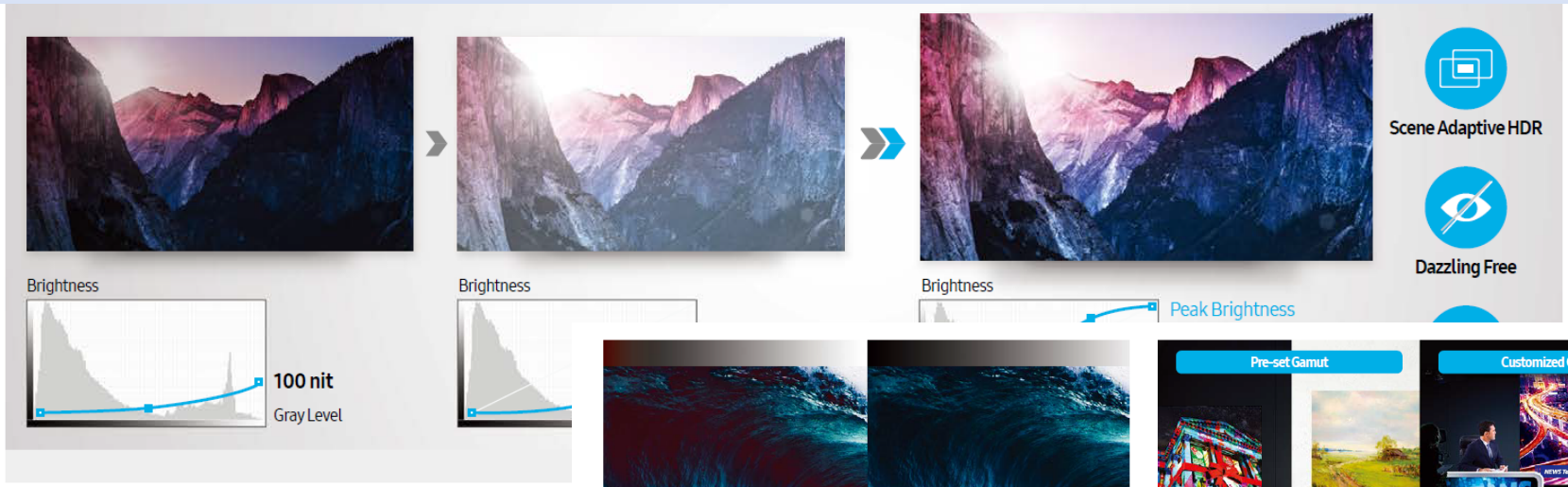


TRAFFIC MANAGEMENT
SYSTEM

INTEGRATED PUBLIC
TRANSPORT SYSTEM

INTEGRATED PUBLIC DISPLAY
SYSTEM

FINE PITCH LED VIDEO WALL 1.5



BRIGHT AND CLEAR LED EXPRESSION

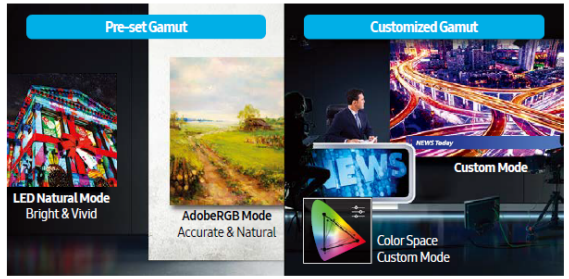
Samsung's IF Series displays leverage LED HDR s
process, customized algorithms analyze and optim
ing dazzling. IF Series users also benefit from dyn
higher than standard LED maximum brightness nc

2

* Note : Here, "Conventional LED Display" refers to displays that do not contain integrated low grayscale correction technology.

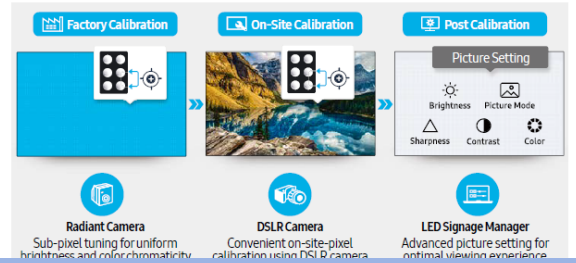
ACCURATE COLOR EXPRESSION FOR LOW BRIGHTNESS SETTINGS

Often, conventional LED displays struggle to present red, green and blue color hues accurately and without distortion in low gray-scale settings. The IF Series displays alleviate these challenges through a unique grayscale management algorithm that maintains consistent R/G/B gradation for improved color accuracy. As a re-sult, low-brightness indoor environments, such as galleries, muse-ums and shops, can display content at optimal quality with uniform and precise color expression.



DETAILED AND CUSTOMIZED COLOR PRESENTATION

Compatibility with various color gamut settings, including the sRGB, AdobeRGB and LED Natural Mode spectra, enables the IF Series displays to emphasize brilliant color expression customized for specific environmental needs. Specialized indoor operations, such as broadcast studios and galleries, in turn can customize color gamut conditions to accommodate their advanced needs and achieve seamless content delivery.

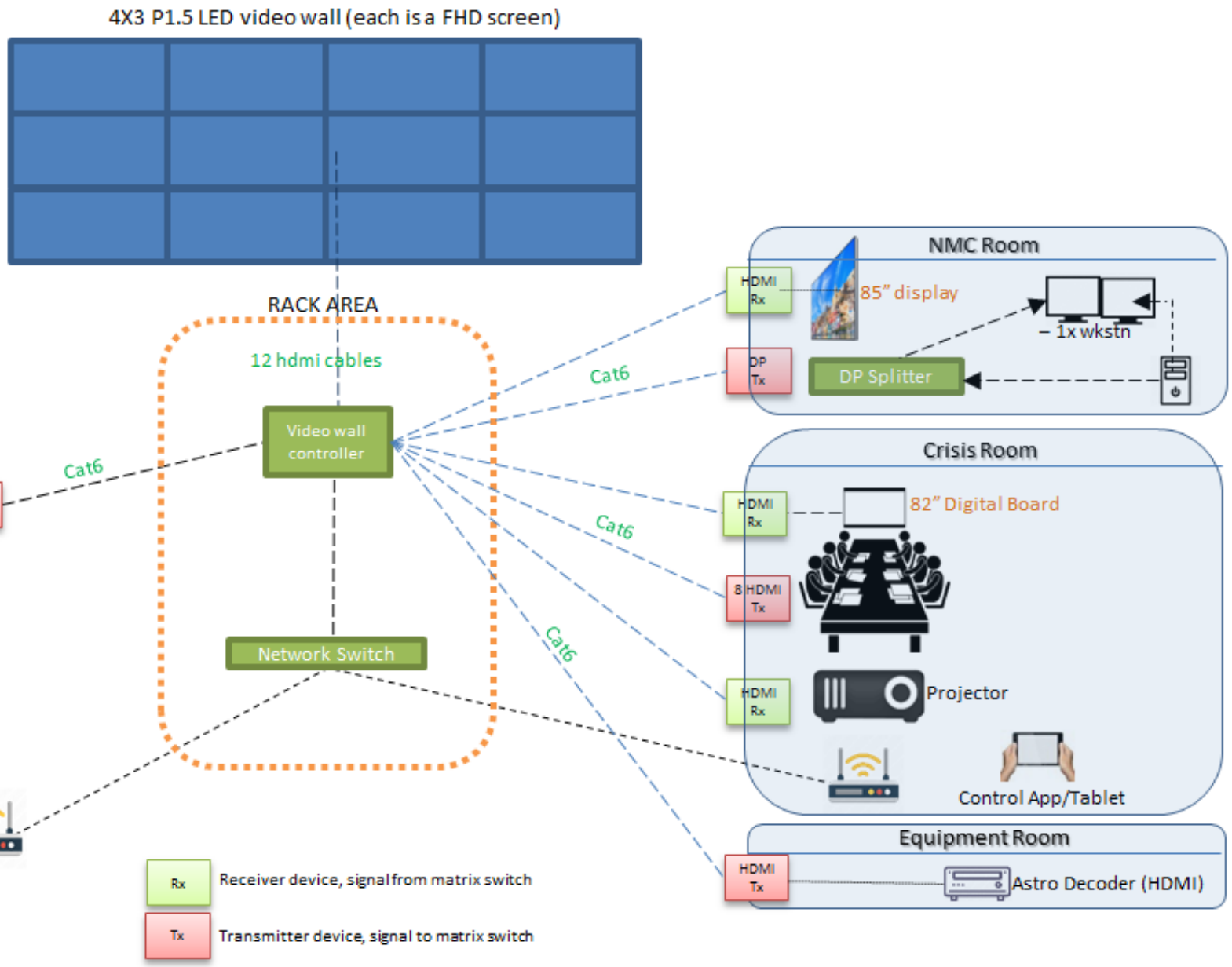


- **100,000 HOURS**
- **UP TO 4K RESOLUTION**
- **GREEN TECHNOLOGY**

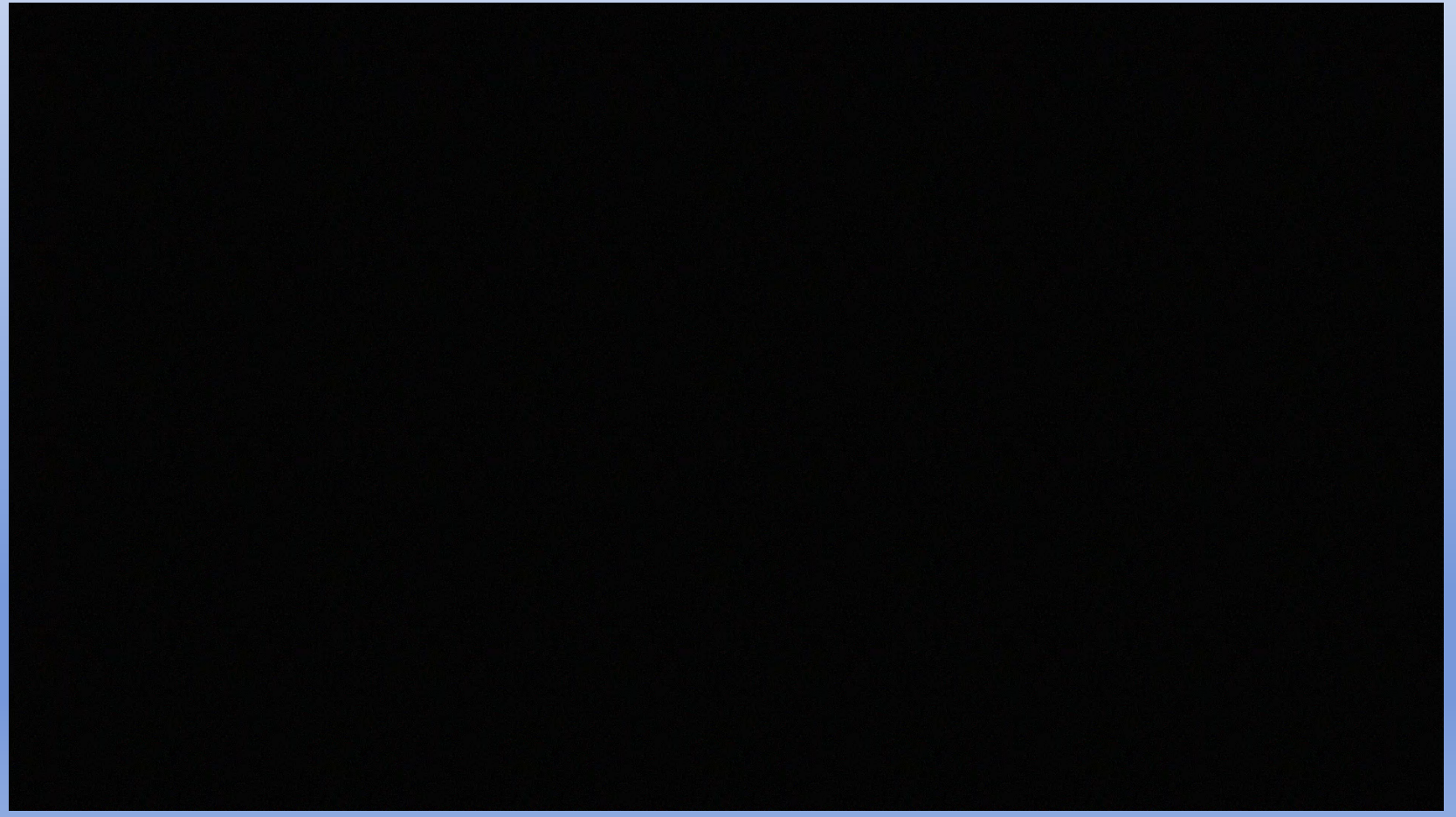
Diagram for connections.
All devices within max 100m

Inputs:
1 NMC wkstn.
Up to 22 CC wkstn.
8 hdmi, crisis room.
1 astro decoder.

Outputs:
4x3 vw
85", NMC room
82" Crisis Room
Projector Crisis Room



RESIDENTS & PUBLIC COMMUNICATION



PUBLIC INFORMATION DISPLAY SYSTEM

- Digital information boards at strategic areas for latest news/events/promotion

E- GOVERNMENT SERVICES

SMART INFRASTRUCTURE AND UTILITIES

OBJECTIVES

- Provide the basic infrastructure to upgrade the city's capabilities and capacities towards a Smart City status;
- Provides the basis for a more vibrant economy;
- Creates a more efficient management and maintenance;
- Saves costs for the city in the long term through better management of street lights and waste disposal

COMMUNICATION - CENTRALIZE RADIO ACCESS NETWORK (SMART C-RAN SOLUTION)

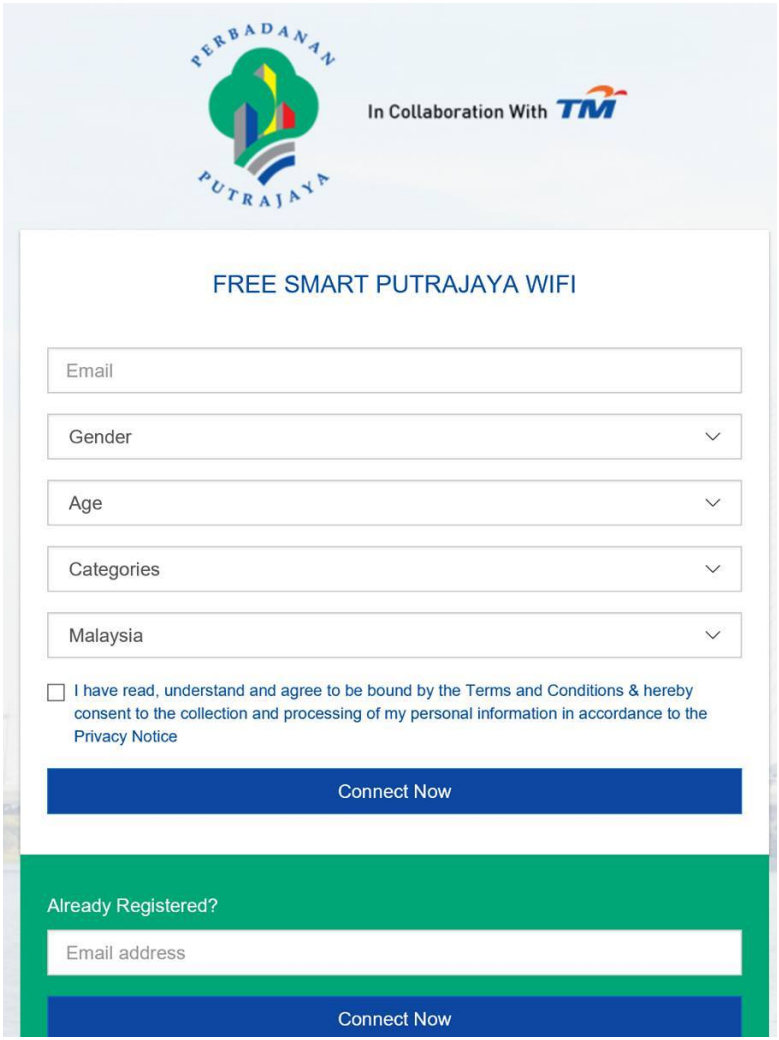
- Primary objective is to expand high speed mobile network sites in Putrajaya.
- Providing better end users' LTE experience in Putrajaya.
- Space and aesthetic design providing better scenery.
- TM as PPj strategic partner is able and (readily) supportive in this project.
- 68 C-RAN location has been identified to be implemented within 2 years.
- PPj is also working together with TM to replace all existing rooftop site with common infrastructure (C-RAN and Fiber connection)

Centralize Radio Access Network (Smart C-RAN Solution)

- ***Centralize Radio Access Network***
- ***Single Antenna Solution***
- ***Multiple telco provider sharing the same infrastructure***
- ***Using fiber optic connection from site to BTS Hotel***
- ***Radius coverage: 400m – 1000m***
- ***Aesthetics centralize pole***

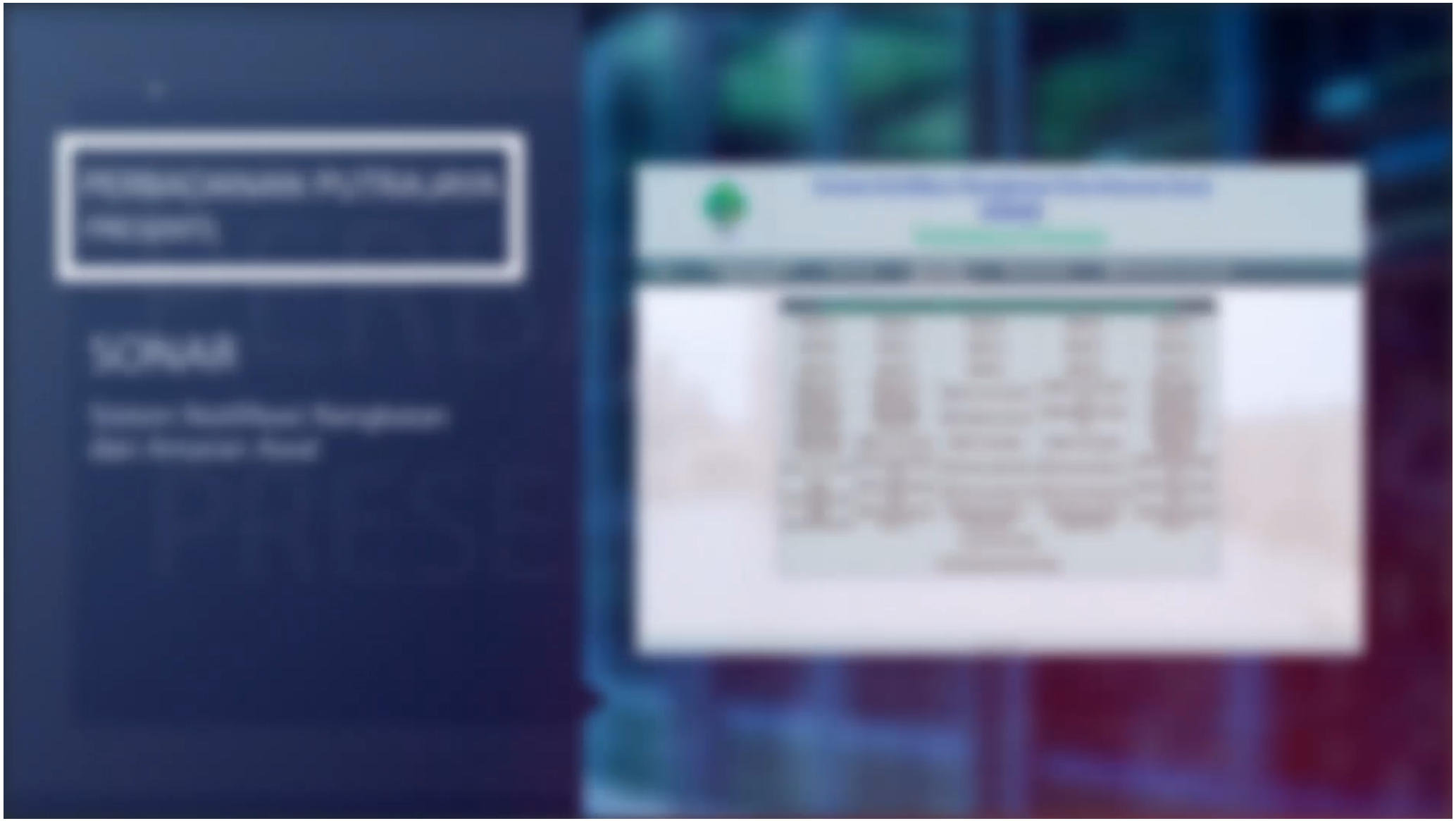
FREE SMART PUTRAJAYA WIFI

- Klinik Kesihatan PRESINT 9
- Kompleks Kejiranan Presint 9
- Kompleks Kejiranan Presint 16
- Kompleks Kerajaan Parcel E
- Masjid Putra
- Masjid Tuanku Mizan
- Medan Selera Presint 8
- Kawasan Komersil Putra Harmoni
- Alamanda
- Kawasan Komersil Presint 9
- Kawasan Komersil Presint 15
- Kawasan Komersil Presint 16
- Kawasan Komersil Presint 8
- Kelab Tasik
- Ayer8
- Putrajaya Sentral

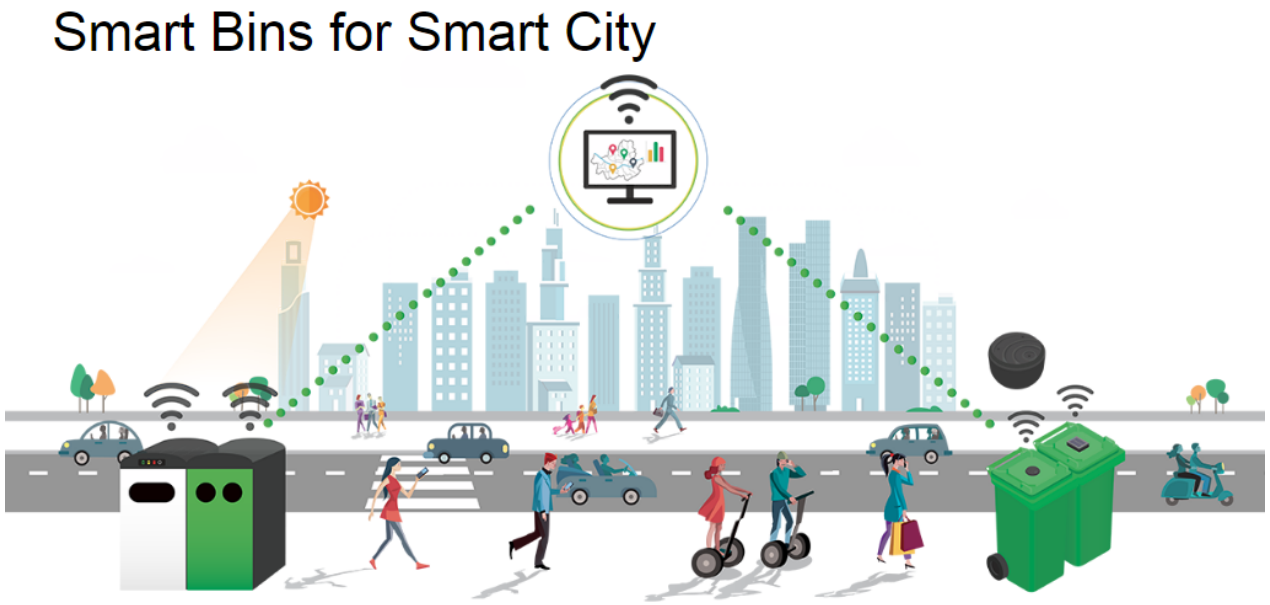


FACILITIES MANAGEMENT

- Building Integrated Modelling (BIM)
- City Lighting Management
- Sensors for on-site facilities
- Accessible facilities information (OKU)


PERBICARAAN PUTUSAN
PENGADILAN
SONAR
Sistem Notifikasi Pengadaan
dan Informasi Real

WASTE MANAGEMENT SYSTEM



- Sensors in garbage bins
- GPS of garbage trucks

SMART SAFETY AND SECURITY

OBJECTIVES

- Provides the infrastructure for emergency situations for the public;
- Creating a platform for citizen's assurance on the safety and security levels of the city;
- Providing for an inclusive city that does not marginalize any groups in terms of communication needs;
- Provides for an emergency response system in times of emergencies or natural disasters

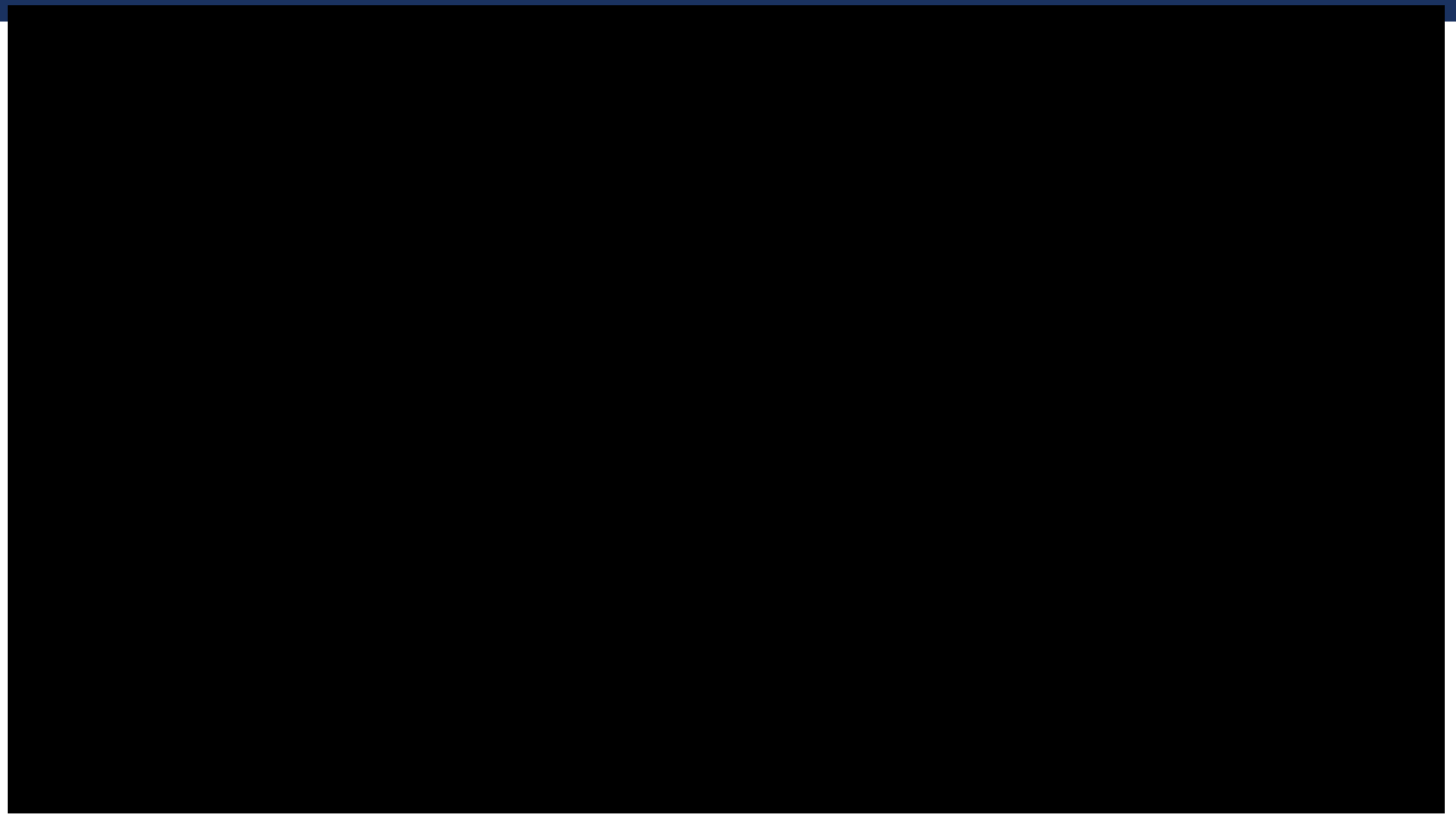
SMART FULL HD CCTV

- 262 unit has been installed in all strategic location identified by multiple agencies including Police
- 200 more unit targeted by 2020.
- Fully integrate with Putrajaya Command Center and Putrajaya Police Headquarters
- Soon to be integrated with Hospital, APM & BOMBA

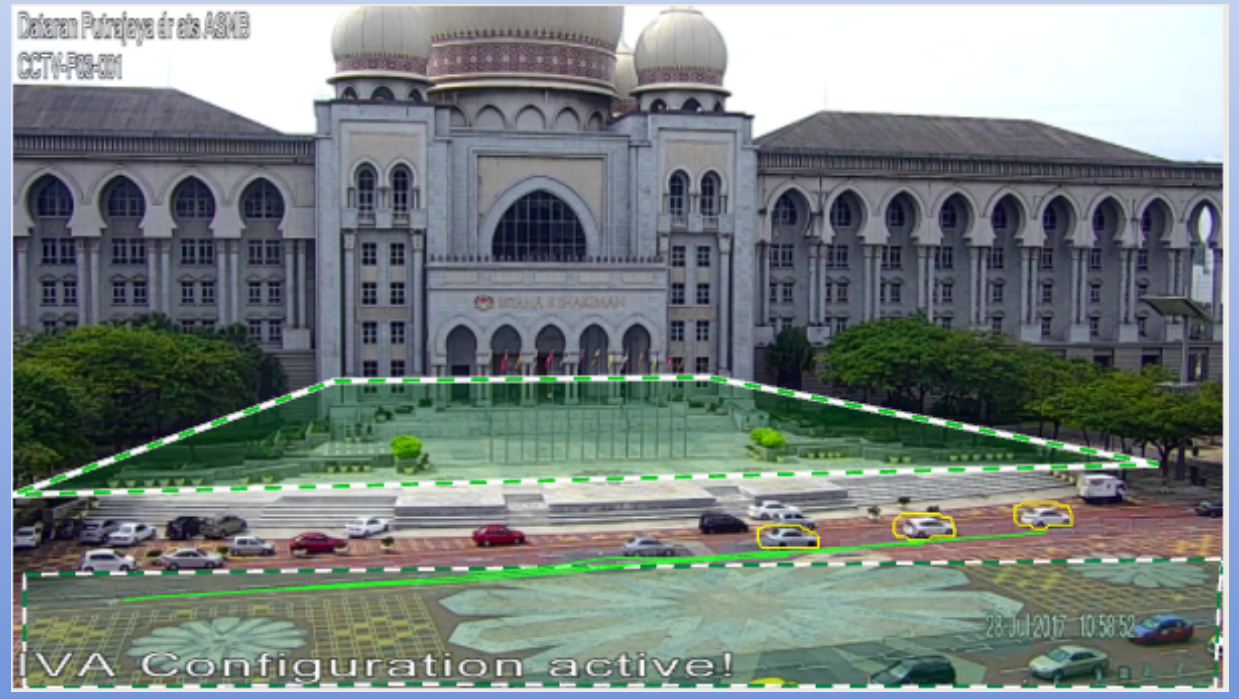
SMART FULL HD CCTV

- Ruggedized design for local weather
- High-performance video quality – 1080p
- Intelligent alarm responses
- Full 360° continuous rotation pan and 290° tilt control
- Built-in Intelligent Video Analysis (IVA)
- Intelligent Tracking

MICKEY



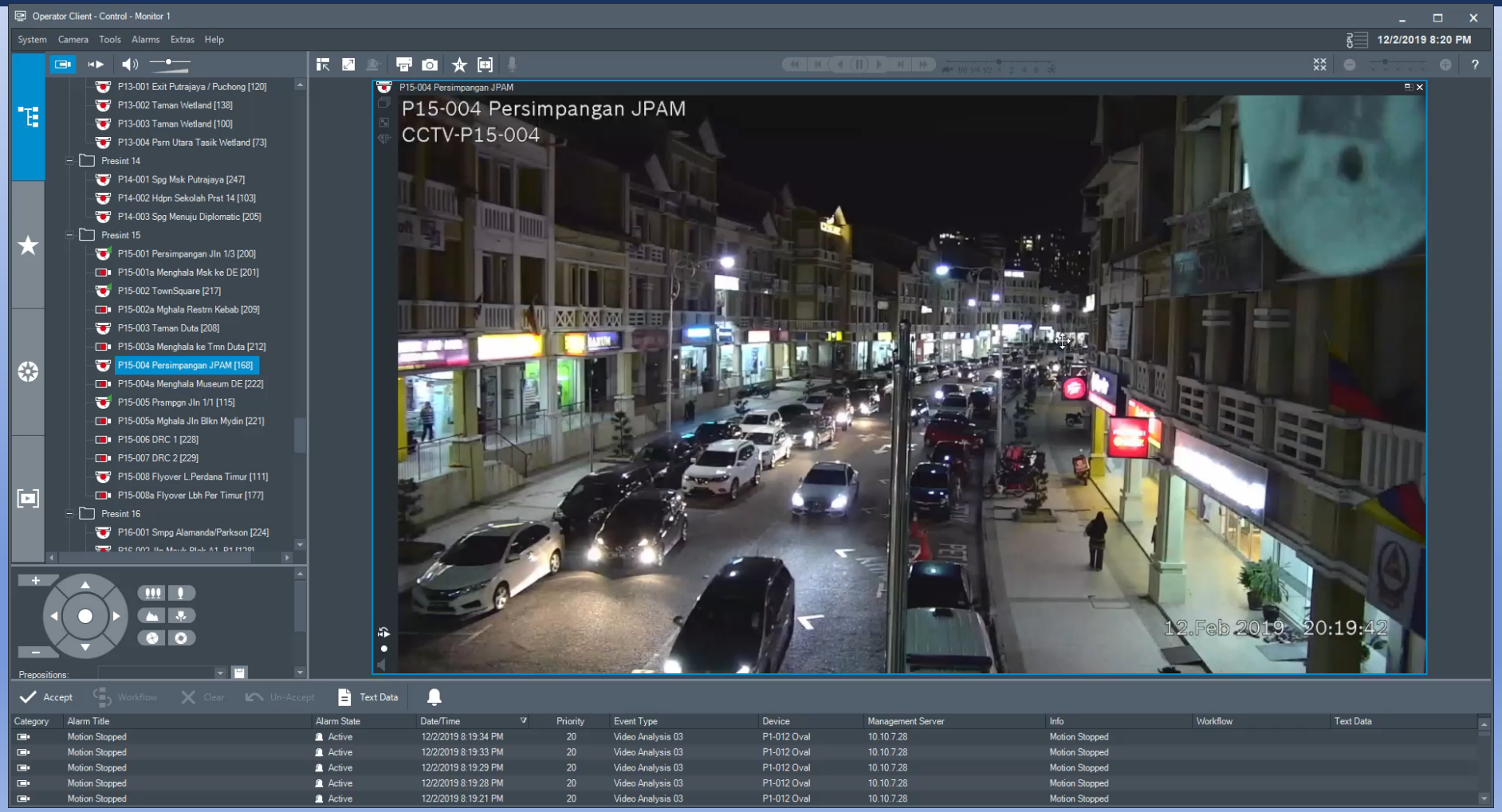
SMART FULL HD CCTV



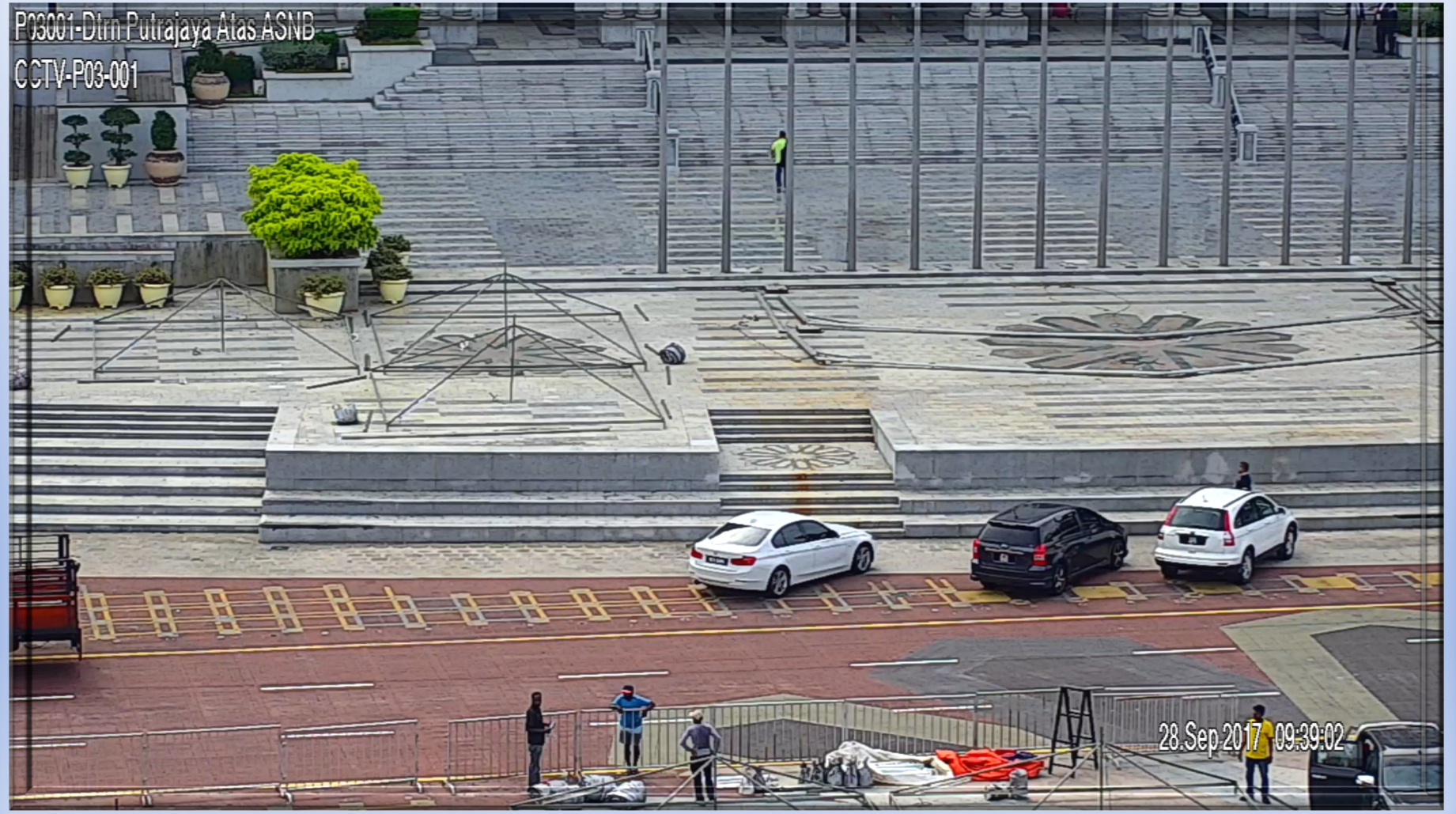
SMART CCTV

Car Stopped
Crowd Detection
Remove Object
Loitering
Crossing
Wrong Direction
Vehicle Counting
Unattendence Object

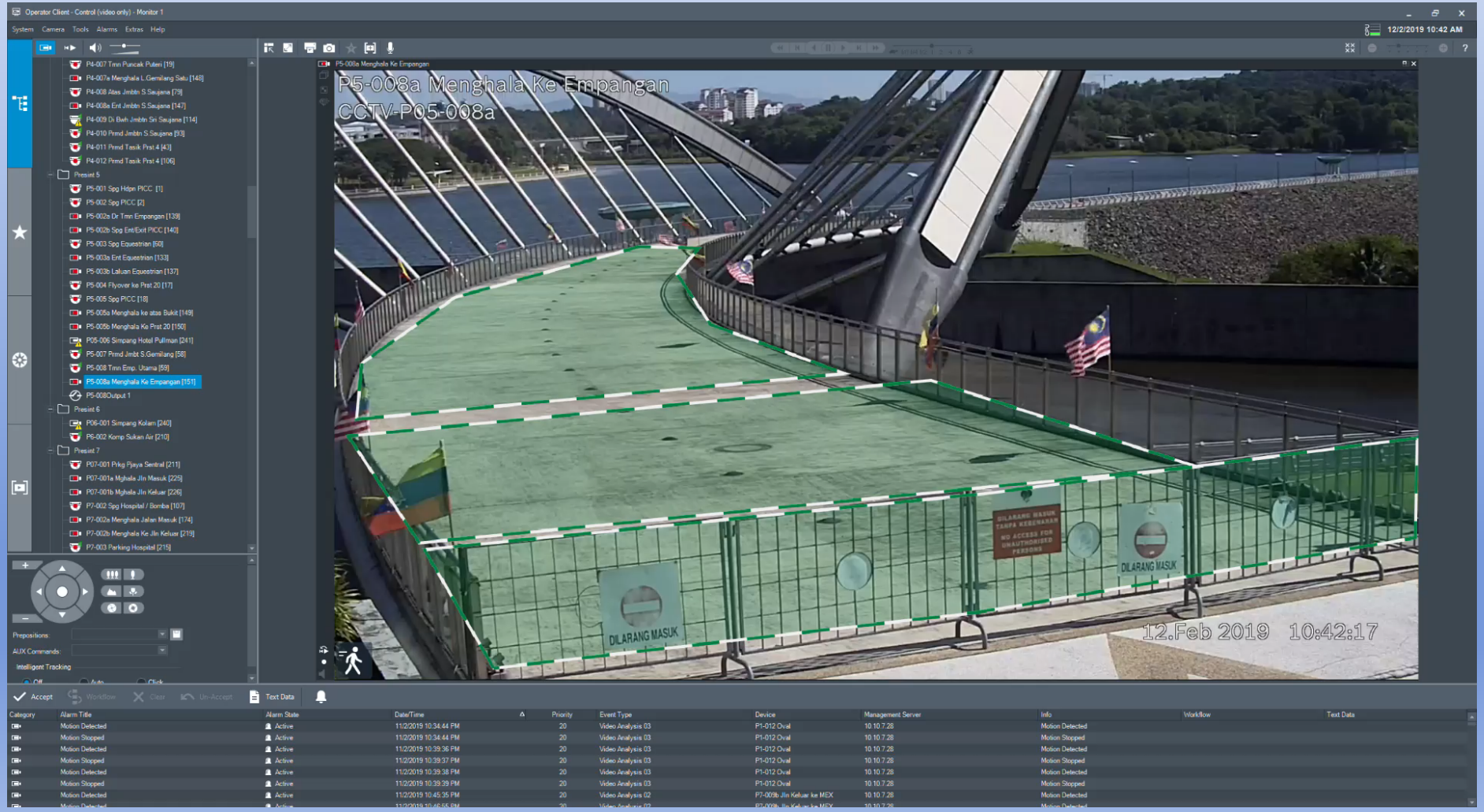
LOW LIGHT CAPABILITY



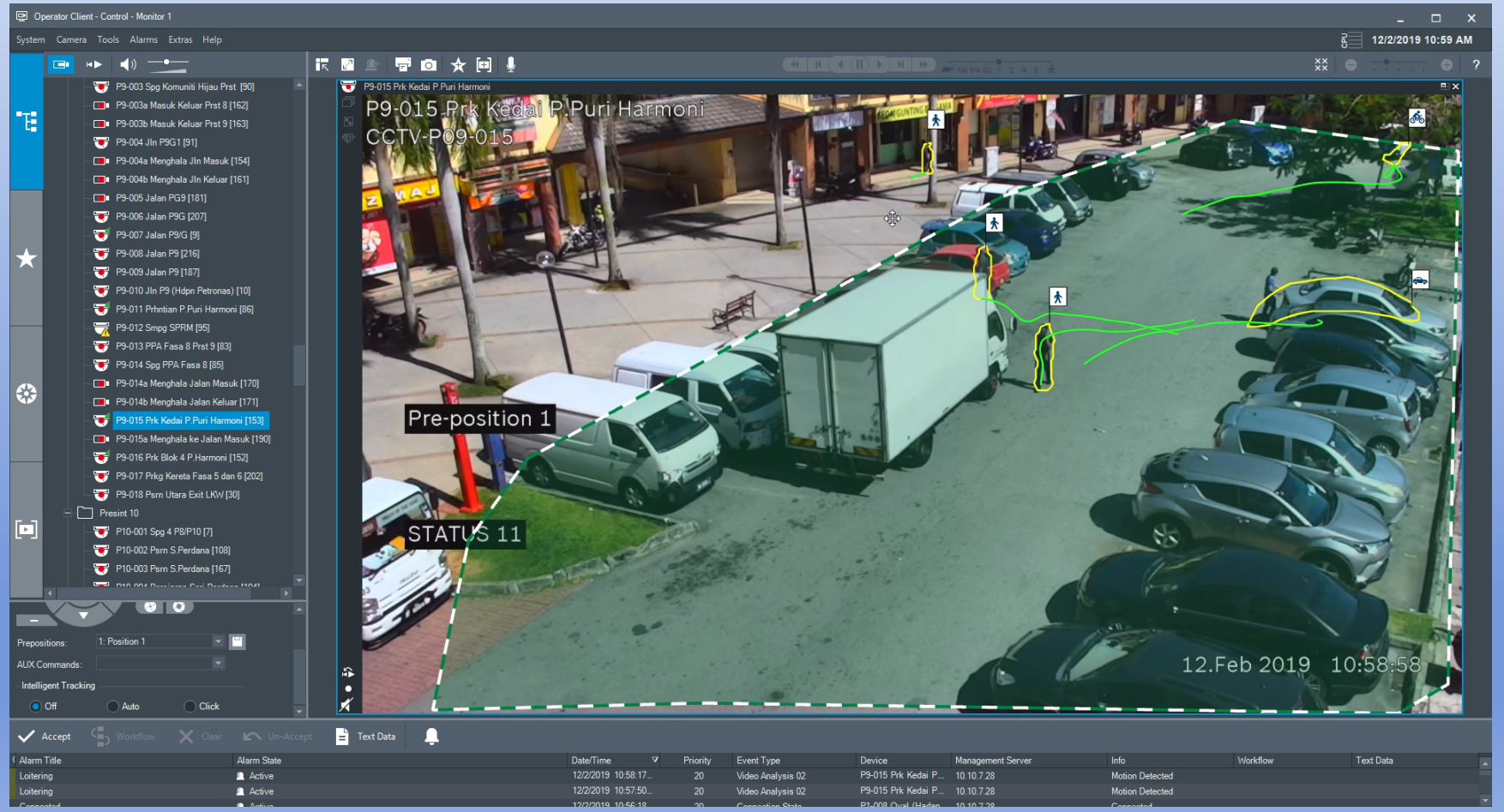
ZOOMING CAPABILITY



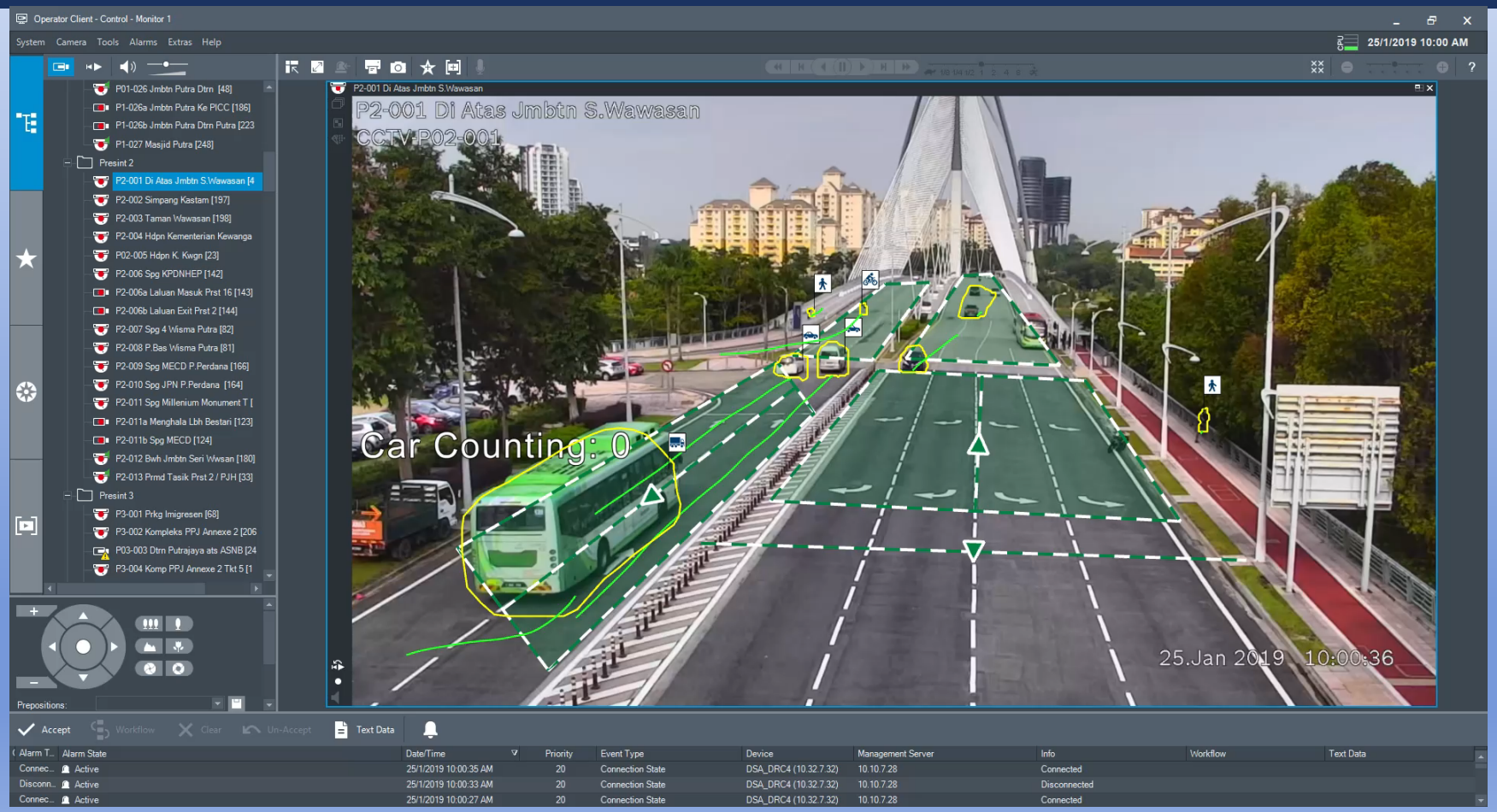
DETECT INTRUSION



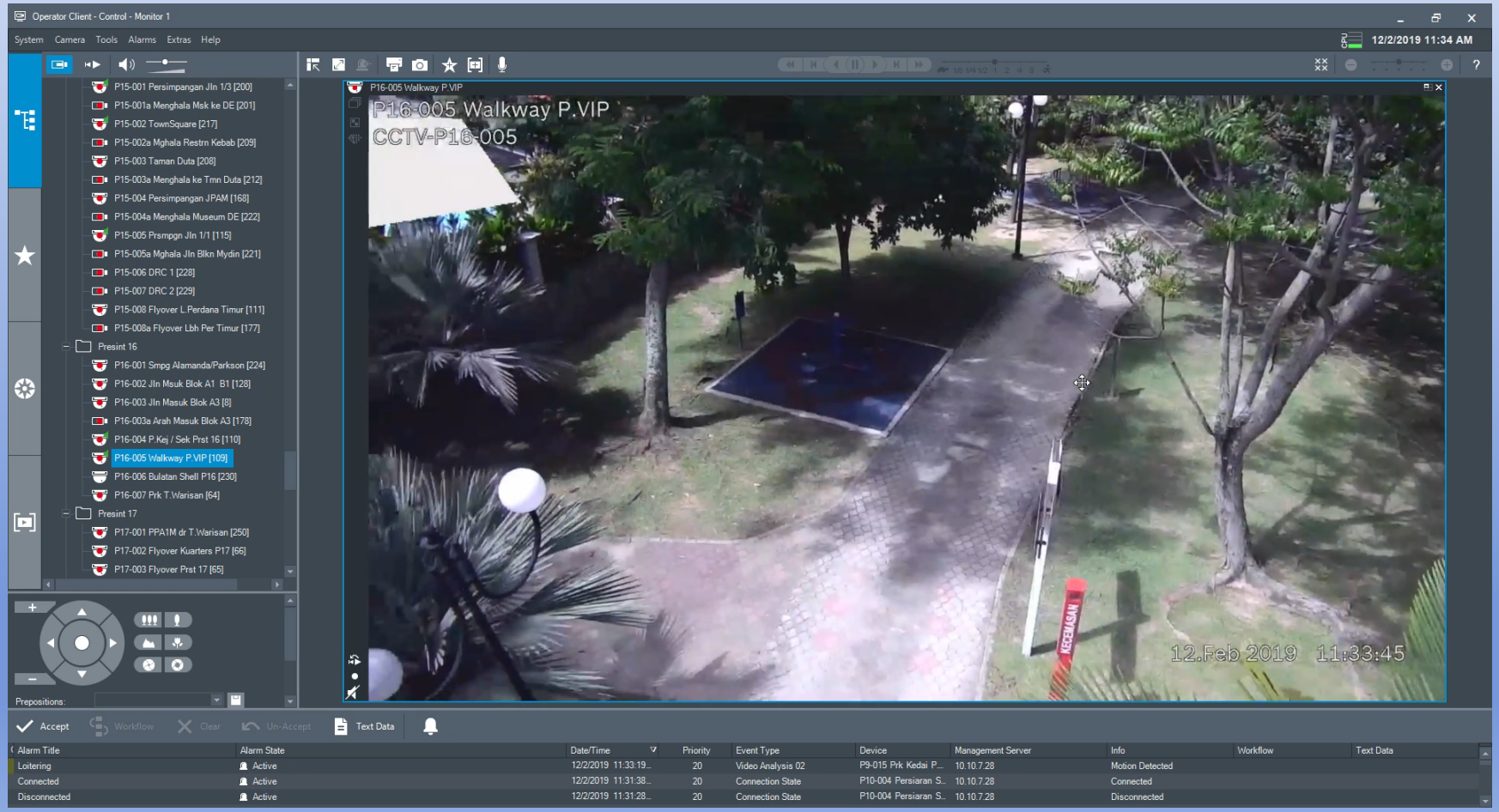
CAUTION ON POSSIBLE CRIME



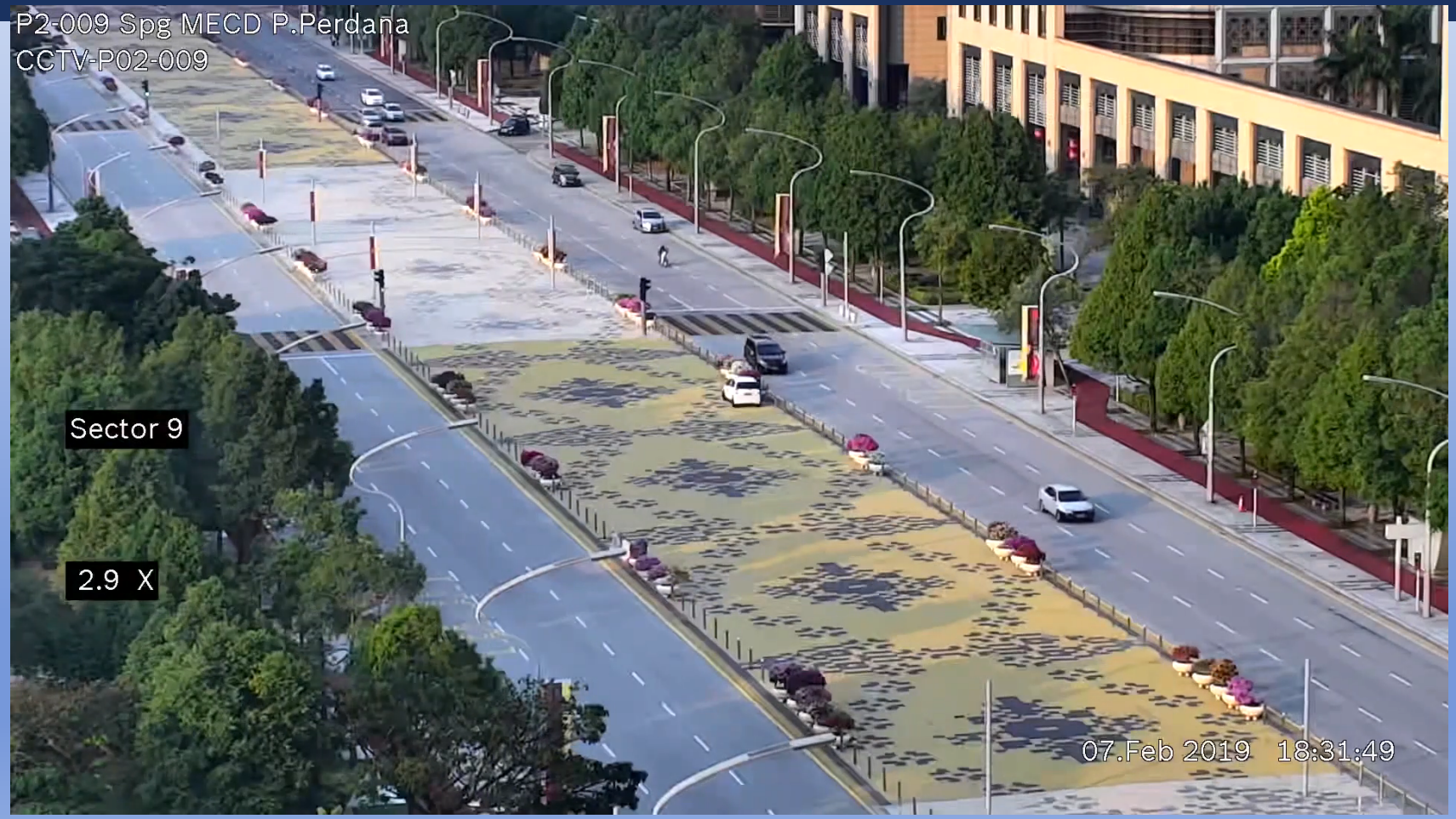
CAR COUNTING



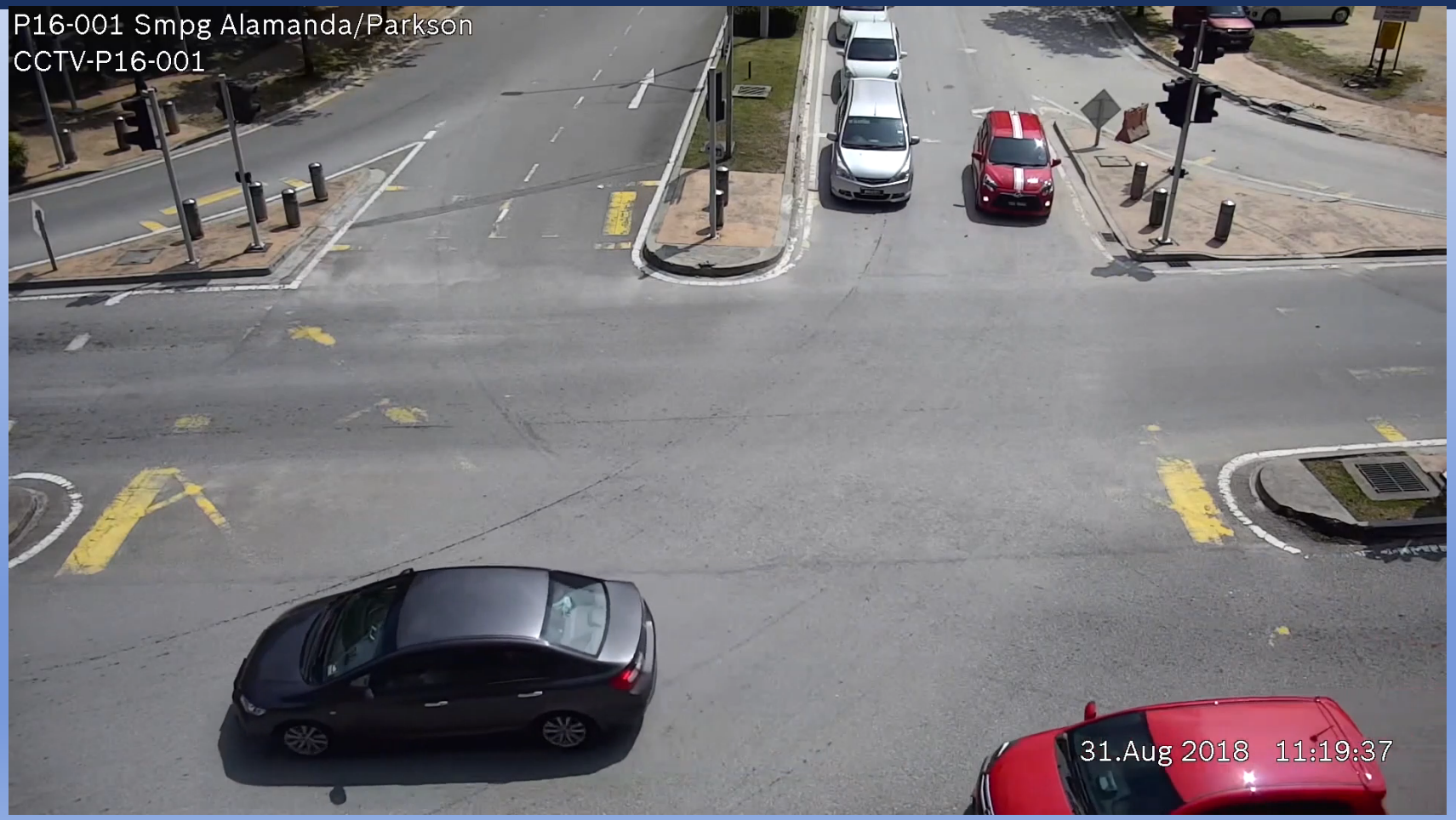
PROTECT PRIVACY



CRIME PREVENTION

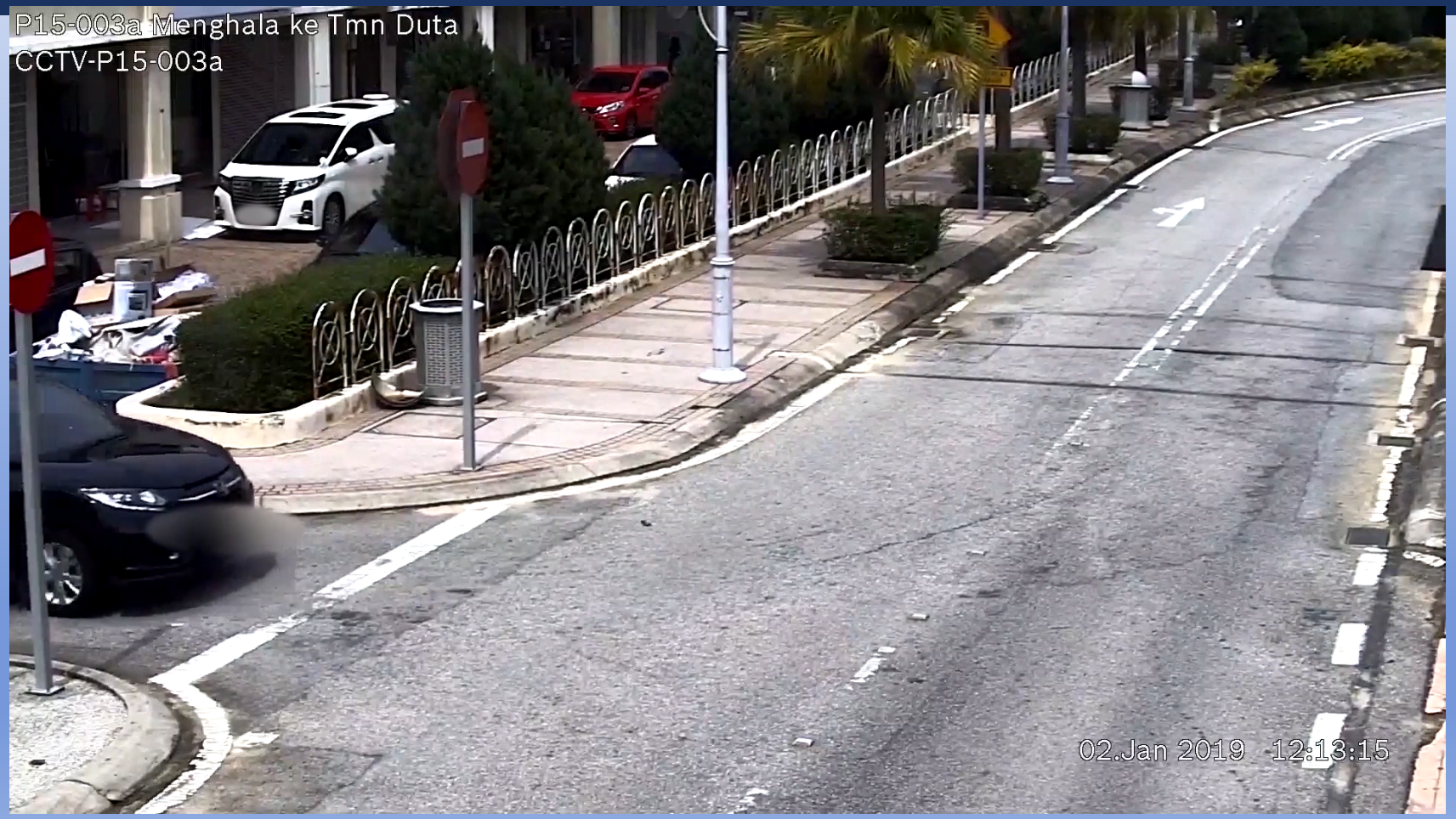


SOLVING TRAFFIC CASES

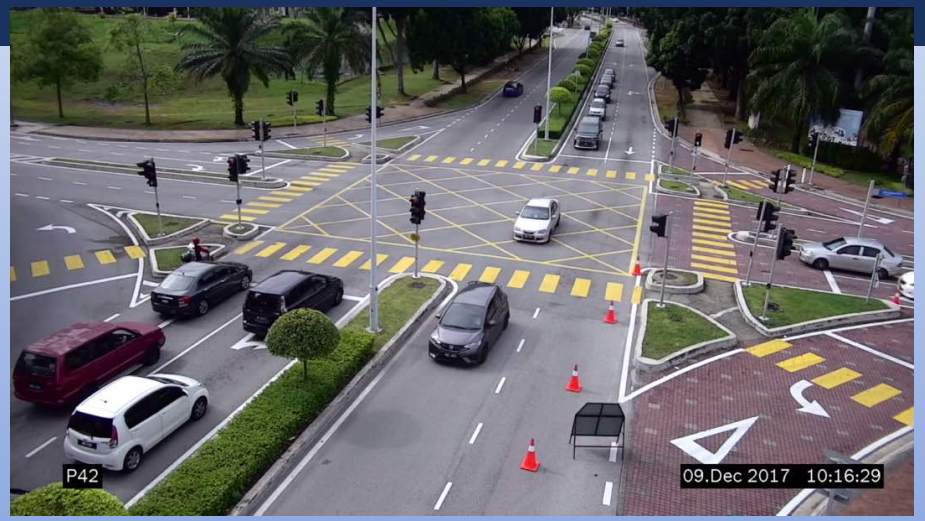


SOLVING TRAFFIC CASES

SOLVING TRAFFIC CASES



HIGH DEFINITION VIDEO IMAGE



PANIC BUTTON

- Phase I – 39 unit
- Phase II – 50 unit
- Integrate with CCTV and PCC

SMART ECONOMY

OBJECTIVES

- Provide for an attractive city platform to encourage new ways of doing businesses;
- Allowing for information dissemination in different economic activities of the city to encourage increased services and investments

CASHLESS PAYMENT

- e-wallet
- e-kiosk

TOURISM

- Smart app for city attractions (Putrajaya Mobile)
- Real time data collection for tourists information
- Tourism feedback (visitors to rate the sites & services)

SCHOOL CASHLESS

- Smart Wearable to make cashless payments in their school and at selected retailers.
- Paired with a mobile app that parents can use to remotely allocate their children's allowances and track their kids' spending
- Also use for class attendance & parent able to detect their child movement

PUTRAJAYA INTERNATIONAL ESPORTS HUB:

ONE STOP ESPORTS CENTER

TOURNAMENT HALL

MINI TOURNAMENT HALL
MEETING/FORUM AREA

STREAMING POD
BRAND ACTIVATION
MERCHANDISE/RETAILER

ESPORTS TRAINING AREA
GAMER GIRL'S ZONE
FAMILY ENTERTAINMENT
VR/AR AREA

EMOTORSPORTS
BRAND ACTIVATION
HANG-OUT PLACE
F&B AREA

SMART COMMUNITY

OBJECTIVES

- Enabling the infrastructure to build up a smart community towards sustainability;
- Providing opportunities for citizens to provide feedback and suggestions to address issues as well as develop new opportunities for themselves
- Provide opportunities for city residents to get a better education as well as to enroll in schools on line
- Spread information and awareness through digital technologies

INNOVATIVE COMMUNITY

SMART APP FOR THE NEEDED COMMUNITY

THANK YOU