

Traffic Analysis System

Progress Report: 17/05/2021





System Configuration

1. Thingsboard Relationship and Attributes

server1

Asset details

?

×

<

Details

Attributes

Latest telemetry

Alarms

Events

>

Outbound relations

Direction

From

+

↺

🔍

<input type="checkbox"/>	Type ↑	To entity type	To entity name		
<input type="checkbox"/>	Contains	Device	cctv_101		
<input type="checkbox"/>	Contains	Device	cctv_102		

cctv_101

Device details

?

×

Details

Attributes

Latest telemetry

Alarms

Events

Relations

Audit Logs

Shared attributes

Entry attributes scope

Shared attributes

+

↺

🔍

<input type="checkbox"/>	Last update time	Key ↑	Value	
<input type="checkbox"/>	2021-05-14 13:45:38	cam_param	[[{"x": 0.0025, "y": -0.88}, {"x": 0.0025, "y": -0.6}, {"x": 0.0, "y": 0.0}, {"x": 0.99298422, "y": 0.02977351}, {"x": 0.11443723, "y": 0.08427805}, {"x": 0.50064045, "y": 0.86154301}, {"x": -0.08294306, "y": 0.86514316}, {"x": 0.49461881, "y": -2.8933979}, {"x": -3.82637147, "y": -10.28728748}], [{"x": 0.0, "y": 0.0}]]	
<input type="checkbox"/>	2021-05-17 11:21:53	conflict_point	[{"point": [{"x": 1054, "y": 137}, {"x": 1116, "y": 251}], "type": "เส้นทึบ"}]	
<input type="checkbox"/>	2021-05-14 13:47:04	lane_info	[{"point": [{"x": 6413, "y": 411, "z": 215}, {"x": 729, "y": 81, "z": 768, "z2": 63}, {"x": 1129, "y": 80, "z": 1363, "z2": 205}, {"x": 1810, "y": 484, "z": 1904, "z2": 573}], "type": "normal"}, {"point": [{"x": 773, "y": 106, "z": 603, "z2": 201}, {"x": 456, "y": 281, "z": 226, "z2": 407}, {"x": 4559, "y": 116, "z": 799, "z2": 116}, {"x": 617, "y": 234, "z": 398, "z2": 368}, {"x": 11651, "y": 124, "z": 690, "z2": 257}, {"x": 498, "y": 392, "z": 28, "z2": 801}], "type": "normal"}, {"point": [{"x": 958, "y": 126, "z": 956, "z2": 191}, {"x": 861, "y": 439, "z": 647, "z2": 980}], "type": "normal"}, {"point": [{"x": 1003, "y": 116, "z": 1032, "z2": 216}, {"x": 1067, "y": 400, "z": 1122, "z2": 976}], "type": "normal"}, {"point": [{"x": 1071, "y": 113, "z": 1153, "z2": 224}, {"x": 1332, "y": 523, "z": 1507, "z2": 923}, {"x": 1525, "y": 992, "z": 1382, "z2": 332}, {"x": 1635, "y": 611, "z": 1236, "z2": 205}], "type": "normal"}, {"point": [{"x": 1106, "y": 108, "z": 1881, "z2": 941}], "type": "normal"}]	



System Configuration

2. Local configuration (config.ini)

```
config.ini M X
opt > igi > bin > config.ini
1  [sys]
2  python = /root/miniconda3/bin/python
3  mqtt_host = 172.23.0.87
4  mqtt_port = 1883
5  thingsboard_url = http://iot.sappasing.com
6  thingsboard_username = tenant@thingsboard.org
7  thingsboard_password = tenant
8  thingsboard_name = server1
9
10 [cctv]
11 width = 1920
12 height = 1080
```



System Configuration

3. Database: CCTV Table

Column	Description
id	ID of CCTV (Integer)
name	Thingsboard: Name of CCTV
device_id	Thingsboard: Device ID
access_token	Thingsboard: Access Token
cam_param, conflict_point, lane_info, roadInfo, speed_marker	Thingsboard: Other attributes



Components

1) Config Updater (config_update.py)

Periodically update CCTV config from Thingsboard to DB (every 5 minutes)

2) Path Monitor (monitor.py)

Watch and process file in the path

3) CCTV Processor (cctv_processor.py)

Continuously process CCTV data

4) Status Updater (status_update.py)

Update status of CCTV processing to Thingsboard



Type of Processing

System processing	Concurrent processing	Per CCTV processing
<p>Config Updater</p> <p>Status Updater</p>	<p>Path Monitor</p>	<p>CCTV Processor</p> <ul style="list-style-type: none">• rtsp_download• rtsp_process• track• mod_send• mod_serve



Path Monitor / Concurrent Processing

Input Path	Operation	Output Path
-	rtsp_download	rtsp
rtsp	rtsp_process	incoming
incoming	detect	queue
queue	upload	done
done	archive	archive

monitor.py

```
├── monitor.py <path>
│   ├── monitor.py <path> <group#>
│   ├── monitor.py <path> <group#>
└── monitor.py <path>
    ├── monitor.py <path> <group#>
    └── monitor.py <path> <group#>
```



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