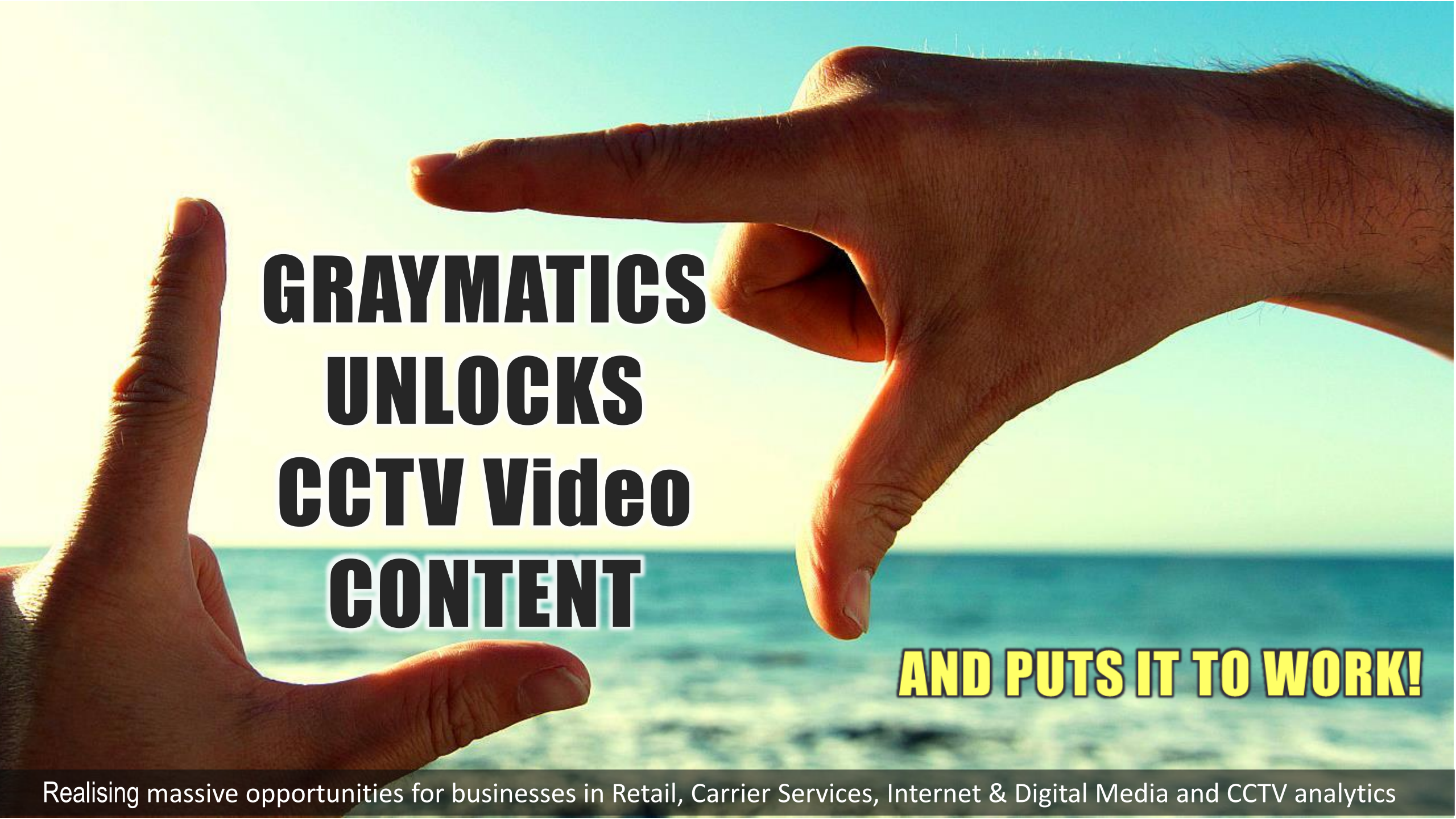
GRAYMATICS

COGNITIVE MEDIA PROCESSING

deep sensing at cloud scale


GRAYMATICS
UNLOCKS
CCTV Video
CONTENT
AND PUTS IT TO WORK!
Realising massive opportunities for businesses in Retail, Carrier Services, Internet & Digital Media and CCTV analytics

Cognitive Media Analytics

- Deep analytics of visual media at source level
- Makes sense of its content & context
- Monetises content by making it manageable, searchable and discoverable

Example Cognitive Media Analytics

ContextConnect™

- object : suit
- gender : male
- color : black
- pattern : solid
- neckline : formal_tie
- style : full_length
- sleeve-style : fullsleeve
- focal_point : [428 644]
- box : [299 4920 557 1101]
- confidence_index : 0.98

- object : car
- make : bmw
- model : x6
- color : blue/navy blue
- box : [299 188 557 1101]
- confidence_index : 0.947

- Themes [Dominant]
- showroom
- Aesthetics
- aesthetic_value : 0.7
- image_quality : 0.6

- Themes [Marginal]
- exhibition

- object : face
- gender : male
- age : adult, 49 years
- ethnicity : caucasian
- emotion : happy-subtle
- Pose: standing
- Activity: touching car
- skin : fair white
- hair : brown
- focal_point : [399 267]
- confidence_index : 0.89

- ✓ Objects
  Deep attributes | image quality | location | emphasis
- ✓ Themes, settings, environment
- ✓ Face & characteristics
  Age | gender | emotion | ethnicity
- ✓ Text, logos, landmarks
- ✓ Various activities in video

IN ADDITION:

- ✓ Deep audio analytics+ keywords
- ✓ Objectionable content
  Nudity | Violence | etc.

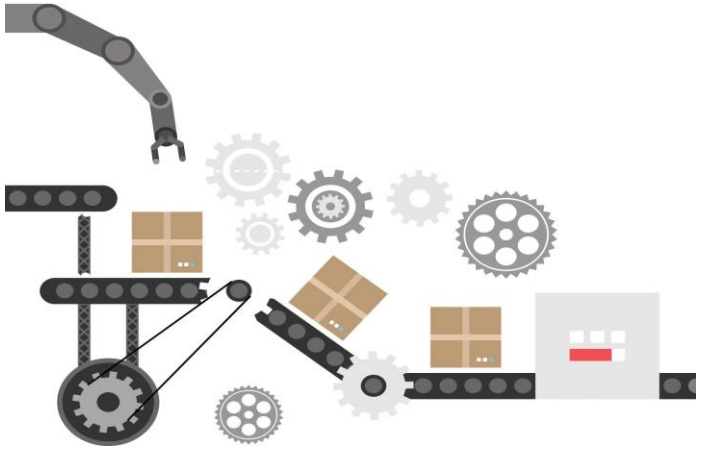
G3C.AI Enabled Smarts Across Multiple Verticals Within Cities

Smart City solutions

Retail Stores

Real Estate

Banking sector



Manufacturing sector

Airport Solutions

SMART RETAIL WITH WITH VISTAMART

Going beyond security surveillance to capitalize store cameras for rich consumer insights

Revenue Maximisation

- Understanding customer demographics
- Tracking customer dwell time
- Customer interests

Loss Prevention

- Shoplifting
- Customer theft
- Staff theft
- Expiring product placement

Operational Efficiency

- Optimising Spatial Layout
- Managing customer trajectory
- Staff management

Customer Experience

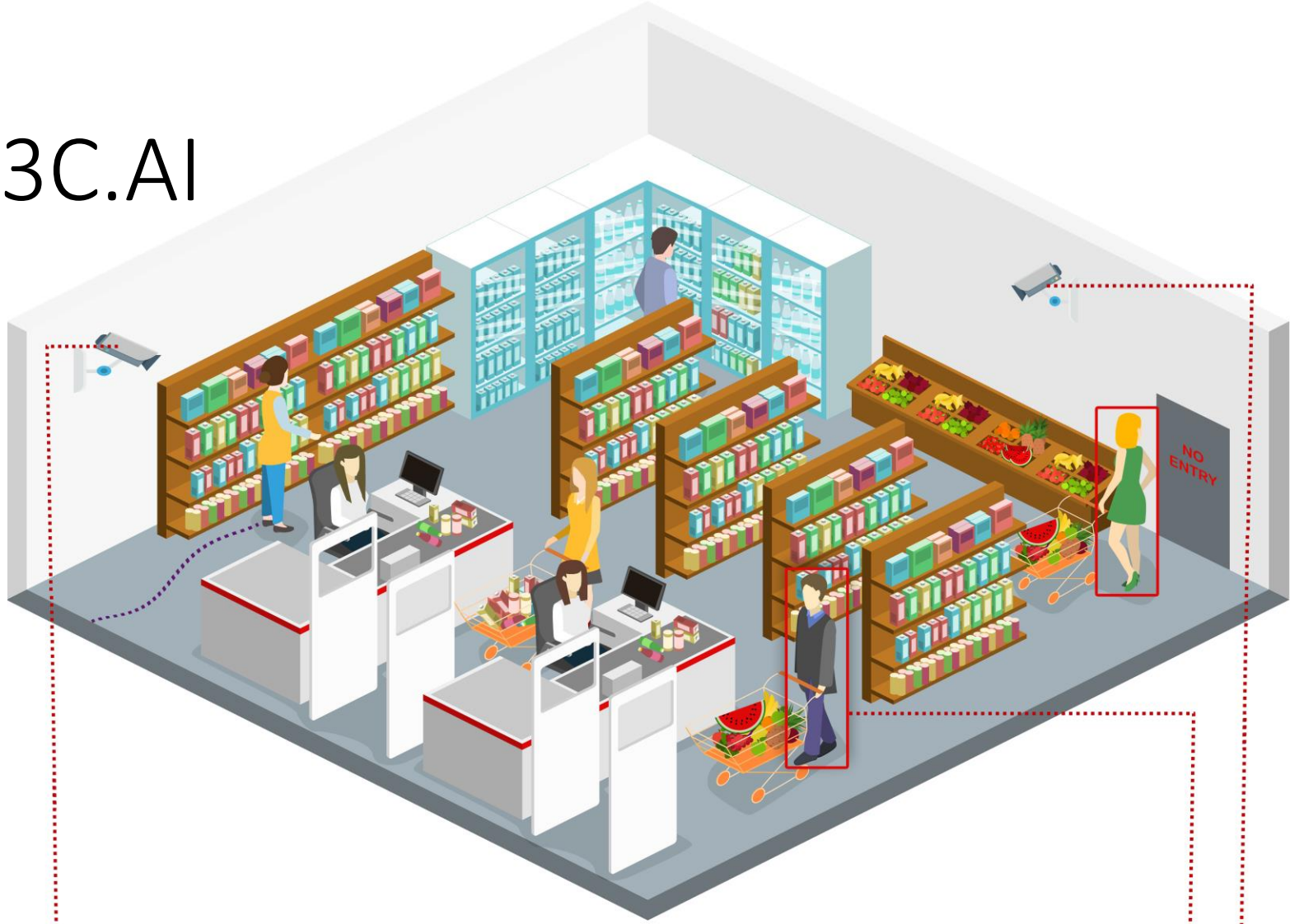
- Staff allocation to reduce waiting time
- Sentiment analysis

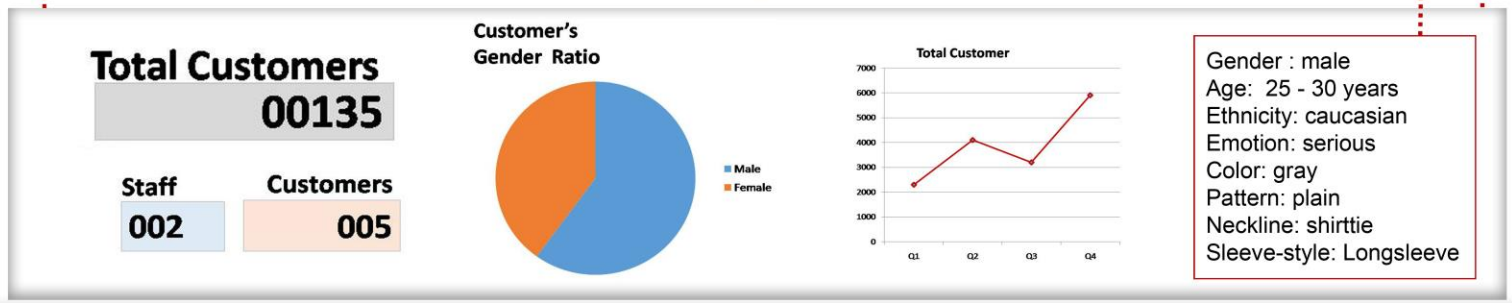
Smart Retail with G3C.AI

GOING **BEYOND SECURITY SURVEILLANCE**
TO CAPTALIZE STORE CAMERAS FOR
RICH CONSUMER INSIGHTS

INTRODUCING

The
'Google Analytics'
of Retail Stores





KNOWING YOUR TARGET AUDIENCE IS CRITICAL FOR SUCCESS

Who are they?

Gender: Female
Ethnicity: Asian
Age Group: 30-35

Returning Customer: Yes [ID: 3221]

Emotion: confused

Current action: product engagement

Last engaged product(s): Black wrist watch round analog

What is their in-store behavior?

Eye ball tracking

What are there interest areas

Engagement section: Michael Kors purse
Engagement time: 35m

Section value: $9000
Monthly engagements in MK section: 216

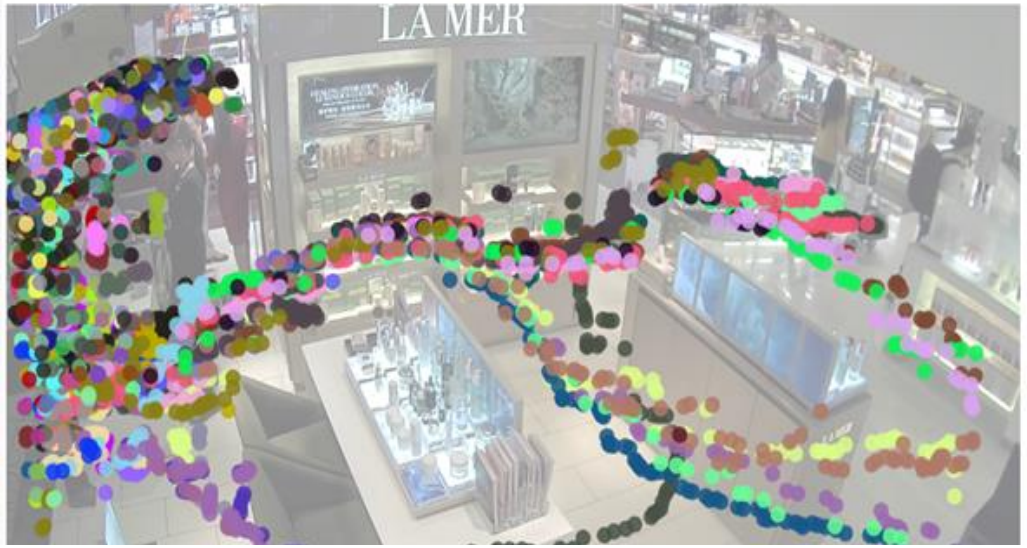
What do they purchase?

Time of visit: 10:00
Dwell time: 1 hour
Items Purchased: Hand bag
Value: $300

G3C.AI -> Converting CCTV Video Feeds Into Rich Detailed Data & …

Screenshots & applications of Dashboards

People Tracking



Filter by Staff / Customer
- Select All
- Customer

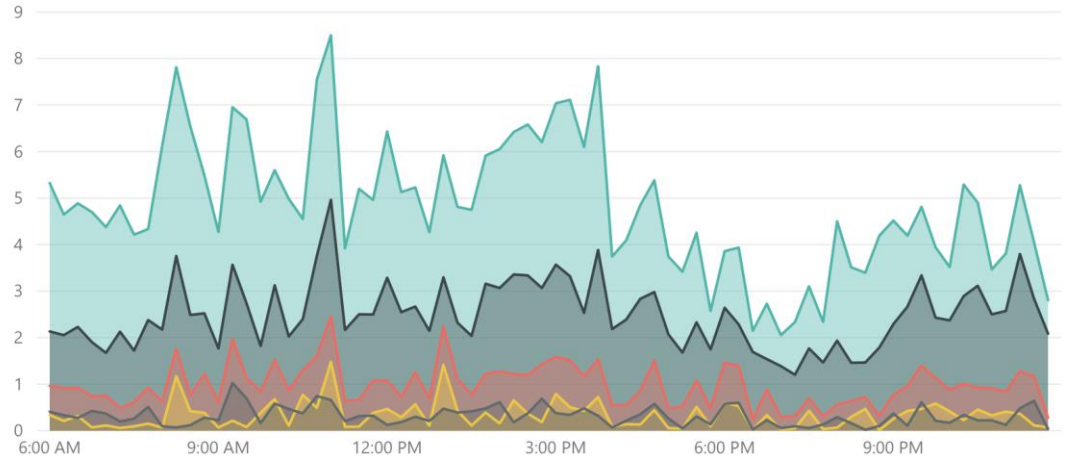
Filter by Hour
- Select All
- 10:00
- 11:00
- 12:00
- 13:00
- 14:00

Filter by Minute
- Select All
- 0
- 15
- 30
- 45

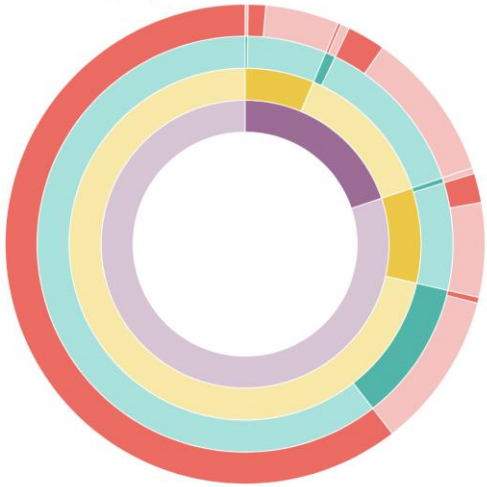
Filter by Customers' Behaviours
- Select All
- Passer-by
- Shopped
- Shopped, Engaged product
- Shopped, Engaged product, Purchased
- Shopped, Purchased

Heat maps

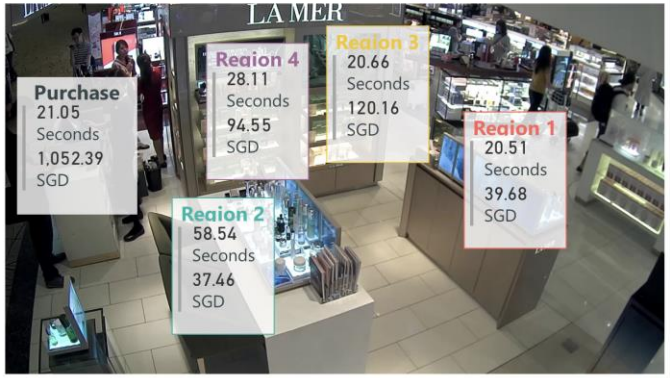
People Count



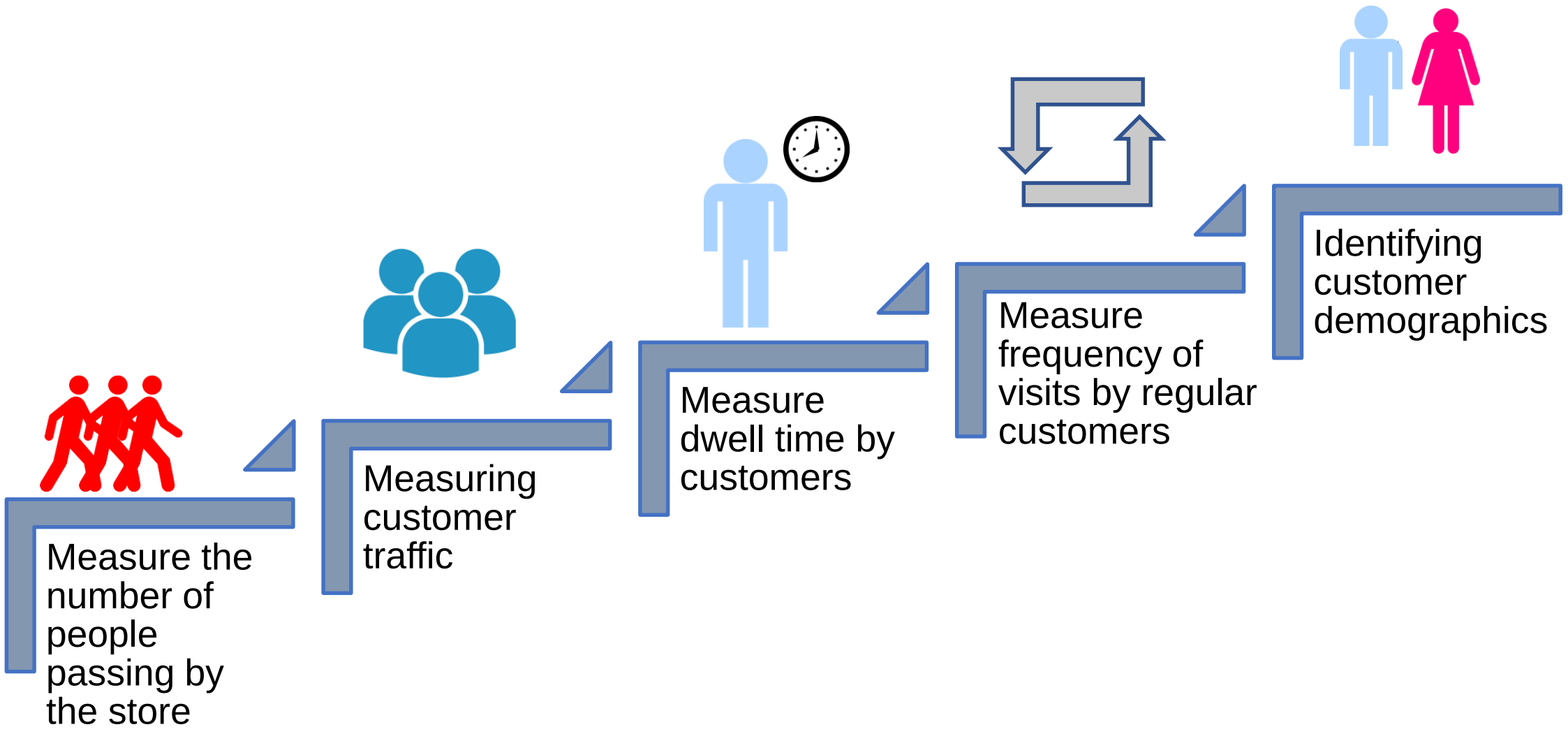
Product Engagement



Average Product Engagement and Average Purchasing Time and Average Revenue Generated



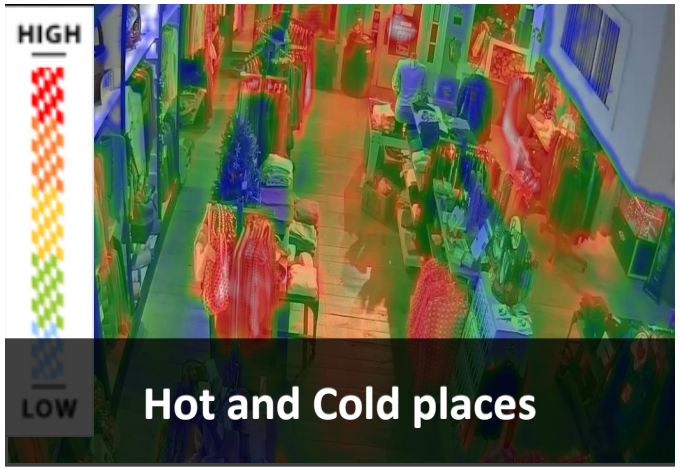
Customer journey of the store



CREATE VALUE FOR YOUR STORE

Measure customer traffic

- Analyse the crowd entering the store and monitor the conversion rate.
- Evaluate the effectiveness of the promotional and marketing activities.
- Calculate the ratio of window shoppers to the converted customers.



Hot and Cold places

- Identify customers most visited spots and correlate with the sales graph (from the PoS).
- The heat map represent the most Vs least visited areas in the store to make you aware of the store performance

Track your customer

- Track the movement of customers inside the store.
- Track the dead areas to identify the weak spots and to bring them to life.
- Attract the customer by giving them special offers on the most visited areas.

CREATE VALUE FOR YOUR STORE

Customer Profiling

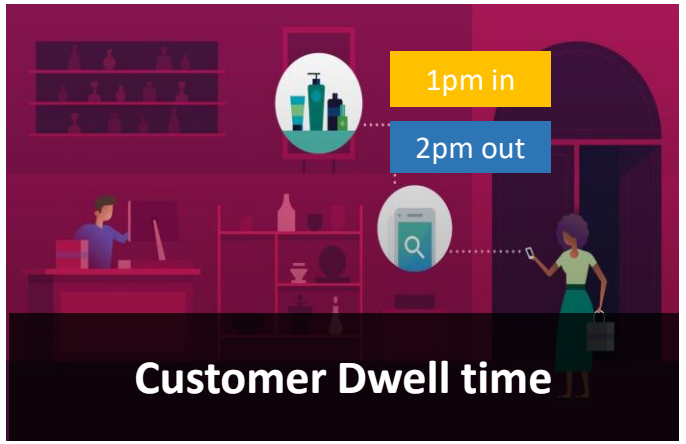
Gender: Male
Ethnicity: Caucasian
Age Group: 25-30
Emotion: Happy

Clothing: White Sweatshirt ,Round next, Blue Trousers,– Solid color

Gender: Male
Ethnicity: Caucasian
Age Group: 25-30
Emotion: Happy

Clothing: White Sweatshirt ,Round next, Blue Trousers,– Solid color

Customize sales promotional activities



Customer Dwell time

- Know how much time your customers spend inside the store.
- Understand customer's engagement inside the store and what attracts them the most.
- Make customer's journey most enjoyable inside the store for their repeat visit.

Customer Loyalty

- Identify new customers and repeat customers
- Increase customer loyalty by giving them the products that attract them the most and enhance merchandising.
- Strengthen the customer pull rate after the first visit by analysing the data.

TRACKING IN A CONVENIENCE STORE – VIDEO DEMO

SHELF VIEW- BRAND EVALUATION

- The current analytics represents the number of eye views for a particular product.
- The algorithm is trained to identify between different brands and segment them based on the number of eye views.
- The total number of onlooker vs buyers can be calculated and projected with the total number of sales.

PLANOGRAM MANAGEMENT

- The output results indicate the number of empty spaces in a particular aisles.
- It also differentiates between specific brands and give the exact results.
- The images represent the red boxes for Coca-Cola bottle an blue for Sprite.

Retail Insights Dashboard

(For business intelligence)

Select Employee GMTC_ChiaJoo ▾ Select Date 2019-06-12 ▾

GMTC_ChiaJoo Details

Employee Name

GMTC_ChiaJoo

Check In Time at 2019-06-12

Check in at - 10:01:40 / check out at - 17:18:59

Areas

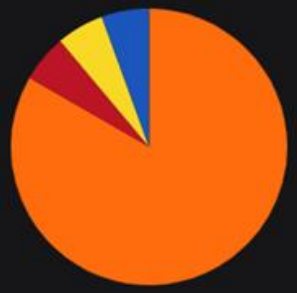
	percentage
Engineering Room	100%

2019-06-12 Detections

Time	Area	Image	Manage
2019-06-12 17:18:59	Engineering Room		DELETE
2019-06-12 17:18:57	Engineering Room		DELETE
2019-06-12 17:12:40	Engineering Room		DELETE

1 2 3 4 5 6

Emotion Detections Overview



	percentage
neutral	83%
angry	6%
surprise	6%
happy	6%

Attendance by Date

Date ▾	Check IN	Check OUT
2019-06-13	10:26:52	12:20:06
2019-06-12	10:01:40	17:18:59

TABLES AREA

Year: All | Month: All | Date: All | Day: All | Hour: All | Minute: All | Week&Weekend: All

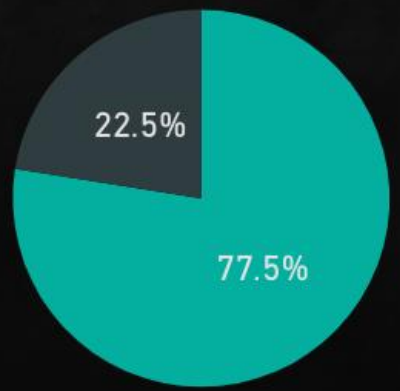
PEOPLE ON THE CORRIDOR IS NOT COUNTED AS ENTERED IN TO THE TABLES AREA

Dataset Size Generated

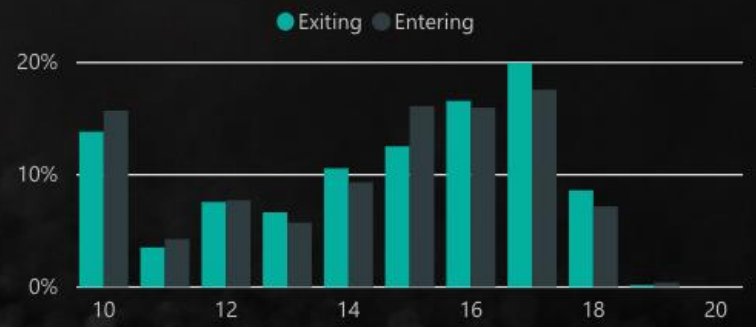
751

Counts

People Count

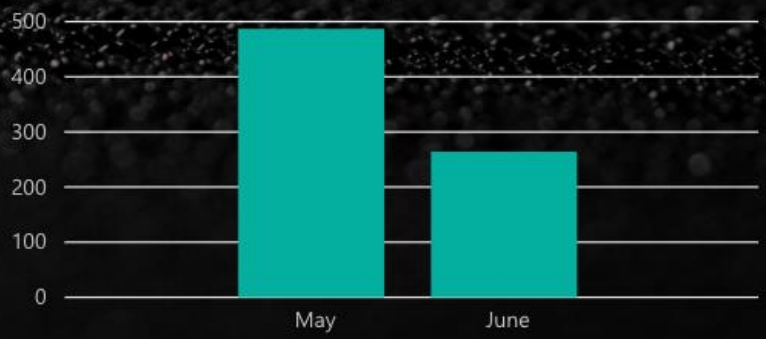


Entering & Exiting (%) By Hour

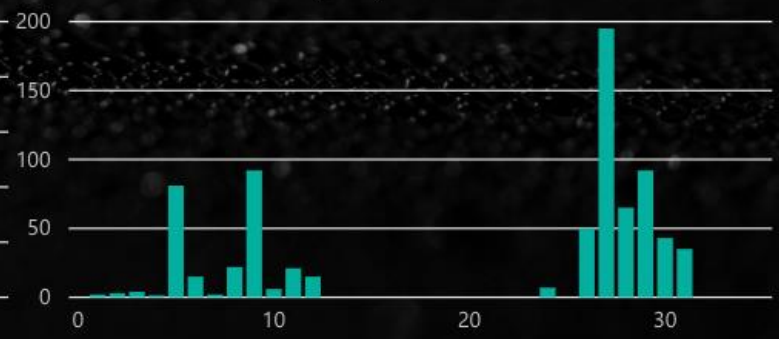


Count by Day

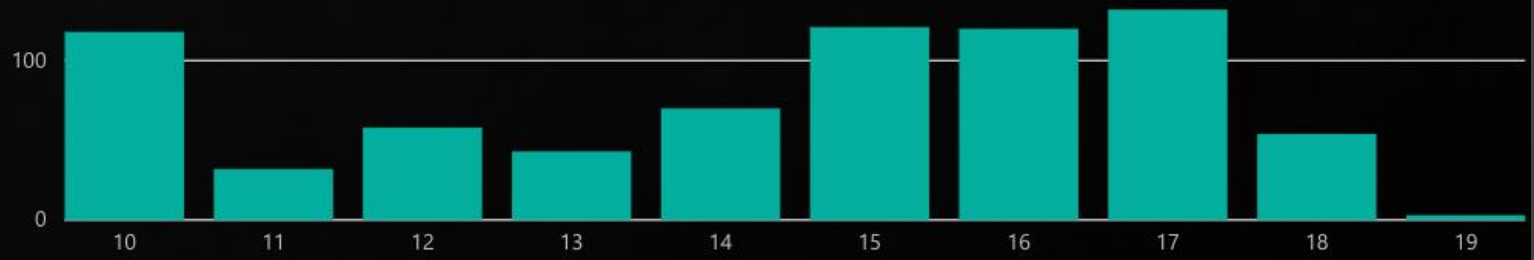
Count By Month



Count By Day Of The Month



Count By Hour



Hour: All | Minutes: All | Seconds: All

449
People counted on the store

156
People counted going to freezers

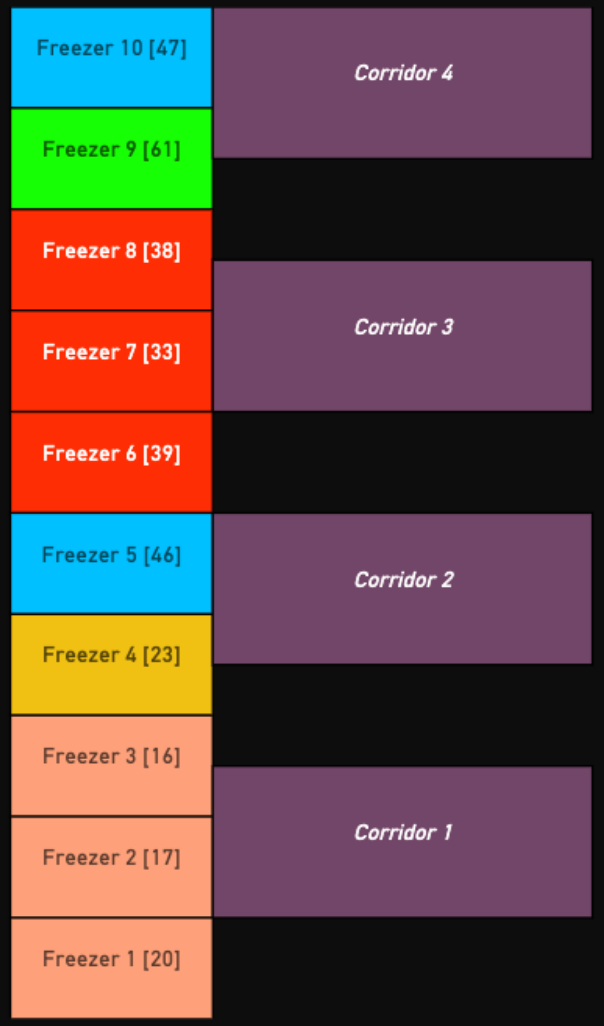
Most Visited

Freezer 9

Most Time Spended

Freezer 7

Visitors per freezer



Total minutes spend per freezer

GRAYMATICS

Visitors in areas 1 to 8
(people who spend more than 5 seconds in each area not moving)

Total participants
234

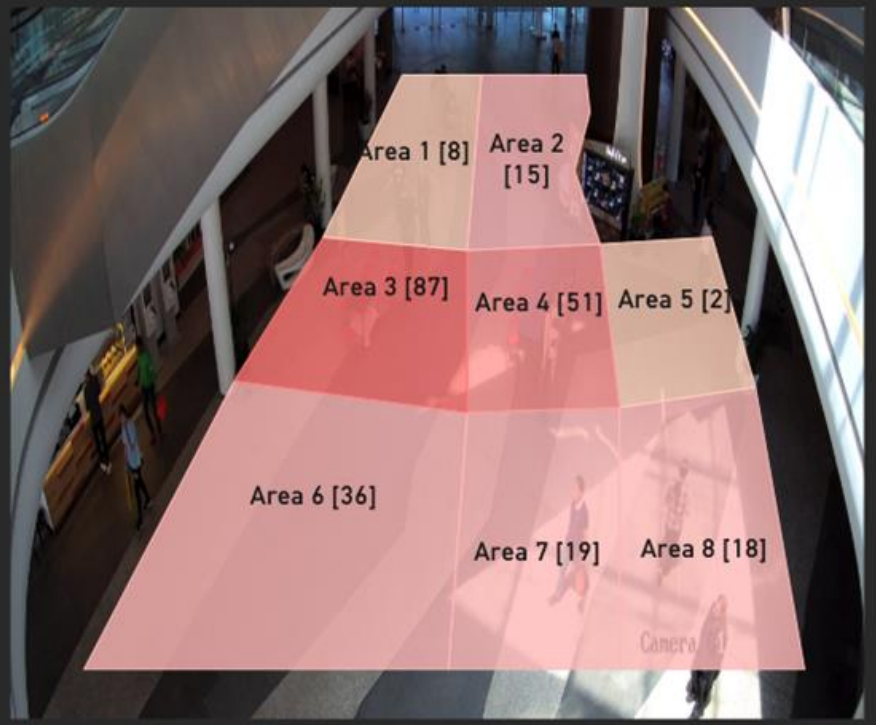
area
- Select all
- Area 1
- Area 2
- Area 3
- Area 4
- Area 5
- Area 6
- Area 7
- Area 8

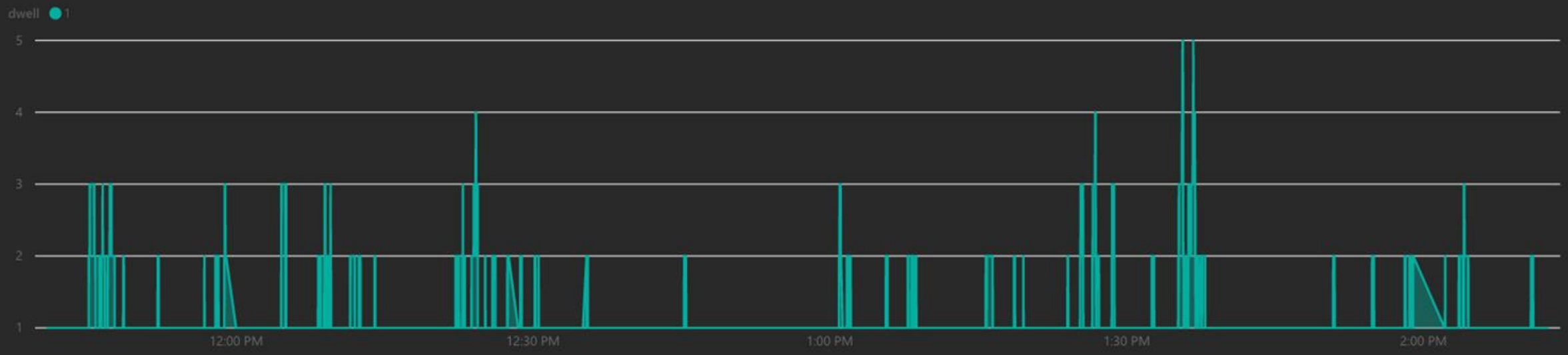
hour
11 — 14

minute
0 — 58

dwelltime
20.00 — 170.50

seconds
0 — 59





INTRUSION AREA

TANKS REACTOR

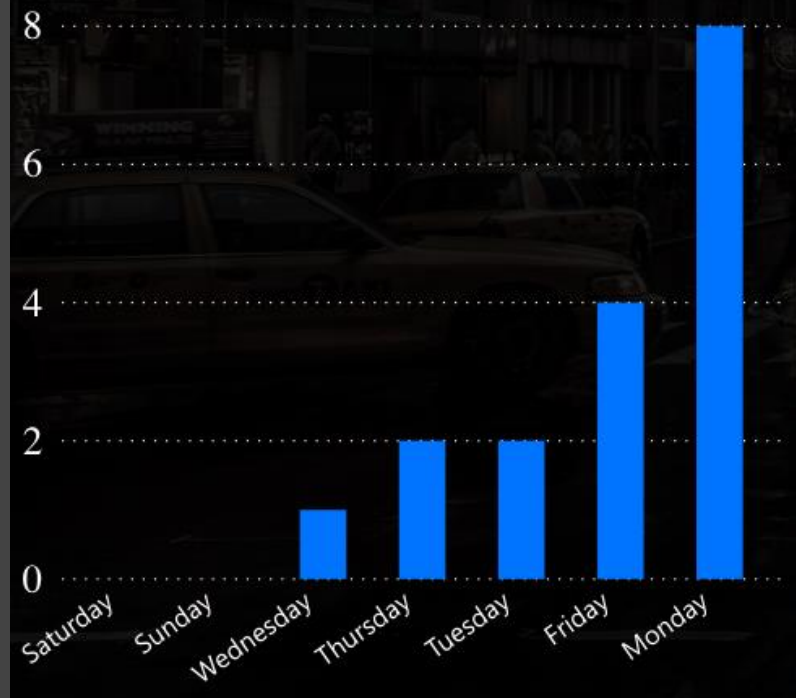
Year Month Day

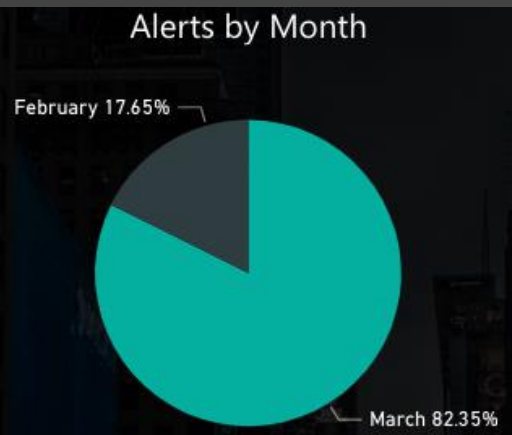
All All All

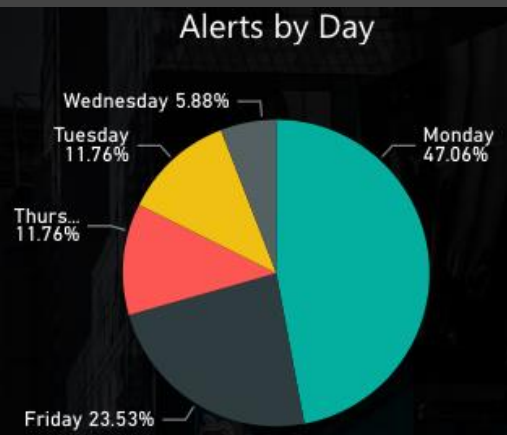
Hour Range Hour

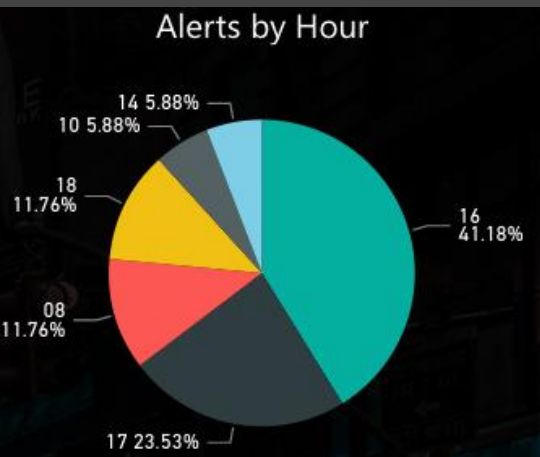
0 23 All

17 TOTAL ALERTS









PEOPLE BEHAVIOUR

Year: All | Month: All | Day: All | Date: All | Hour: All | Minute: All | Behaviour: All | Week&Weekend: All

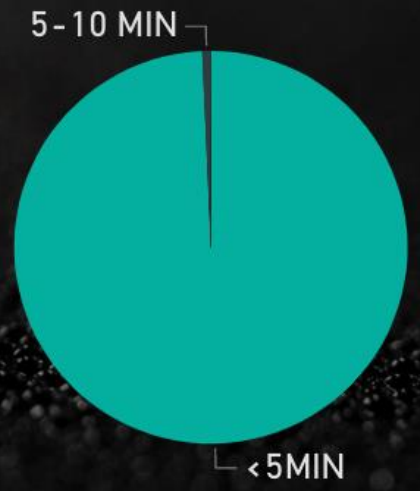
IF A PERSON IS NOT MOVING FOR 5 SECONDS, IS SELECTED AS A PARTICIPANT AND STARTS GAINNING "PARTICIPATING TIME"

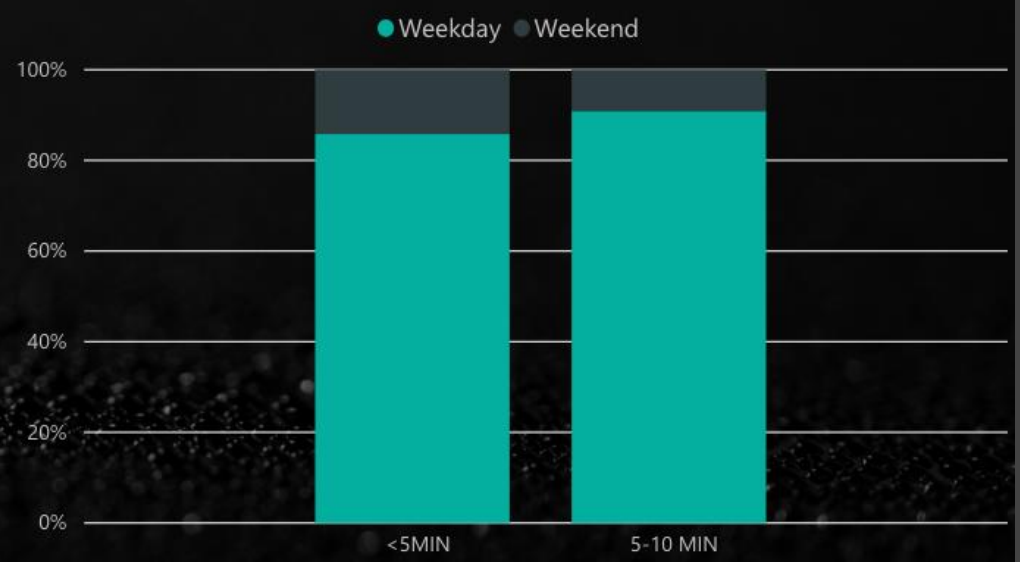
Dataset Size Generated

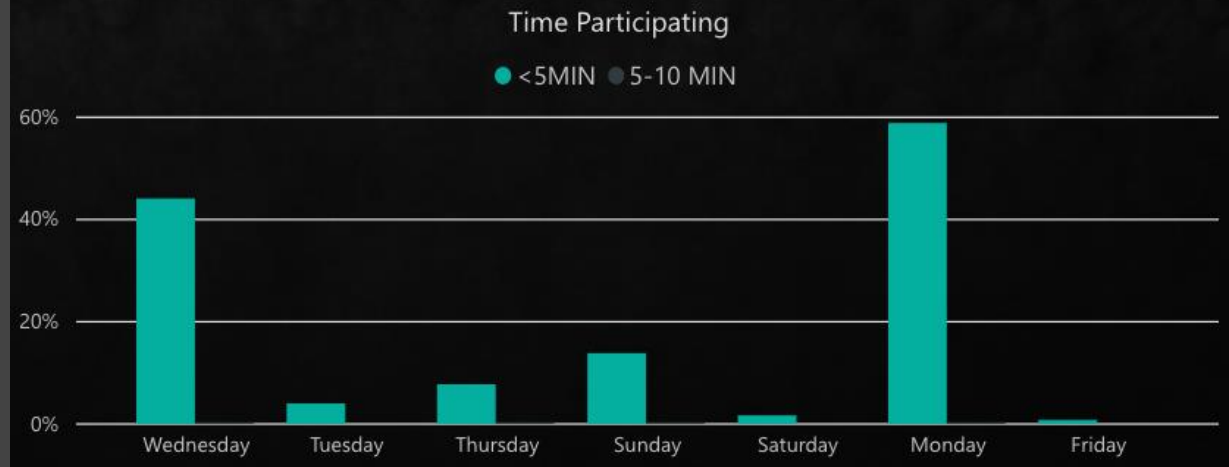
1544

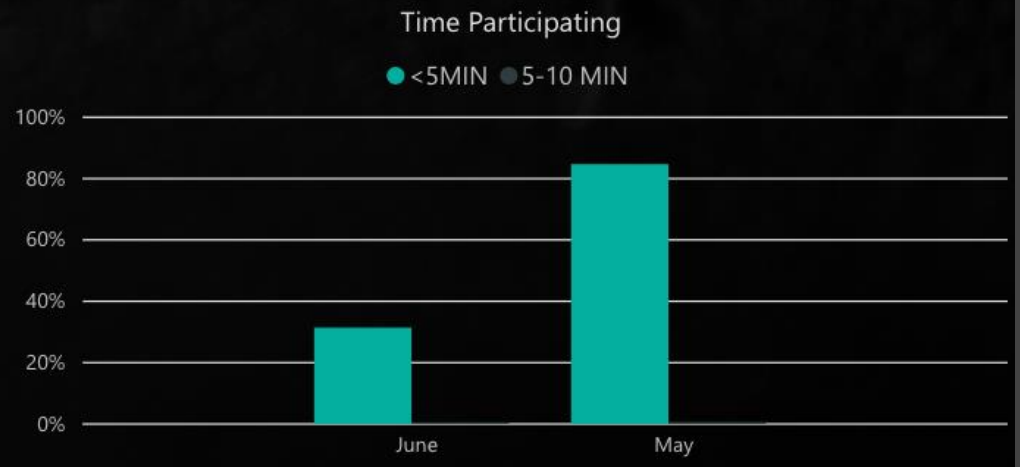
Tracks Participating

PARTICIPATING TIME









MAIN ENTRANCE

Year: All | Month: All | Date: All | Day: All | Hour: All | Minute: All | Week&Weekend: All

Dataset Size Generated

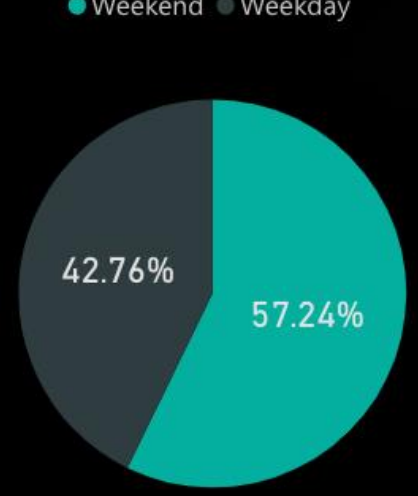
577

Counts

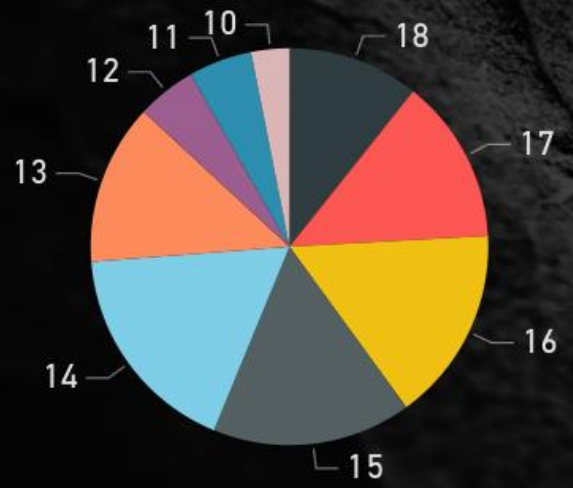
Top Entering Hour: 14 Hrs

Top Exiting Hour: 15 Hrs

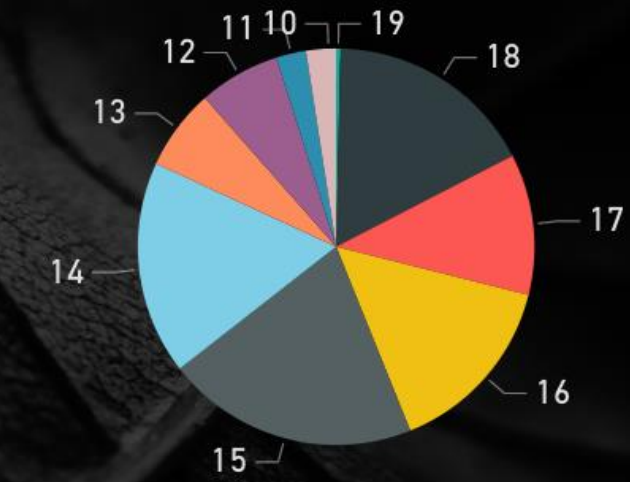
People Count



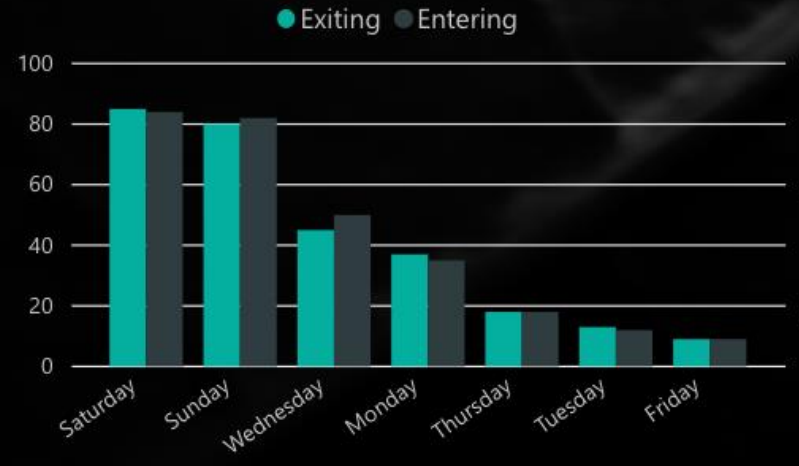
Entering by Hour



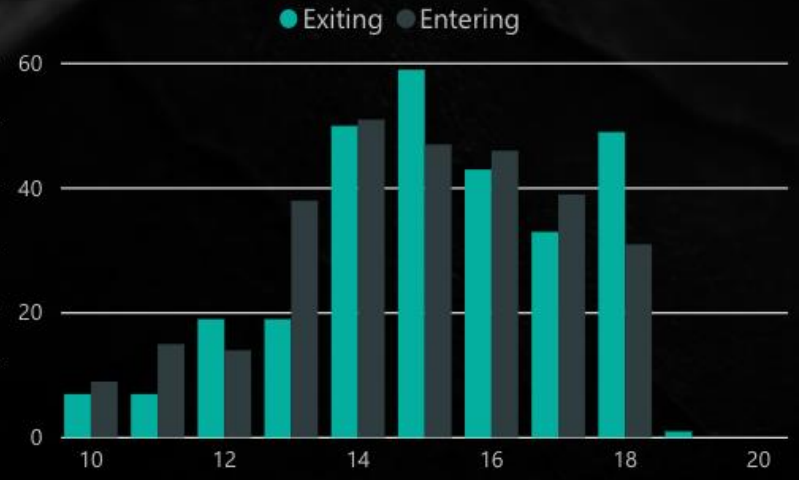
Exiting by Hour



Count By Day

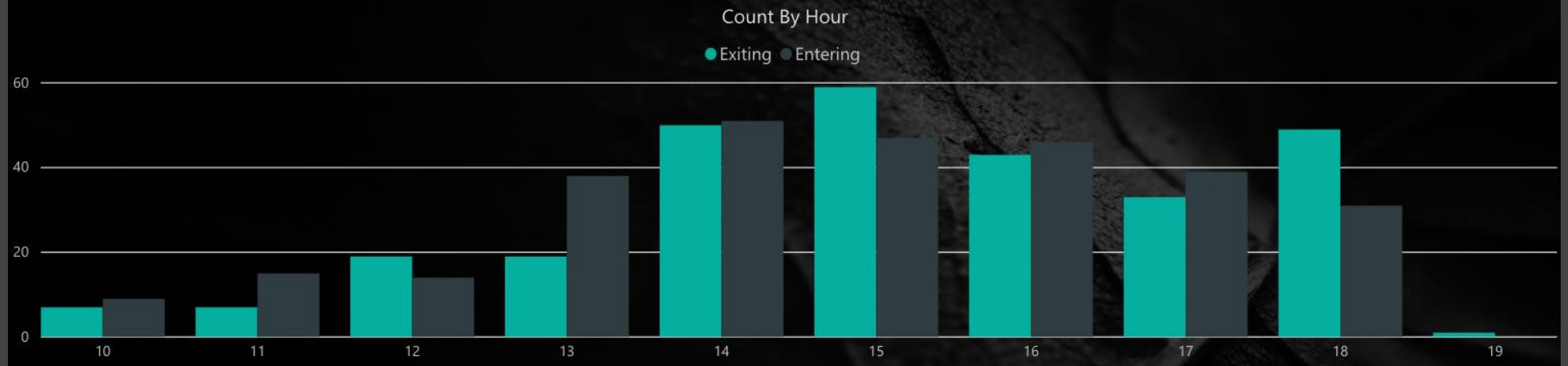


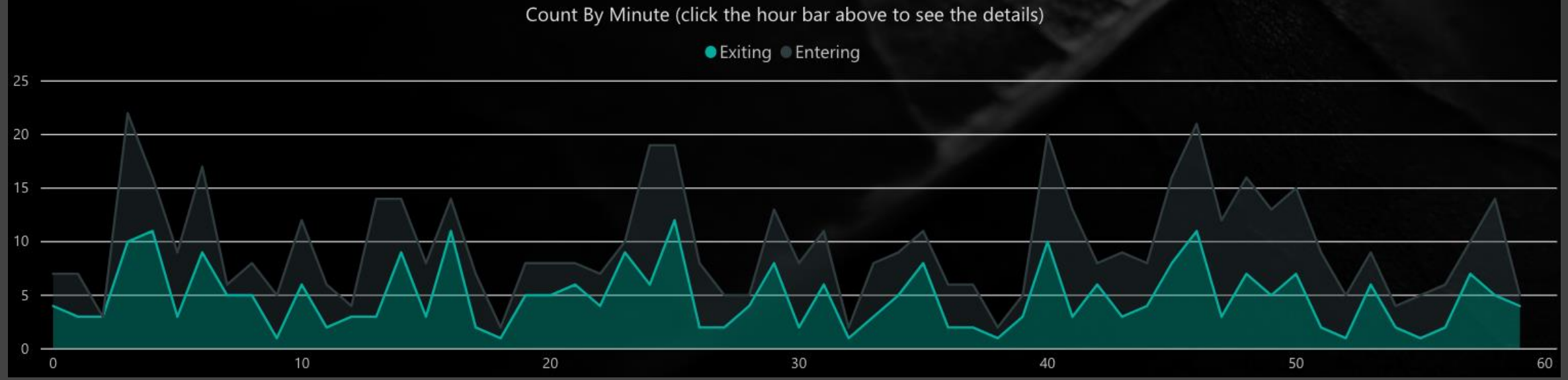
Count By Hour



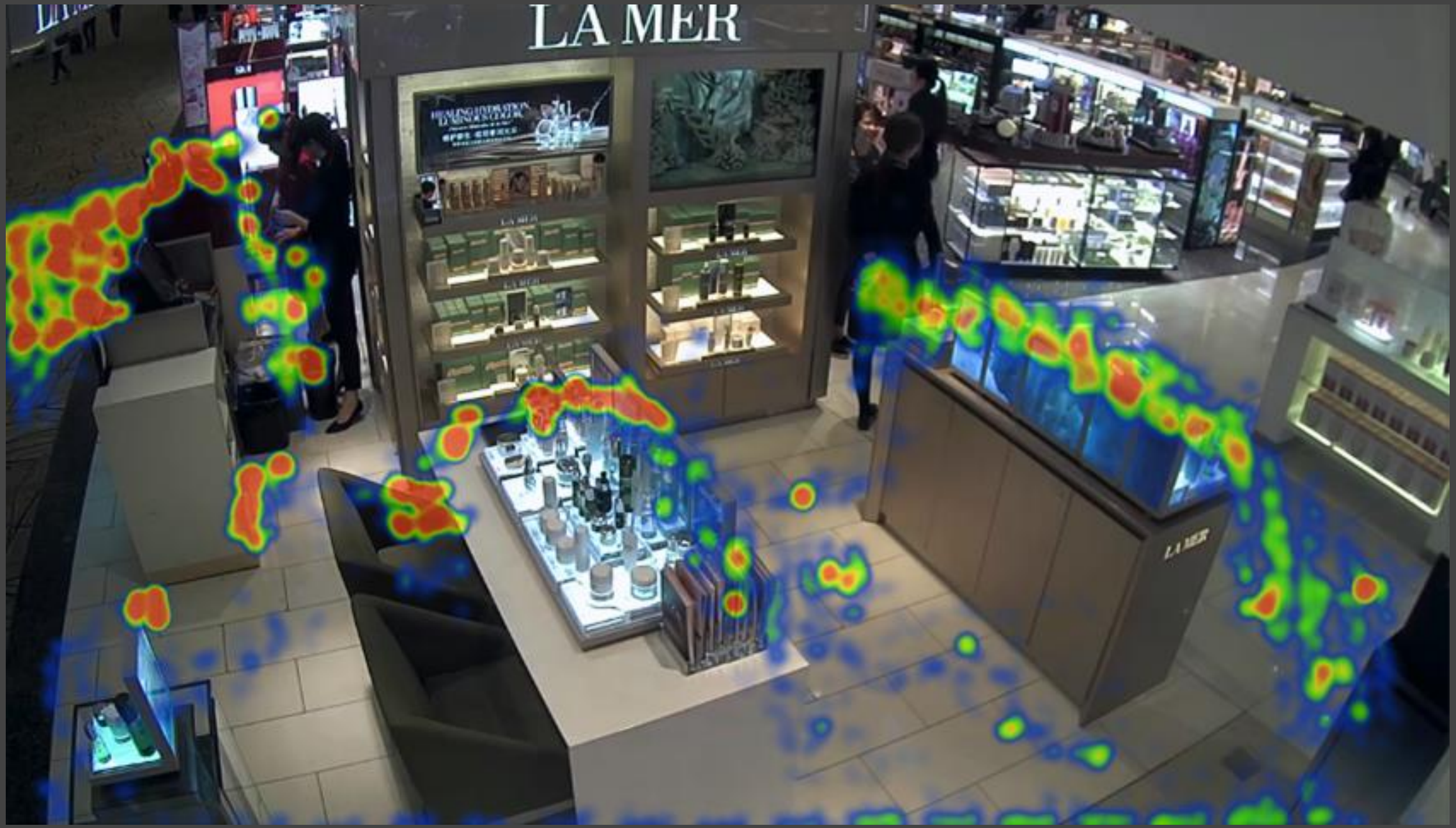
MAIN ENTRANCE

Year: All | Month: All | Date: All | Day: All | Hour: All | Minute: All | Week&Weekend: All






GRAYMATICS
Behaviour
Passing Through
hour
12
13
minute
0
59
minute
3
seconds
0
50
04-05-2019 Fri 11:40:36


LA MER

INSERT NUMBER

SET PEOPLE

12:43:25

PEOPLE INSIDE

99

Exit

Main Door
Rear Door
Contact Centre

Enter

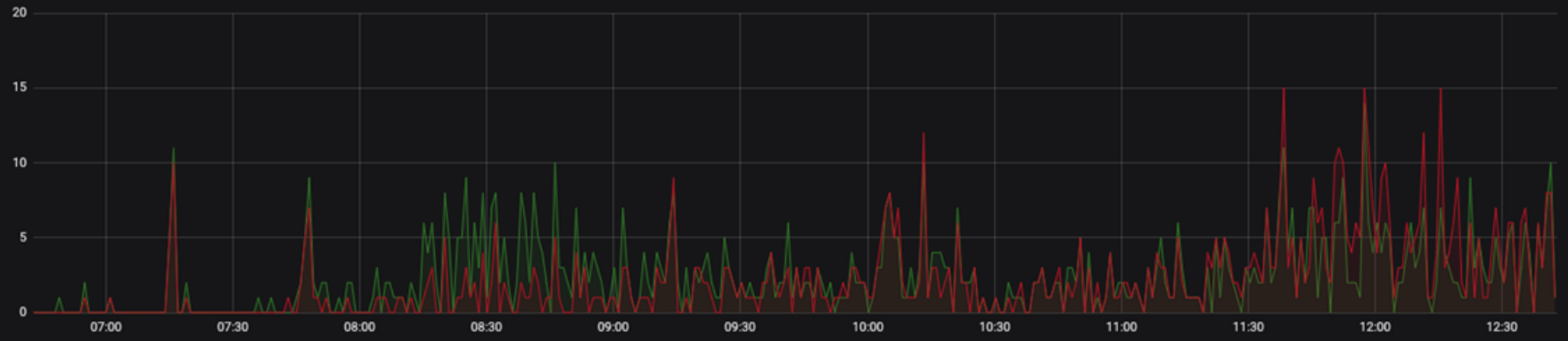
Main Door
Rear Door
Contact Centre

People Inside

	min	max	avg	current
People Inside	2	217	131	99

Main Door

Main Door



	total
Entering	858
Exiting	778

Main Door

	total	percentage
Entering	858	52%
Exiting	778	48%

Rear Door *(2 panels)*

Contact Centre Door *(2 panels)*

Select Date 2019-06-12

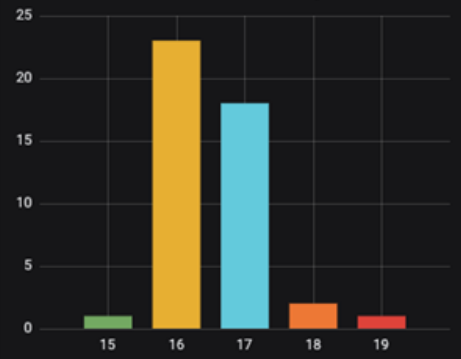
GRAYMATICS

2019-06-13
12:21:20
Asia/Singapore

Attendance at 2019-06-12

Employee (click + info)	Check IN	Check OUT
GMTC_ChiaJoo	15:01	17:18
GMTC_Sonia	16:13	18:05
GMTC_Max	16:19	17:43
GMTC_Alex	16:53	17:14
GMTC_Nhan	17:15	17:55
GMTC_Jagdip	17:24	19:17
GMTC_Mridul	17:43	17:43
GMTC_Abhijit	17:50	17:54
GMTC_Khanh	17:58	17:58

Detections at 2019-06-12 by Hour



2019-06-12

Checked in: 9

Non Neutral Emotion Detected

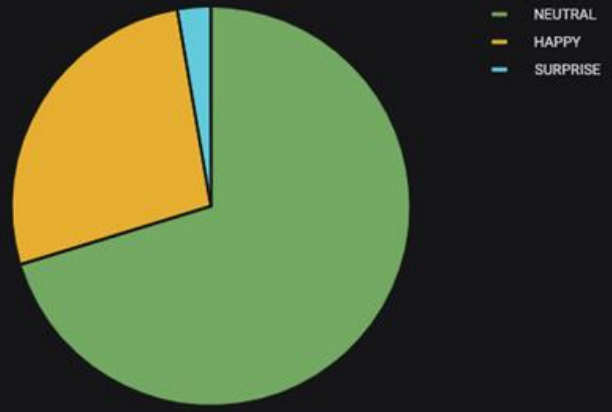
Detections By Camera

Select Area: Hanam Lobby | Select Date: 2019-06-06

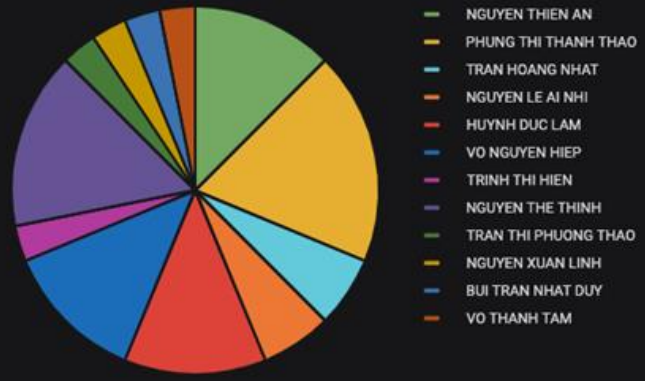
Area Selected

Hanam Lobby detections at 2019-06-06

Emotions at Hanam Lobby



Detections at Hanam Lobby



Detections at Hanam Lobby

Time	hour	Name	Emotion
2019-06-07	18:21	VO NGUYEN HIEP	NEUTRAL
2019-06-07	18:20	VO NGUYEN HIEP	SURPRISE
2019-06-07	18:20	VO NGUYEN HIEP	NEUTRAL
2019-06-07	18:20	VO NGUYEN HIEP	HAPPY
2019-06-07	18:12	VO THANH TAM	NEUTRAL
2019-06-07	18:12	VO THANH TAM	HAPPY

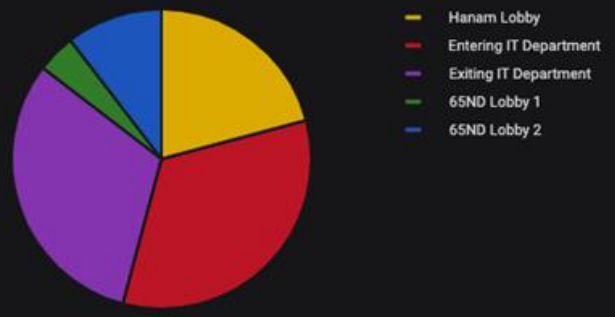
1 2 3 4 5 6 7

Select Emotion HAPPY Select Date 2019-06-06

Emotion Selected

HAPPY people at 2019-06-06

HAPPY by Area



HAPPY by Name

HAPPY Detections

Time	hour	Name	Area
2019-06-07	18:20	VO NGUYEN HIEP	Hanam Lobby
2019-06-07	18:16	TRAN HOANG NHAT	Exiting IT Department
2019-06-07	18:16	NGUYEN THIEN AN	Exiting IT Department
2019-06-07	18:15	TRAN HOANG NHAT	Exiting IT Department
2019-06-07	18:12	VO THANH TAM	Hanam Lobby

1 2 3 4 5 6 7 8 9

G3C.AI Enabling Powerful Loss Prevention for Retail

G3C.AI -> Loss Prevention Solution Thru Deep CCTV Streaming Analytics

- Shoplifting-Vulnerable Scenario Alert
- Customer Theft-Vulnerable Scenario Alert
- Staff Theft-Vulnerable Scenario Alert
- Expiry-Prone Product Loss Vulnerability Detect

Shoplifting-Vulnerable Scenario Alert

G3C.AI Identifies Shoplifter Journey steps within Retail Store

Entry

Detect person with backpack/ suitcase/ loose jacket

Behaviour in Store

Detect loitering in sensitive parts of store

Detect intrusions in “private” parts of store

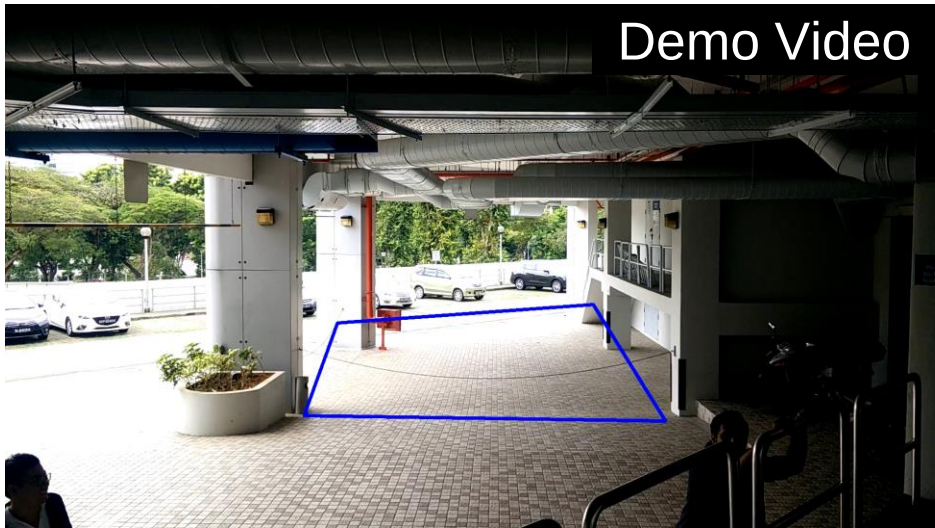
Detect if store item placed in person attire

Store Scenario

Low staff members within tracked region

Exit

Track person bypassing cashier lane



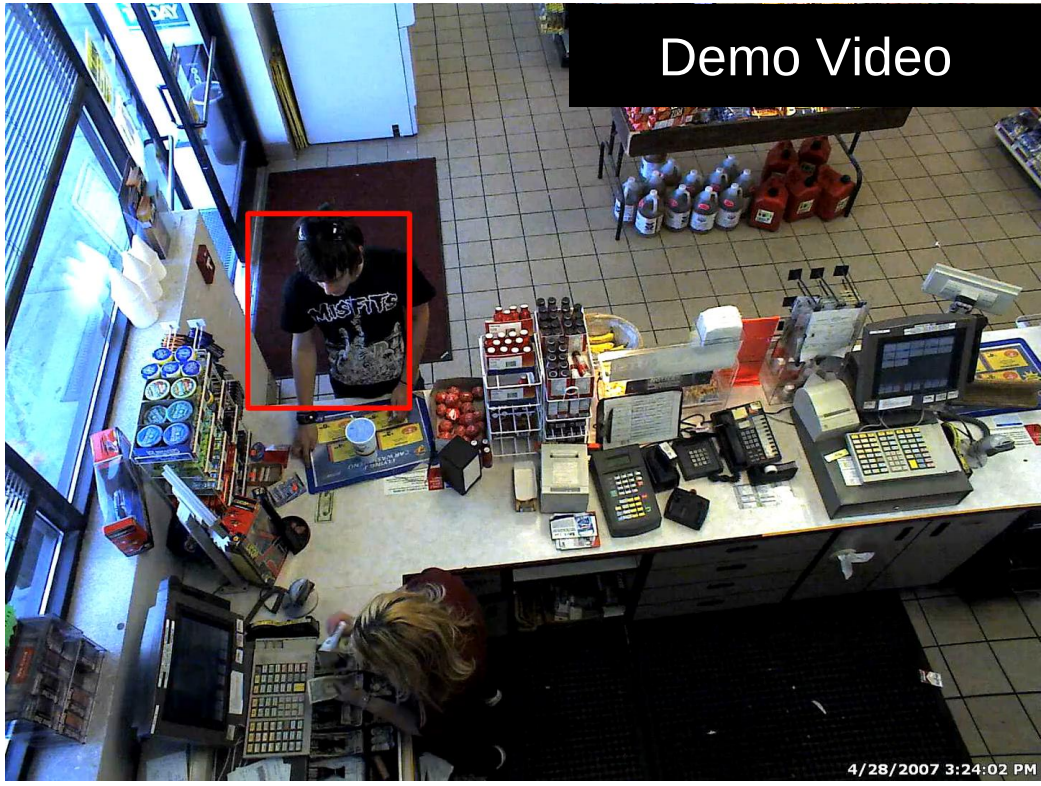
Customer Theft-Vulnerable Scenario Alert

G3C.AI Identifies Customer Theft Journey steps within Retail Store

Detect suspicious person in vicinity of store

→

Detect loitering in vulnerable parts of store



Staff Theft-Vulnerable Scenario Alert

G3C.AI Identifies Staff Theft Journey steps within Retail Store

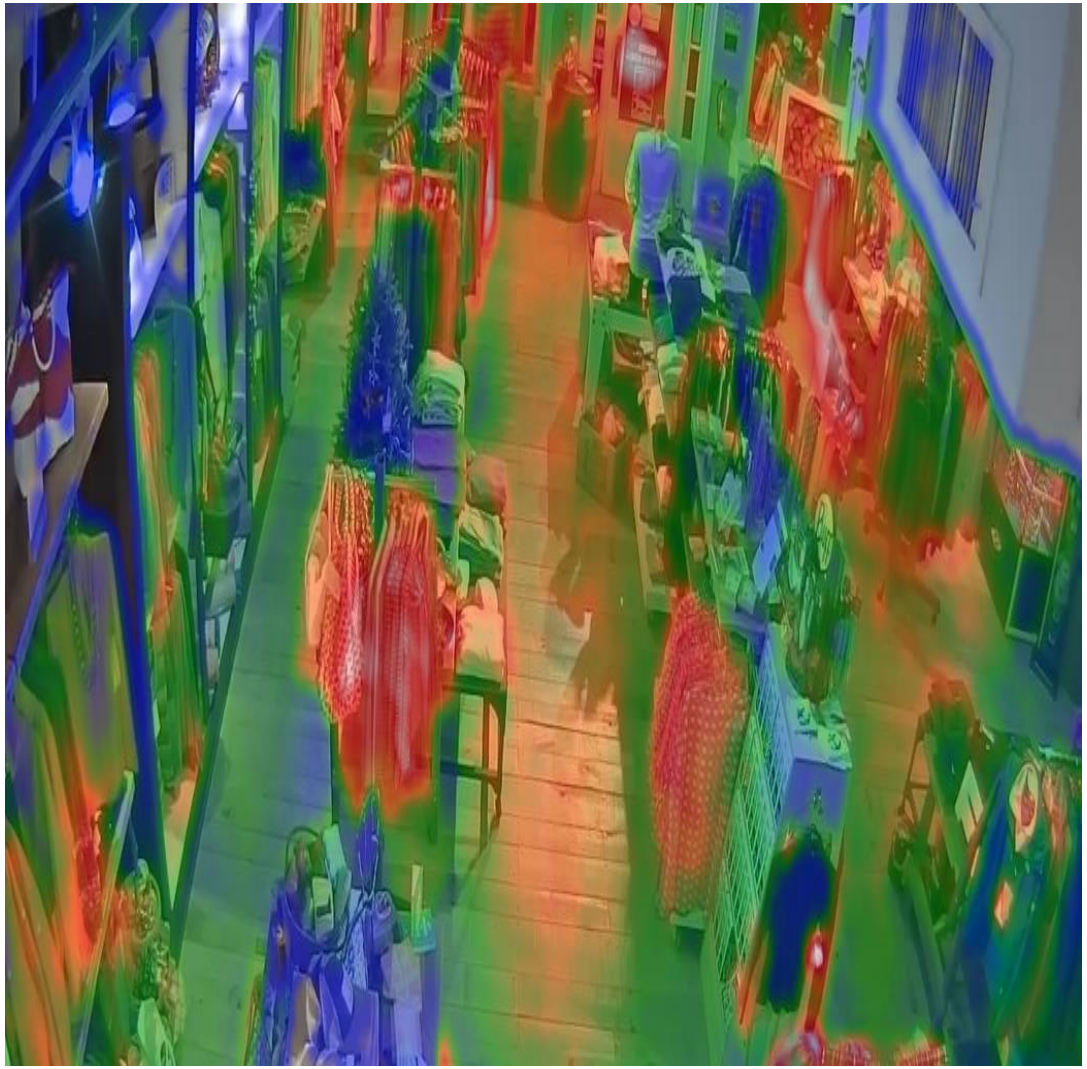
Track Staff Separately from Customers (based on uniforms/ FR)

Detect suspicious staff behaviour

- Skipping scanner
- Stacking up items
- Intrusions

Expiry-Prone Product Vulnerability Detect

G3C.AI provides detailed customer demographic heat-map



Infer if an expiry-prone product should be relocated for better sale prospects, and lower losses

GRAYMATICS

See Through the Clutter