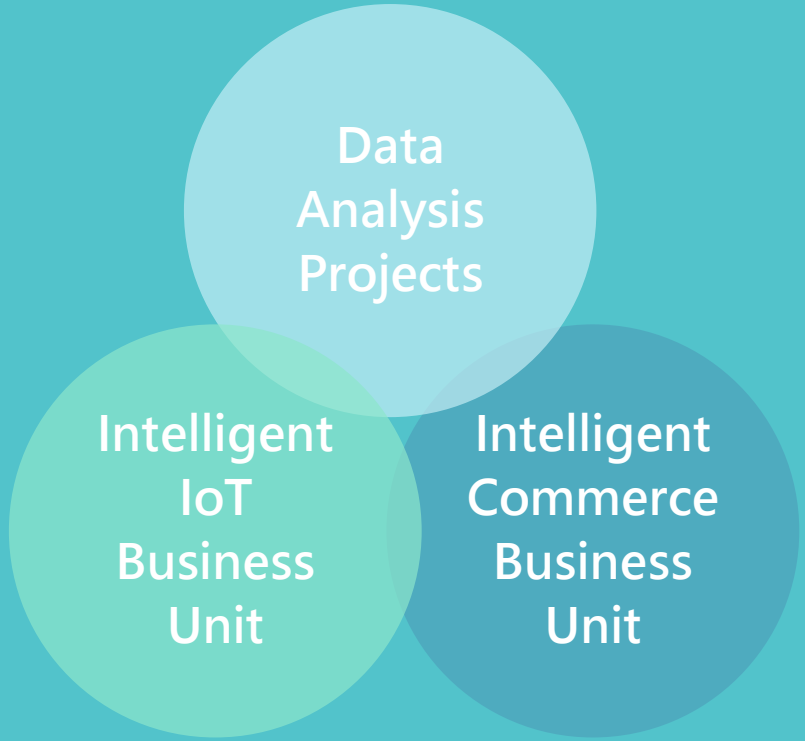
WISIDE
Wireless Signal Detection
台灣資料科學
Taiwan Data Science Co.
TdSc

Introduction to Taiwan Data Science Company

We focus on▼

Hardware/Software system integration, Intelligent Security Protection, Artificial Intelligence and Big Data. We help to promote intelligent technologies and improve nation's digital development. We provide friendly, convenient IoT environment and professional, secure SI service for all cities and counties in Taiwan.



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WISIDE

Wireless Signal Detection Device

Wisde is able to calculate people count and monitor people movement by detecting wireless signals and furthermore to provide security protection and marketing strategies.

Privacy
De-identification

High Mobility
Small and Low power consumption

Accuracy
Collect WiFi/ Bluetooth/ 4G signals

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WISIDE Features

Security Protection

Integrated with security monitoring system. Effectively manage information security.

Data Analysis

Combine Open Data and do analysis using AI to provide customized data report.

Scalability

Can be integrated with mobile apps, POS system and Kiosks to implement precision marketing and analyze consumer behavior.

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WISIDE suitable circumstances

Chain Retailer

- Convenience store
- Department store
- Drugstore
- Clothing store
- Catering group

Activities, Exhibition

- Concert
- Election campaign
- Exhibition
- Holiday event
- Market place

Outdoor Advertising

- Bus stop ad
- Underground ad
- Department store shopwindow
- Outdoor ad
- Outdoor installation art

Security

- Airport
- Bank
- Military base
- Restricted area
- Factory

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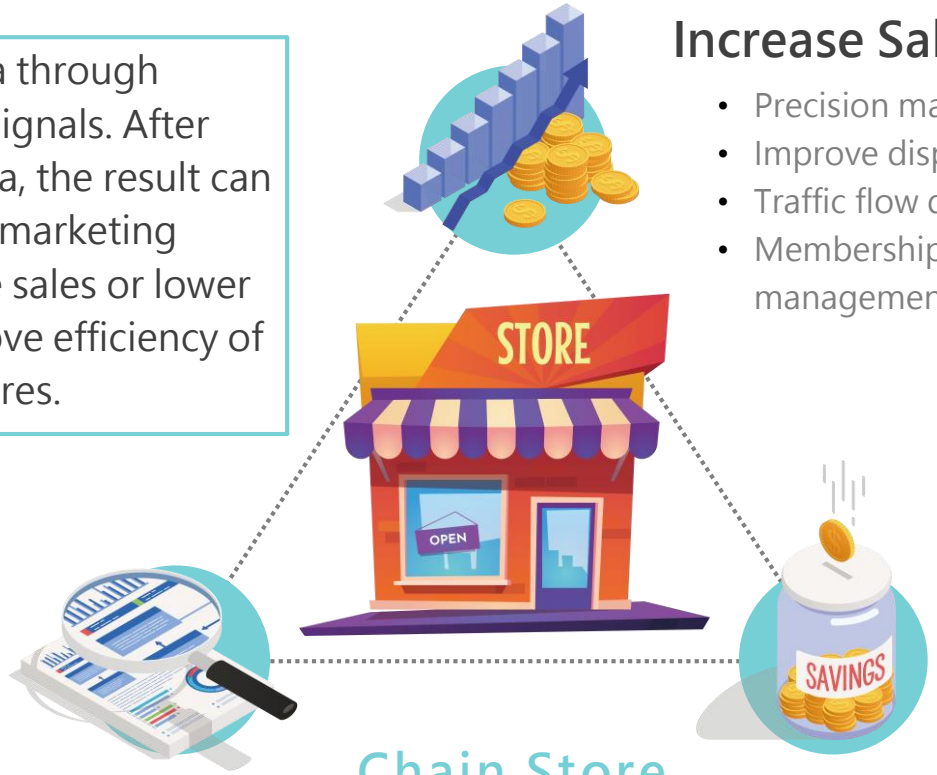
WISIDE helps you

Wiside collects data through detecting wireless signals. After analyzing these data, the result can be used to provide marketing strategy to increase sales or lower cost and also improve efficiency of managing multi stores.

Increase Sales

- Precision marketing
- Improve display
- Traffic flow design
- Membership management



Improve efficiency

- Single/Multi store management

Decrease Cost

- Improve human resource allocation
- Review marketing plan

Chain Store

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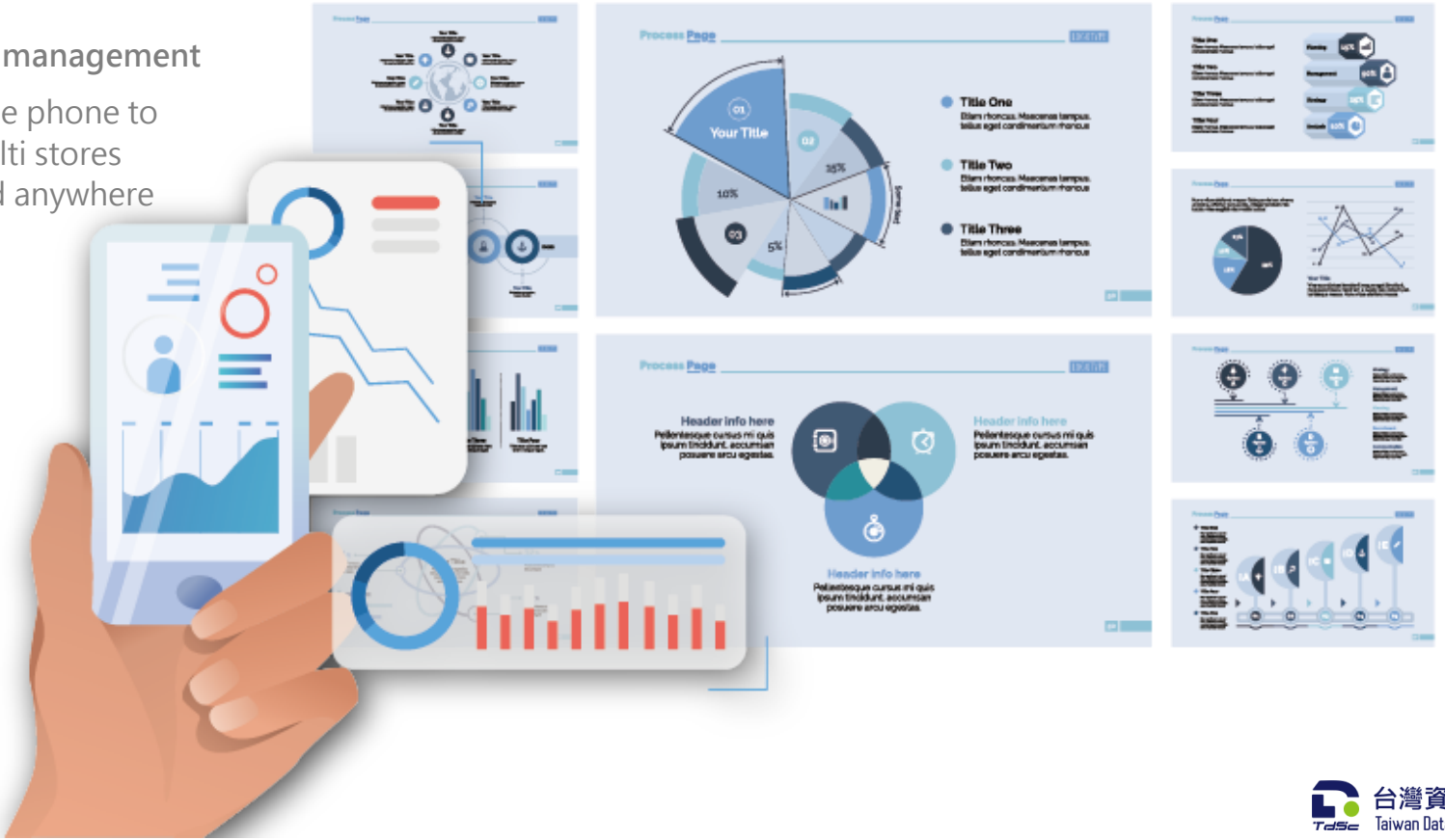
WISIDE Application Scenario

Multi-store management

Using mobile phone to manage multi stores anytime and anywhere



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WISIDE Application Scenario

Improve display and marketing strategy

Data analysis report can be used to improve store display or marketing strategy to increase sales.

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WISIDE Application Scenario

Traffic flow planning and human resource allocation

Data analysis report can be used to improve traffic flow and effectively allocate human resource to increase sales and lower cost.

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Analysis Items

Overall people count

- Total daily visits
- Weekdays/Holidays ratio
- Hourly/Weekly visits
- Overall Dwelling time
- Dwelling Time in each location
- Overall brand stats

Customer Return

- Return/new customer ratio
- Return/new customer prime time
- Return/new customer dwelling time

Moving track

- Track analysis
- Entrance Counting
- Track and dwelling time
- Weekly visits of each track
- Total visits of each track

Correlation coefficient

- Google Trends search volume
- Crowd Hotspot
- Correlation coefficient of each spot

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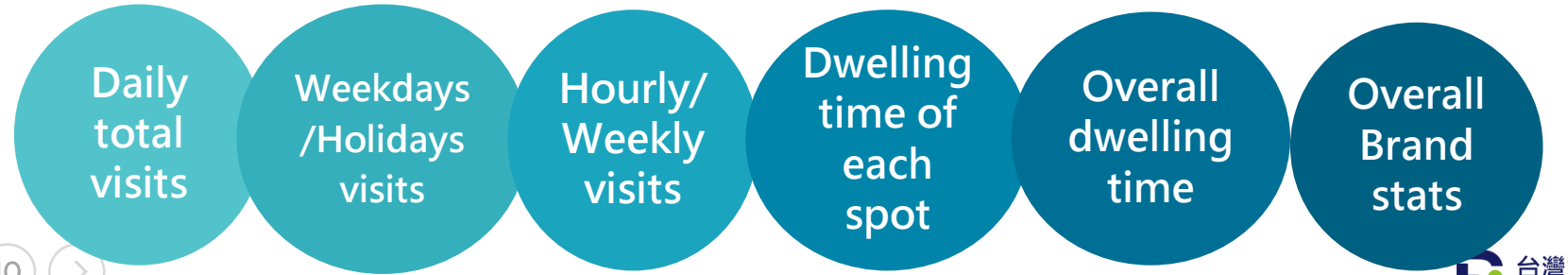
Overall people movement analysis

By implementing Wiside in physical stores, managers can monitor the people flow and create marketing plan, for example: Indoor traffic flow can be optimized by increasing product exposure and modifying display in crowd hotspots. In addition, the data can be cross compared with open data such as the correlation between weather and people flow. Finally, managers can allocate human resource through visit stats and moving track.

Wiside collects mobile phone signals and de-identifies the data. These data can be used to analyze moving track and dwelling time that help managers realize daily changes of people flow.



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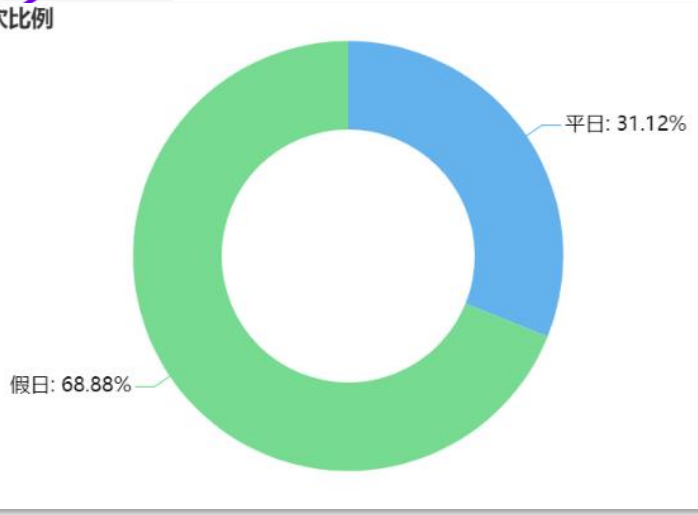
Overall people count analysis

Total daily visits

Weekdays /Holidays ratio



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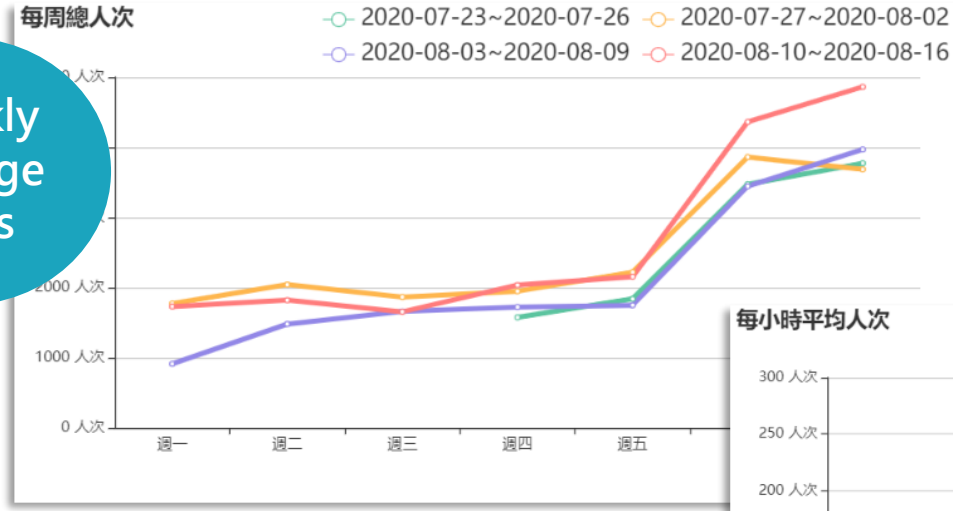
Overall people count analysis

Weekly average visits



Hourly Average visits

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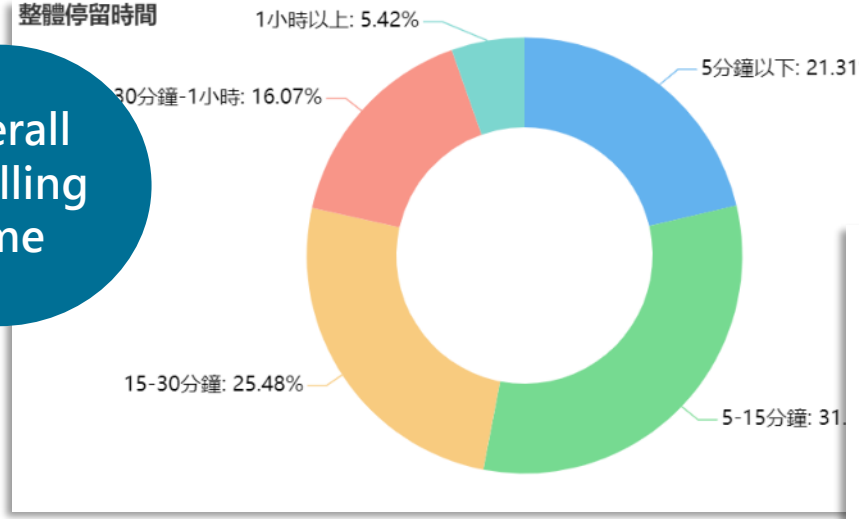
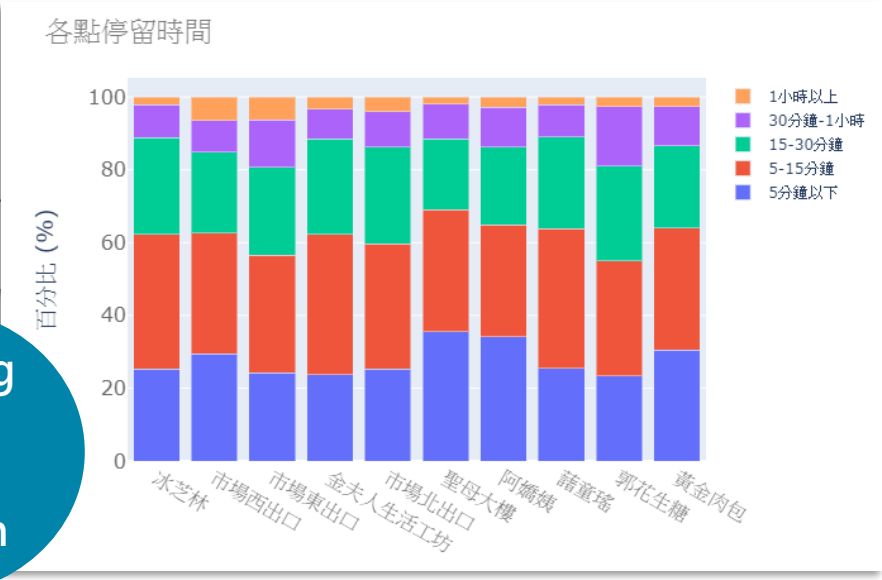
Overall people count analysis

Overall Dwelling time



Dwelling Time in each location



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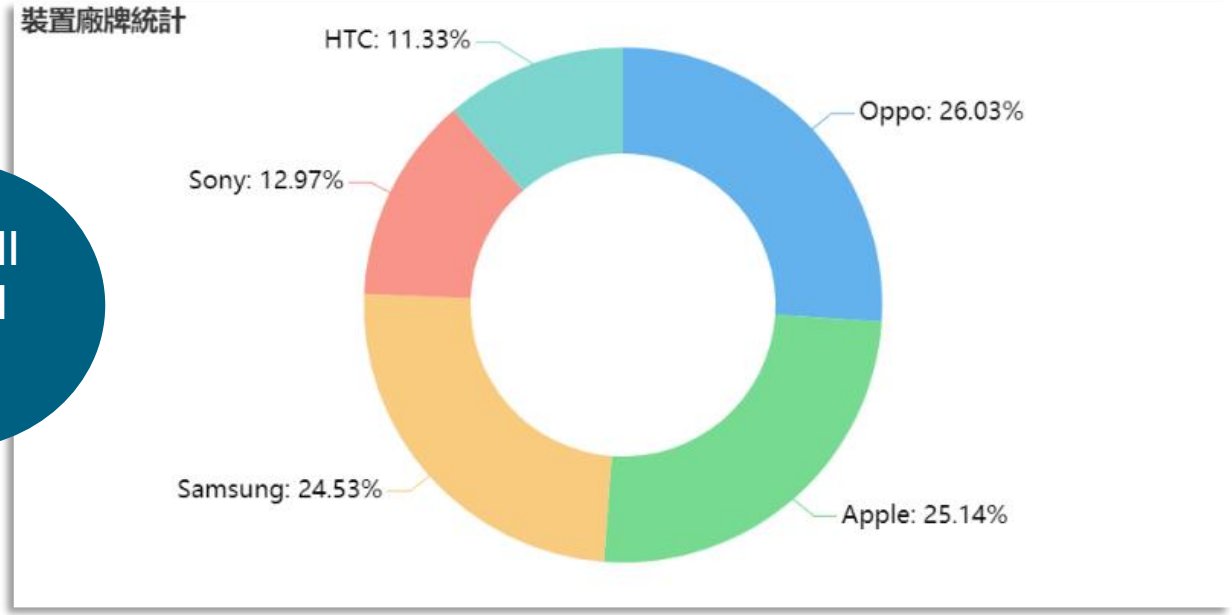
Overall people count analysis

Overall brand stats



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Customer Return Analysis

The data Wiside collected can be classified as return customer and new customer. Return customer refers to customer who visit the store twice and above in data collecting period while new customer only visit once.
By analyzing the customer behavior, managers will have a clear view of market place/ store planning and know if the strategy used is effective to attract crowds, and even the customer return willingness and rate.

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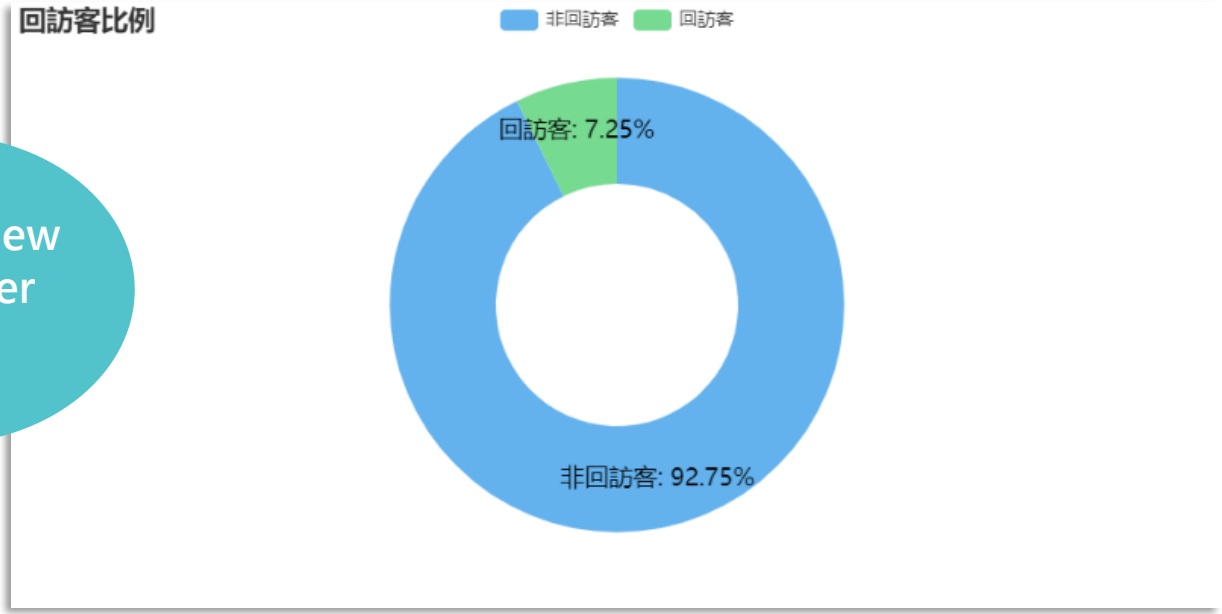
Customer Return Analysis

Return/new customer ratio



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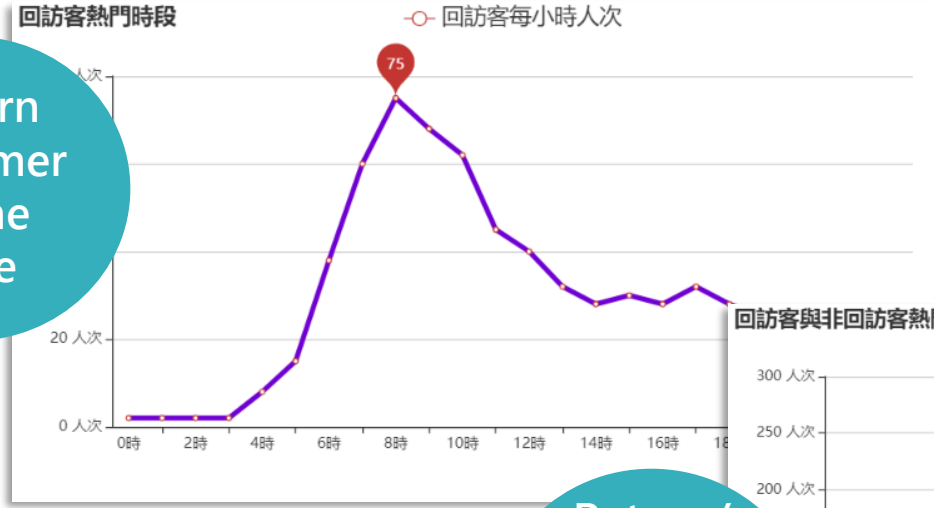
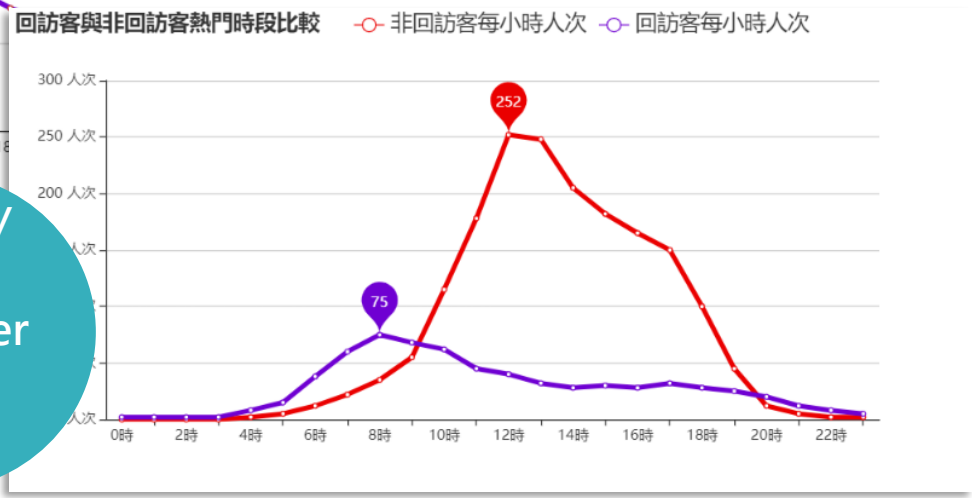
Customer Return Analysis

Return customer Prime time



Return/ new customer Prime time



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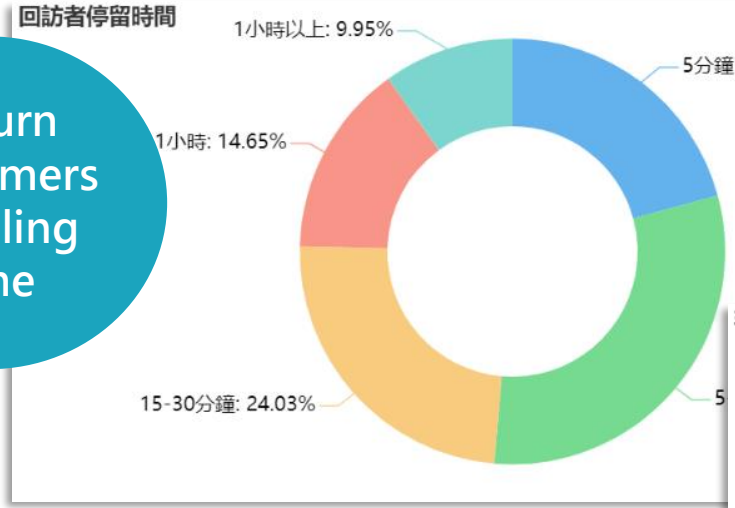
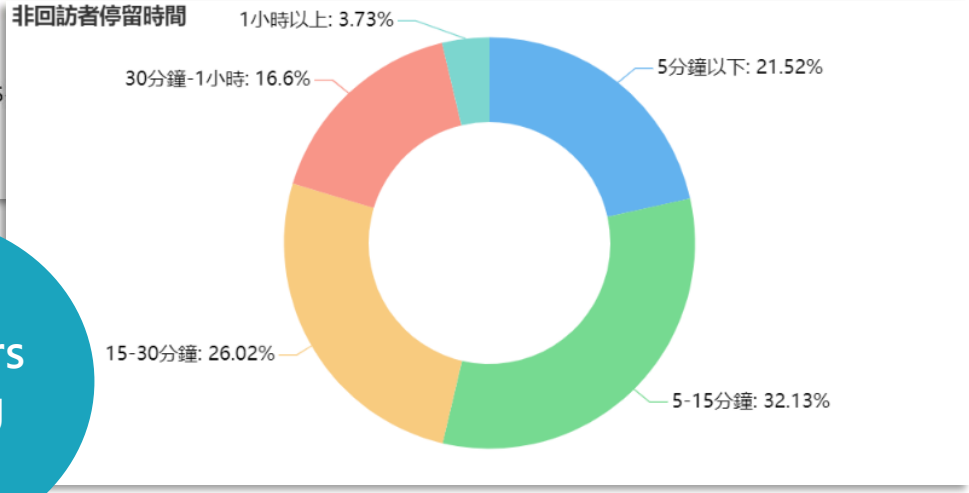
Customer Return Analysis

Return Customers Dwelling time



New Customers Dwelling Time



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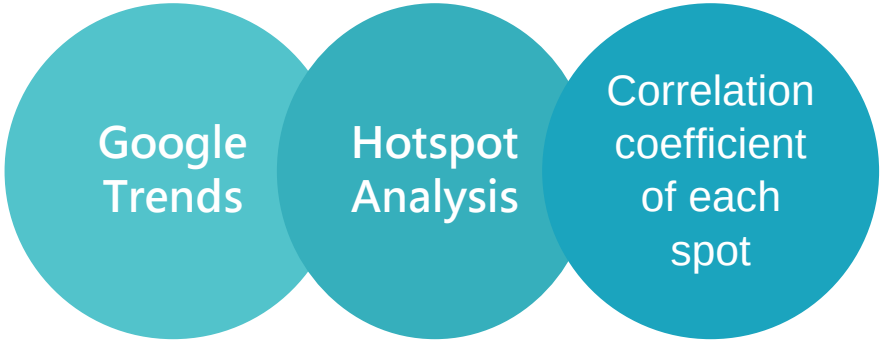
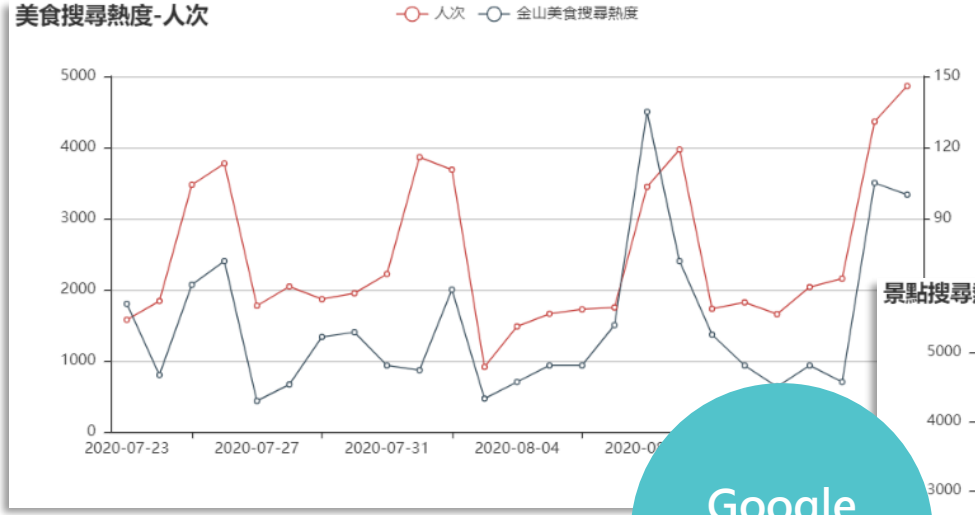
Flow Direction Associative Analysis

Managers have to be familiar with customer types and preferences. Shopping habits can be used to create new marketing strategies, increase customer dwelling time and return rate.

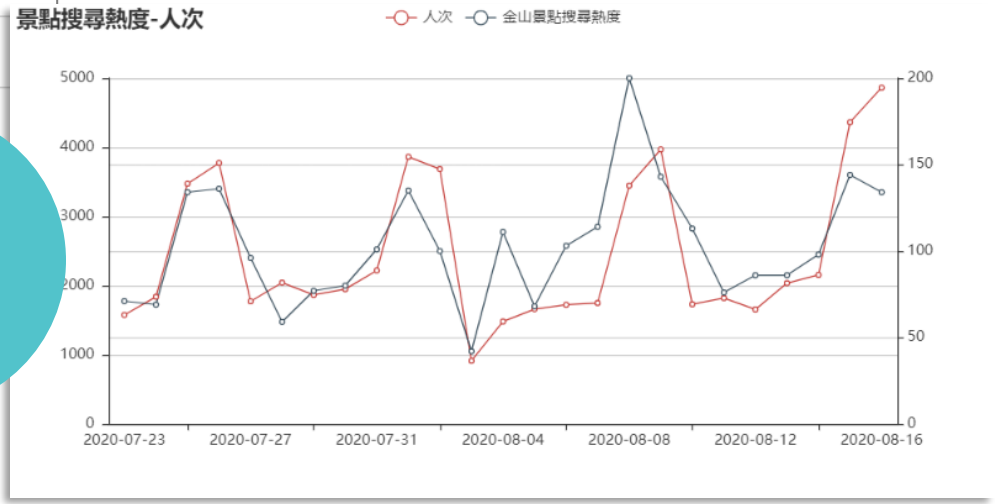
Through regular data analyzing and effectiveness tracking, managers will have clear understanding of target audience and pain point to direct them to suitable sales channels.



Flow Direction Associative Analysis



Google Trends



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Flow Direction Associative Analysis

Hotspot analysis

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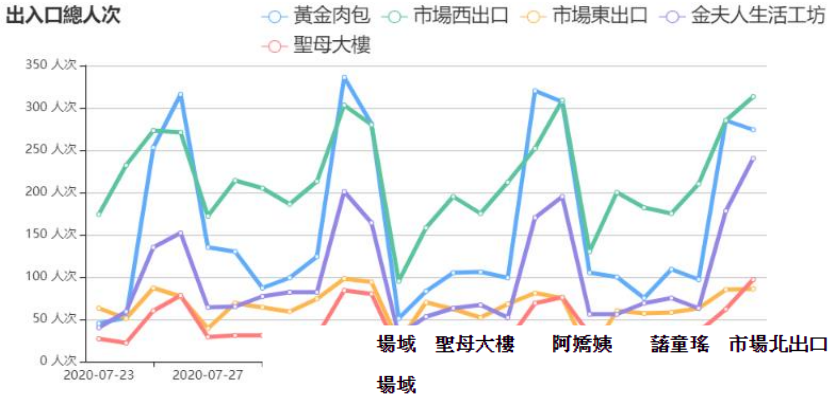
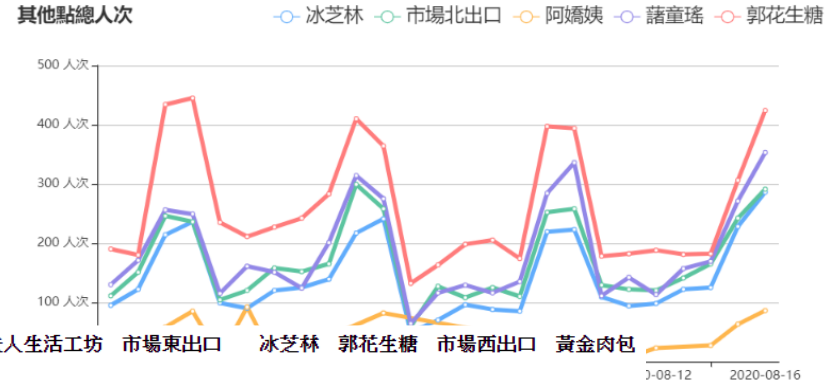
Flow Direction Associative Analysis





Correlation coefficient of each spot

場域	聖母大樓	阿嬌姨	藷童瑤	市場北出口	金夫人生活工坊	市場東出口	冰芝林	郭花生糖	市場西出口	黃金肉包
聖母大樓	1.000000	0.555291	0.931419	0.948753	0.975946	0.751963	0.965773	0.963711	0.870872	0.957194
阿嬌姨	0.555291	1.000000	0.519244	0.494730	0.503673	0.522116	0.494266	0.476067	0.533746	0.537667
藷童瑤	0.931419	0.519244	1.000000	0.974380	0.965998	0.813465	0.961113	0.957547	0.959313	0.938420
市場北出口	0.948753	0.494730	0.974380	1.000000	0.977272	0.805103	0.984252	0.962594	0.933771	0.935628
夫人生活工坊	0.975946	0.503673	0.965998	0.977272	1.000000	0.764219	0.983863	0.982599	0.918365	0.969124
市場東出口	0.751963	0.522116	0.813465	0.805103	0.764219	1.000000	0.770042	0.773183	0.827716	0.742533
冰芝林	0.965773	0.494266	0.961113	0.984252	0.983863	0.770042	1.000000	0.978737	0.906337	0.948193
郭花生糖	0.963711	0.476067	0.957547	0.962594	0.982599	0.773183	0.978737	1.000000	0.883940	0.956331
市場西出口	0.870872	0.533746	0.959313	0.933771	0.918365	0.827716	0.906337	0.883940	1.000000	0.884407
黃金肉包	0.957194	0.537667	0.938420	0.935628	0.969124	0.742533	0.948193	0.956331	0.884407	1.000000

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Moving Track Analysis

Wiside can track people flow and do people counting on entrances through wireless signal detecting modules. These data will be analyzed to generate moving track and visits report for improving indoor traffic flow and outdoor advertisement display.

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People Movement Analysis

Moving Track

start_point	聖母大樓	阿嬤姨	蕭童瑤	市場北出口	金夫人生活工坊	市場東出口	冰芝林	郭花生糖	市場西出口	黃金肉包
聖母大樓	0	285	460	39	37	82	21	41	317	39
阿嬤姨	257	0	270	24	24	15	11	5	12	5
蕭童瑤	356	266	0	1862	2136	419	829	700	429	490
市場北出口	26	9	1926	0	1991	870	2591	1084	744	553
金夫人生活工坊	81	43	2288	1707	0	516	616	385	216	244
市場東出口	67	13	429	770	641	0	239	144	1027	74
冰芝林	11	9	823	2764	618	202	0	1946	603	682
郭花生糖	7	1	741	1145	399	124	1846	0	2508	2953
市場西出口	251	4	410	838	267	1160	842	2008	0	1015
黃金肉包	70	10	563	718	296	88	856	2574	943	0

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People Movement Analysis

Entrance people ounting

路線	7 月人次	8 月人次	起點停留時間	終點停留時間
郭花生糖-黃金肉包	916	2037	12.8 分	8 分
冰芝林-市場北出口	827	1937	7.7 分	6.6 分
市場北出口-冰芝林	790	1801	8 分	6.1 分
黃金肉包-郭花生糖	830	1744	9.7 分	10.5 分
郭花生糖-市場西出口	853	1655	12.9 分	4.2 分

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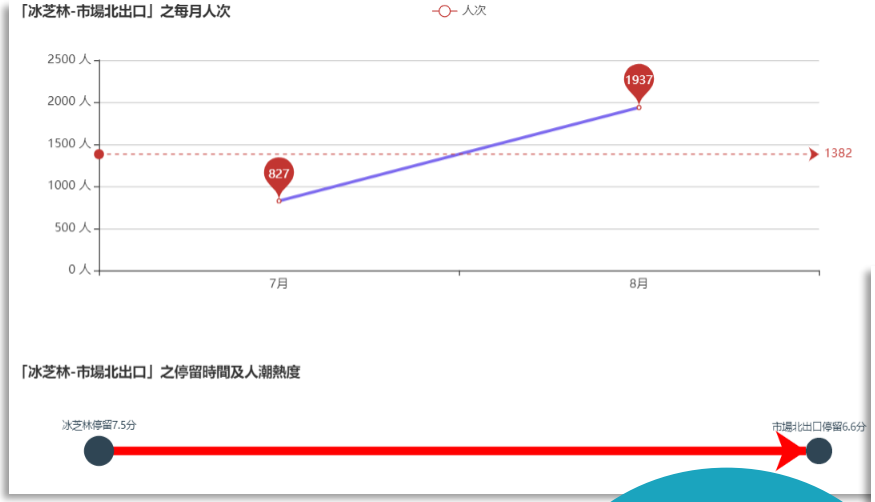
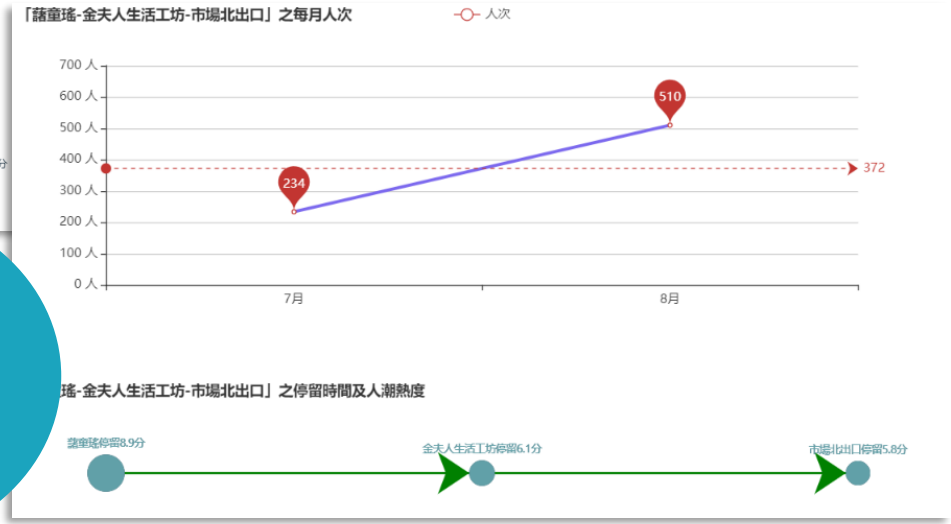
People Movement Analysis





Moving track & Dwelling time

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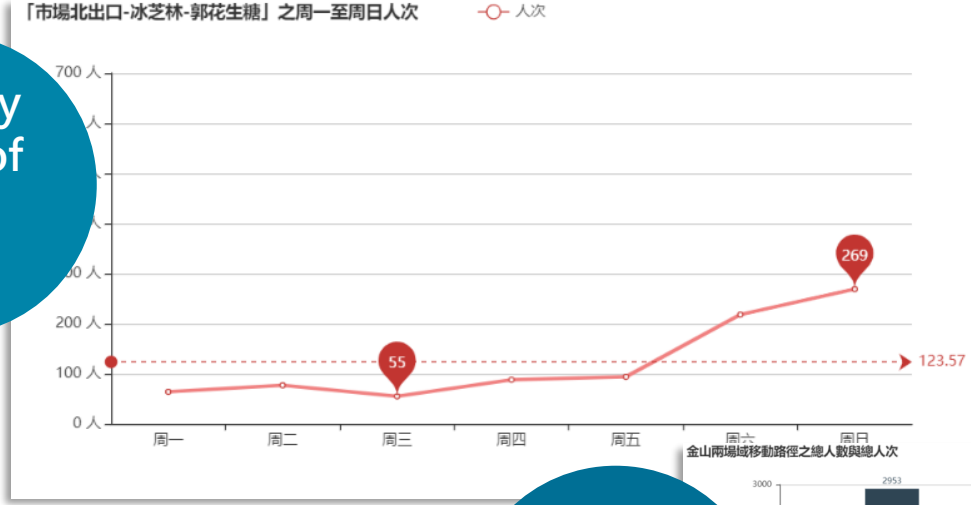
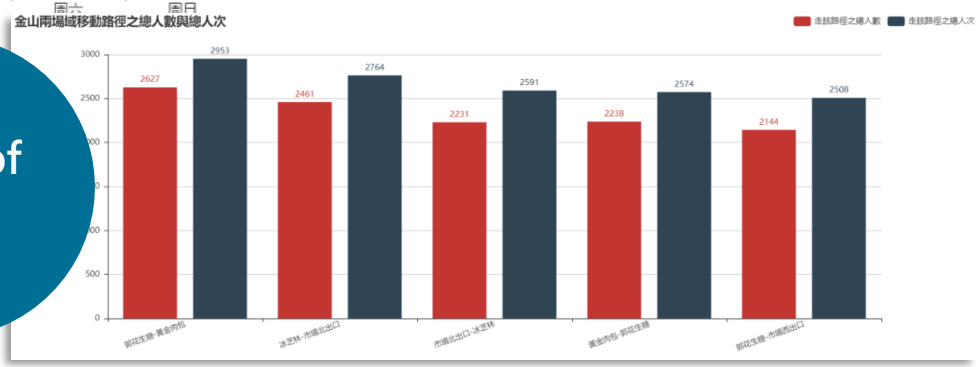
People Movement Analysis

Weekly visits of each track



Total visits of each track



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WISIDE Specification

Specs

Weight：200g
Dimensions ：L16 x W6.6 x H3.4 cm

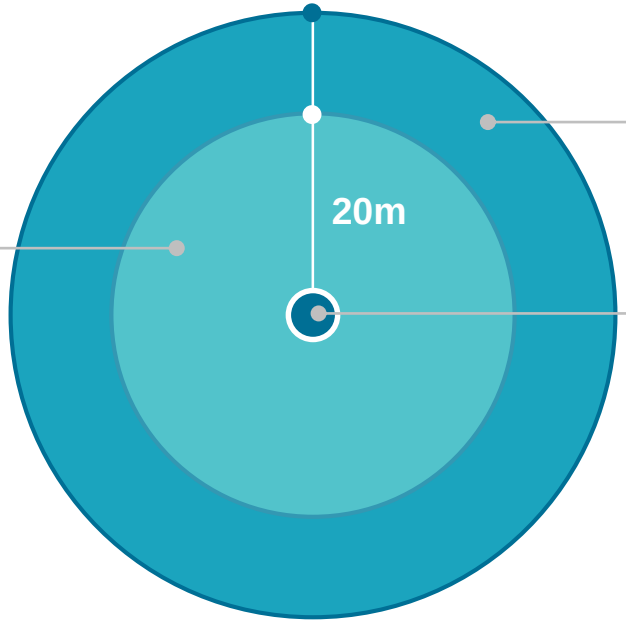
Installation Requirement

Voltage：100~240V, using USB Adapter
Network: WiFi is needed for data transmission

Origin of Components

- Main components：Taiwan
- Raspberry Pi：UK
- Appearance Design：TDSC

WISIDE Detecting Range



4G / 5G
Radius: at least 20 meter
but depends on the space

WiFi / Bluetooth
Radius: 15~25 meter

WiSide

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IoT Security Protection

SECPAAS 資安整合服務平台 Security Platform as a Service

sponsored by, Industrial Technology Research Institute (ITRI)

SecPaaS, Security Platform as a Service, built under the concept of secure design, development, manufacturing and testing, improves innovation motivation of security industry in Taiwan and expands global markets.

TDSC is approved as a partner of IoT security and WiSide is launched on SecPaaS.

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Competitive Products Analysis

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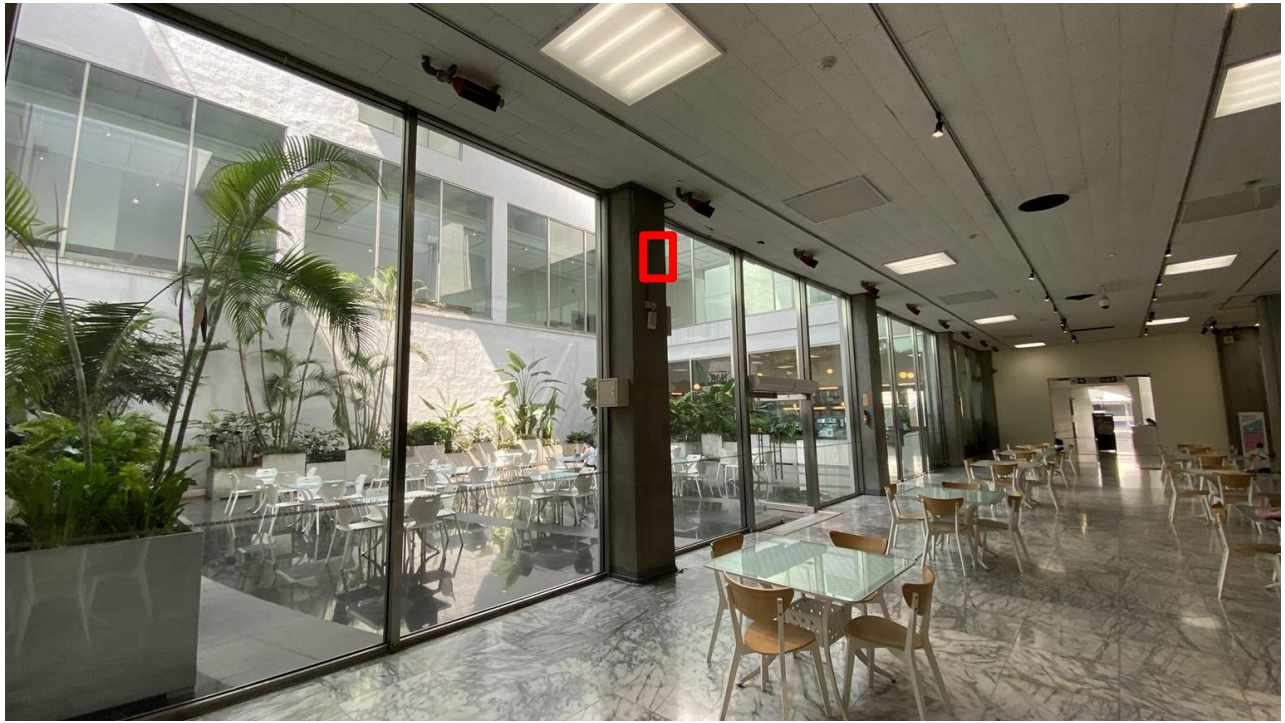
Real-time Support (data transmission, maintenance ...etc)	V	V	V	V	X
Detect signals in a passive way	V	X	V	X	V
Detect Bluetooth signals	V	X	X	V	X
Detect 4G/5G signals	V	X	X	X	X
Customized report	V	X	V	V	V
Information Security	V	X	V	V	X
Indoor Positioning	V	X	V	V	X

WISIDE Use Cases

Taipei Fine Arts Museum – dining area at Children's Art Education Center



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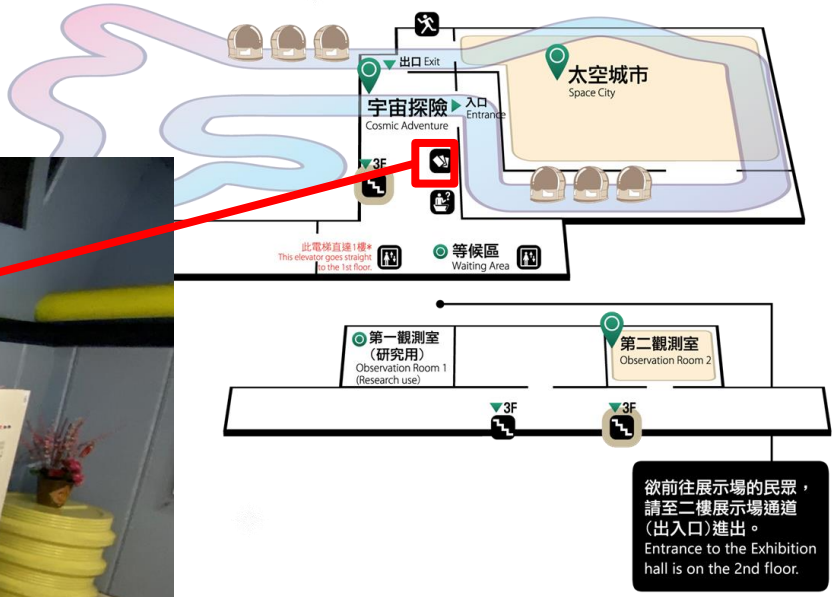
WISIDE Use Cases

Taipei Astronomical Museum – “Space Exploration” ticket office 4F



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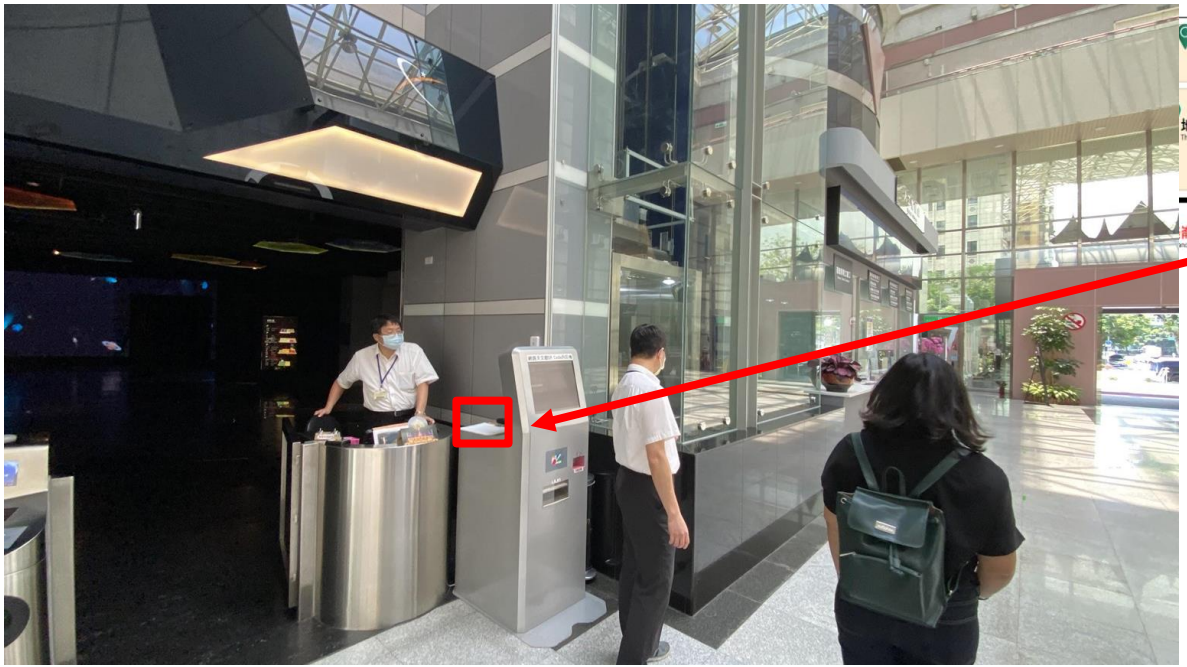
WISIDE Use Cases

Taipei Astronomical Museum – Entrance 1F



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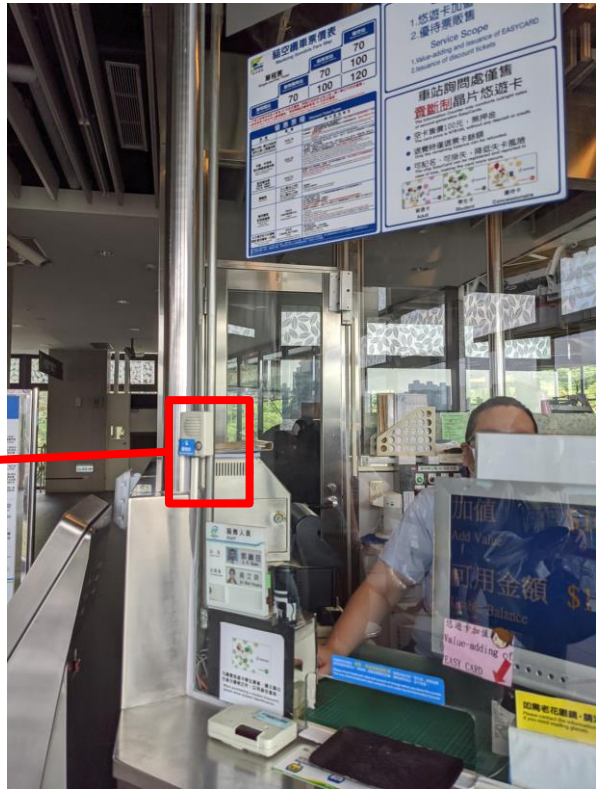
WISIDE Use Cases

Maokong Gondola – Information center at Taipei Zoo Station 4F



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The End

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