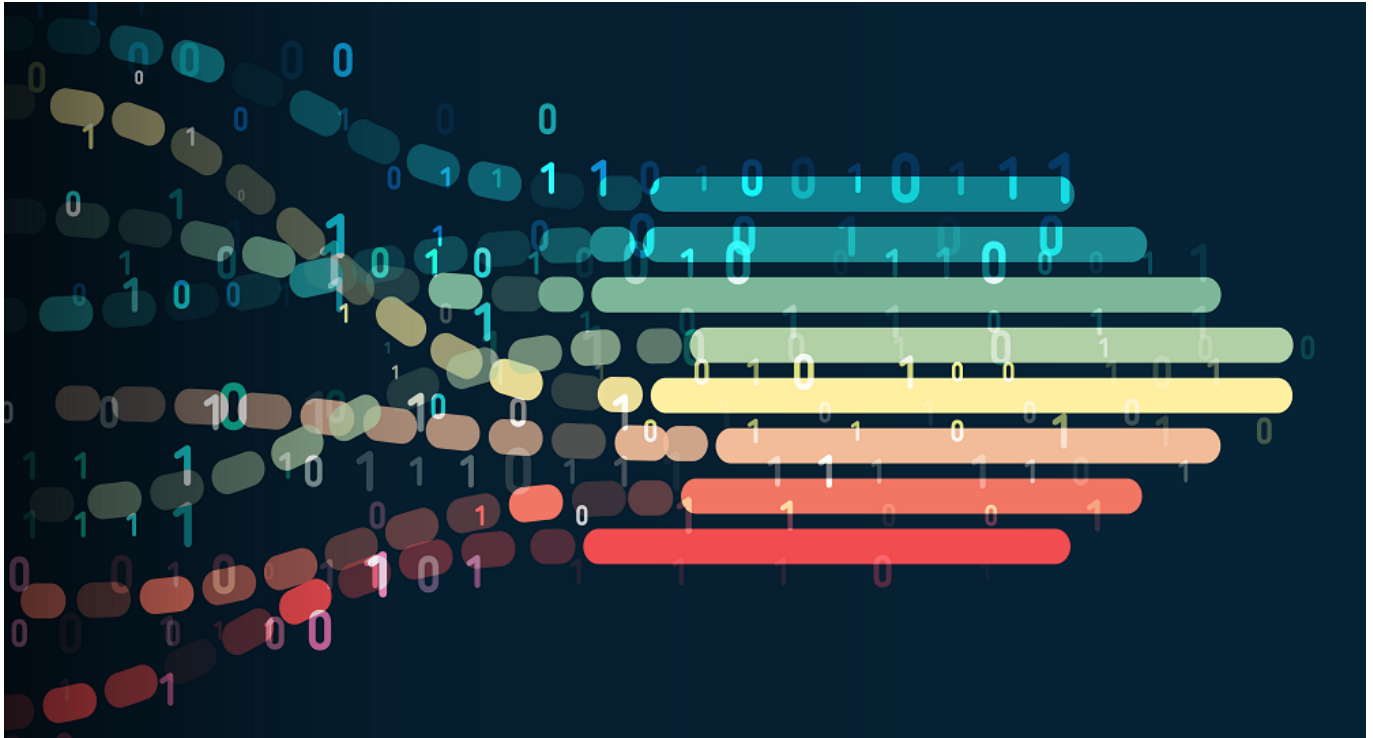**TECH OFFER**

Cloud-Based Video Analytics For Customer Engagement Analysis

KEY INFORMATION

TECHNOLOGY CATEGORY:

Infocomm - Artificial Intelligence

Infocomm - Big Data, Data Analytics, Data Mining & Data Visualisation

Infocomm - Video/Image Analysis & Computer Vision

TECHNOLOGY READINESS LEVEL (TRL): **TRL8**

COUNTRY: **HONG KONG**

ID NUMBER: **TO174736**

OVERVIEW

Leveraging on big data, businesses in the retail sector can increase their customer-centricity; by measuring customer engagement, footfall, dwell time, age and gender, businesses can gain data-driven insights into various metrics such as sales conversion rate and reveal the underlying relationship between sales, marketing, and in-store traffic. Such insights help to make sense of the reasons some retail stores outperform others and provide a valuable means of optimising marketing, product display and sales strategies. Understanding footfall data and queue times can also help to optimise staff allocation to avoid over or understaffing and enhance the overall customer experience (CX).

This solution is a plug-and-play cloud-based solution for retail analytics through human behaviour analysis. The platform works with any Internet Protocol (IP) enabled camera that supports Real-time Streaming Protocol (RTSP) and is able to perform footfall counting, dwell time measurement, and engagement count on video footage that are sent over the Internet to the cloud-based

platform, this allows it to readily provide an additional layer of intelligence on existing camera infrastructure and scales to the requirements of the deployment. It provides visualisation over a web dashboard, as downloadable executive reports, or through Application Programming Interfaces (APIs) to enable actionable business intelligence insights.

TECHNOLOGY FEATURES & SPECIFICATIONS

Traffic counting:

- Footfall - number of people entering a specific location
- Passerby - number of people that pass by but do not stop/enter a location
- Zone-based - number of people that enter a user-defined zone (from any direction)
- Engagement count - identifies a person entering a user-defined zone, and the number of people that enter and stay in that zone

Time and Emotion-based Human Behaviour Analytics:

- Dwell time - Shopper's staying/browsing time
- Queue time - Average time spent waiting in a queue
- Engagement time - Average walking speed (velocity), stopping time within a zone
- Emotion - Classifies human emotion as happy, sad, neutral, angry

Demographics:

- Age and gender - Deduced from clothing

Visualisations are presented in the form of an overlayed heat map which indicate the amount of time the customers are spending at different parts of the store - warmer colors refer to places where people linger and the cooler colored areas are the places where customers spend the least time at. Expected video resolution between 360p to 1080p (ideal), optimal operating distance between 15-20 metres, configurable via camera zoom (if available).

POTENTIAL APPLICATIONS

This technology can be deployed to understand shopper in various use-cases to :

- Retail shops, including pop-up carts
- Marketing signages
- Shopping malls
- Restaurants
- Supermarkets
- Airport lounges, boarding gates, luggage carousel
- Entertainment venus, clubhouses
- Events and exhibitions

Additionally, it enables the following applications:

1. Marketing and CX Strategy: Evaluate marketing effectiveness or visitor experience within a store
2. Operational Optimisation: Identify peak/non-peak hours, optimise manpower by allocating additional staff into high

demand areas, and receive real-time alerts for specific anomalous events

3. Leasing/Rental Calculation: Evaluate tenant mixture e.g. tenant ranking, with engagement counting, utilise footfall counting for tenant rent/leasing calculation or evaluation against past performance

UNIQUE VALUE PROPOSITION

- Cost-effective, low deployment footprint with plug-and-play analytics - leverages existing camera infrastructure; doesn't require additional hardware installation via cloud-based infrastructure
- Unconstrained to the type of camera (camera-agnostic); works on any RTSP-enabled camera
- Engagement measurement and footfall counting enable actionable business insights (providing insights on leasing, marketing, and operational efficiency improvement)
- Privacy-preserving - no facial recognition performed nor storage of facial data, complies with European Union GDPR

The technology owner is keen to out-license to retail stores, shopping mall owners, venue owners, event and exhibition organisers or collaborate with deep technology companies to test-bed, co-develop new products/services.