



PeopleTrack: Understanding Customer Journey

Whitepaper



AI Vision Technology

AI Vision is one of the most intriguing branches of Artificial Intelligence. With all of the many applications to be solutions in the real world, the purpose of AI Vision is to help businesses and services to observe and comprehend the surroundings to make decisions based on understanding of the insight.



AI Vision is a field that provides machines with a perception of sight. From the observation, the so-called platform will deliver valuable information using computer vision applications and algorithms. From the delivery process of information, there will be assets that can be used to gain knowledge from digital images, videos, and other visuals to help take actions, especially the technology which is used as a solution for businesses and retails to observe their customers with real-time people tracking device.

AI Vision for People Counting

There are plenty of ways you can use people tracking technology to enhance the customer experience alongside boosting sales especially in retails. In the past, only the most resource-rich retailers had the capability to use AI to monitor purchase trends and predict customer demand accurately.



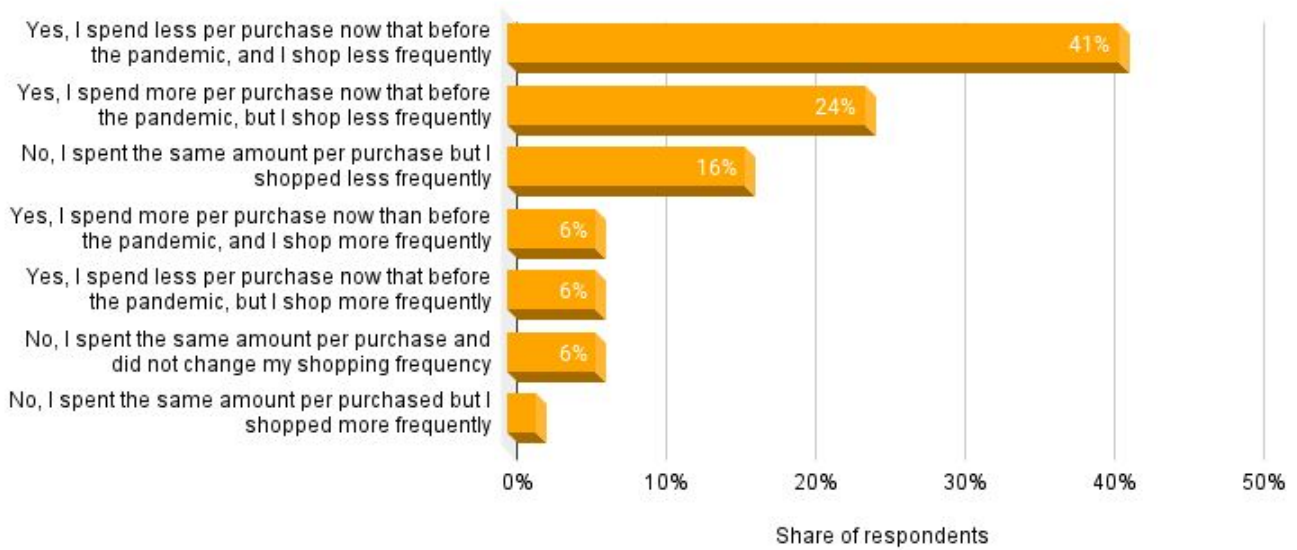
The need for extensive investment, technical expertise and specialized hardware were major barriers to entry for small retailers. However, the technology used to predict demand has evolved with the help of computer vision software.

There has not been a primary people counting process since the technology emergence of closed-circuit television (CCTV) that primarily focuses on security and service solutions in retail. Retailers are now using people counting technology through AI Vision by identifying people in the areas covered by their designated cameras. **It allows retailers to have deep understanding while continually learning and adapting to the needs of their customers that are constantly changing.**

Other than that, the use of people tracking technology also plays a significant role for the security and management of cities and facilities. It allows one to look for a quick and accurate estimation of the number of people in diverse imagery. This tool can be used to conduct real-time tracking of people counts and distributions in crowded places.

| The Impact of Covid-19

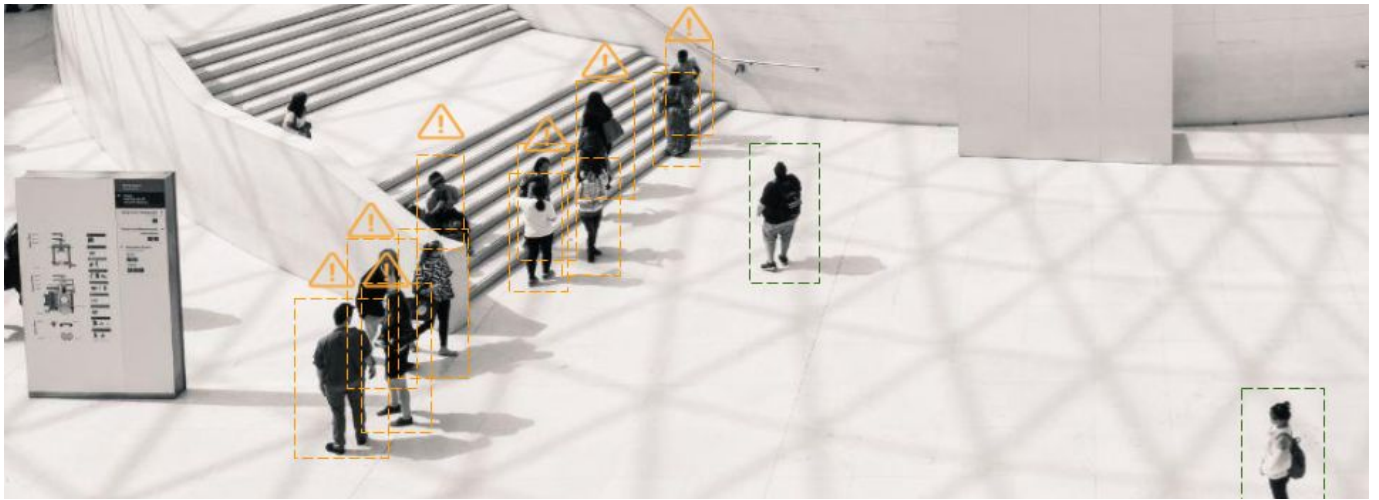
COVID-19 had caused many impacts on the retail industry. It did not only change conventional structure of the retails but also created a new structure where the industry is forced to take a continual action in response to the changes in consumer behavior. This adaptation later formed a new behavior pattern following the government's social distancing and contactless interactions.



Source: Statista

According to Rakuten Insight’s survey on 7,807 respondents aged 16 years and older shopping behavior in Malaysia, 41 percent of the respondents claimed that they have decreased their offline purchase in physical stores since COVID-19. Meanwhile, 24 percent of them expressed that whenever they went offline shopping, they have purchased less than before within a less time spent to go to a physical store.

For store operations, it is important to create a safe environment, not only for customers but also for employees, so they could avoid worries such as physical contact with other customers. Which is why, people counting technology is focused on space and facility optimization, mainly for occupancy monitoring, maximum capacity compliance, and customer locations in the retail space. It is also more convenient for retailers to provide efficient ways to help everyone abide by the safety regulations.



Cost-effective, Versatile & Flexible

AI Vision-powered people counting is beneficial compared to other technologies in terms of cost-effectiveness, versatility, and flexibility. Its implementation will lead into more advantages such as:



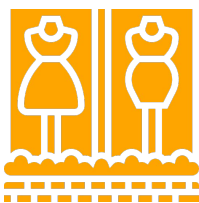
Measure overall
shopper footfall



Gain insights on
your shoppers



Optimise marketing
strategies



Improve storefront
marketing display



Optimize
leasing rates



Ensure safe
shopping spaces

Tapway PeopleTrack

Tapway PeopleTrack combines state-of-the-art sensors, software, and cloud to detect, track and count people. Furthermore, those data can be visualized on a dashboard to enable easy comprehension of metrics like people count, demographics, and behavior.

We specialize in integrating sensors with our software in order to not only display insightful data on people count, demographics and behavior, but also highly accurate data, with an accuracy of up to **99%***. These data can be filtered and aggregated as required to gain insight into trends, conversion rates, and projections.

PeopleTrack provides some advanced features such as catering for large open spaces and real-time use cases. We can leverage multiple sensors with stitched views to make people tracking in a vast area feasible. In addition, real-time queue counting can be achieved with highly configurable lines and zones to meet the requirements of any queue shapes.



*Dependent on various factors such as sensor calibration

How We Ensure Accuracy

There are some caveats when it comes to ensuring a high tracking and counting accuracy of up to 99%. Our methods to ensure a high accuracy include but are not limited to the following points:

- Surrounding lighting conditions
Having a well-lit area enables the sensor to be able to distinguish humans better. While some sensors have configurable image settings, it is best to have a sufficiently lit area to begin with.
- Calibration of sensors
Sensors typically require calibration on setup. However, there are times when the area under detection undergoes some changes, or that the sensors have shifted positions. These cases require re-calibration of the sensors to ensure the highest accuracy.
- Height of sensors and proximity between them
This factor is influenced by physical constraints like the interior design of the store. However, we work with given constraints to ensure an optimal sensor arrangement that enables achieving the highest possible accuracy.
- Understanding typical customer movement patterns
Detection that depends on movement into and out of a zone requires a good understanding of typical customer movement patterns. Nailing typical patterns of movement helps drawing out a zone that is true to those patterns. In the case of unpredictable movement patterns, we can adopt a custom logic.

| Use Cases

People Counting and Demographics

- What is my conversion rate?
- What is the footfall like on a given day?

Questions like these can be answered by people counting.

By incorporating metrics like customer walk-by, entry, and exit, our solution is able to provide not just the count, and gender distribution, but also the resulting conversion rate. This enables business owners to understand the impact of certain decisions such as placing a banner at the entrance to promote certain products.

Queue Time Optimization

This use case would typically be in stores that have multiple queue locations distributed within the same floor or even across multiple floors. Our solution is able to provide real-time information on floor layouts and the current people count in each queue. By knowing these data, customers are given the freedom to decide where to queue up based on current queue count and their distance from those queue locations. Ultimately, this will improve customer experience as their queue time decreases on average.

PeopleTrack gives opportunity for various use cases in buildings, shopping malls and retails. By supporting data-driven decision making, it leads to the optimization of the solution itself to the usage in business operations.



Marketing

- Unlock latent site potential
- Measure marketing effectiveness



Operations

- Unlock latent site potential
- Measure marketing effectiveness



Leasing

- Unlock latent site potential
- Measure marketing effectiveness

| About Tapway

Tapway leverages the power of AI Vision and Big Data technologies to transform the physical world through automation. The Company provides a platform to build, train, deploy and monitor AI Vision technology solutions in physical spaces to help businesses eliminate low-skilled manual labor, improve service quality & experience, and enhance safety and security.

| Tapway Solutions



PeopleTrack



VisionTrack



VehicleTrack

To learn more about our the power of AI Vision and Big Data technologies to deliver smart automation solutions that help eliminate repetitive manual labor, maximize efficiency, improve quality and grow revenue. contact us today.

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