INTELLO LABS

Fresh Produce Quality Improvement through Automated Monitoring in Dark Stores

CASE STUDY

One of the largest retail chains in India offers doorstep delivery of in-store fresh produce to customers through online orders. The store primarily wanted to achieve three objectives. One, sending the good quality to customers. Two, improve delivery quality. Three, increase customer satisfaction.

It also hoped to automate as much of the process as possible, thereby gaining more control of manpower costs. To that end, they asked the team at Intello Labs to automate tracking shelf quality of fruits and vegetables.

Dark Stores

Online order fulfilment happens through dark stores, i.e., stores not accessible to customers. For any online order received from a customer, a picking associate selects the appropriate items, weighs and packs them. These are then taken by delivery teams who handle the last-mile logistics.

Fruits and vegetables are maintained in loose (unpacked) form in the dark stores, and packing is done only before an order needs to be delivered. This provides flexibility to store teams to check and remove items closer to the final delivery, ensuring better quality control.

The trouble with manual quality checks

The status quo was to manually check shelf quality every hour, necessitating a dedicated store associate trained in assessing quality.

The process ate up time, with up to 4 hours per person consumed every day. Further, on days the concerned associate was on leave or holiday, quality monitoring came to a halt.

The manual process

- Identifies defective fruits and vegetables but is biased
- Suffers from inconsistency, fatigue, or inexperience, reducing efficiency
- Lacks visibility across categories and stores

The ease of automated quality monitoring

Since the retail stores fulfilled orders throughout the day, more frequent checks were as imperative as good quality. For this, Intello Labs deployed automated shelf monitoring.

We installed a fixed camera above each fruit and vegetable crate, connected to Intello Labs' cloud through broadband internet. Images were scheduled for automatic capture every hour.

The AI-based procedure

- Is automated and free of human-bias
- Sends alerts continuously to store associates with images highlighting defects
- Automatically retakes images to validate and report quality increase

The system automatically analysed the images, further diminishing the burden on store associates. Their sole job was to respond to alerts sent through a mobile app and remove the defective items.

> *The demand on our workforce reduced drastically with the automated monitoring setup. We weren't wasting time on monitoring. All we had to do is check our phones and take action. We could also keep an eye on quality throughout the day. That helped us improve the overall shelf and delivery quality.*
>
> ***- City Lead***

A pay-off of better quality & happier customers

Implementing Intello Shelf Monitoring in the retail stores had a profound impact on shelf and customer level quality. The former leapfrogged from around 90% to 97% 'good quality.' It also removed the dependency on manual checks as the process did not require trained quality experts. Additionally, multiple store team members could use the app to take recommended actions.

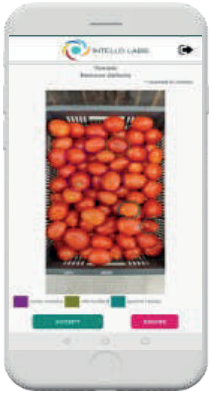
The impact

- Shelf quality jumped by 4% in 1 week
- After 4 weeks, shelf quality remained above 97%, consistently
- Customer level quality improved upwards of 6% in a week

Lastly, the system provided insights on quality losses enabling the attribution of issues to procurement, picking effectiveness and delivery. This empowered focused improvement initiatives ranging from superior sourcing to better shelf placement practices to audits on packing compliance. As a result of these interventions, customer complaints and returns reduced by more than 25%.

Simple workflow

Store team clicks images at regular Intervals or automated image capture through camera



AI based algorithms process image to give recommendations for display

Data is collated and presented as quality dashboards and calls-to-action