



WasteVision AI: Enabling Smart Waste Management with floLIVE IoT Connectivity

CASE STUDY



One of the great promises of the Internet of Things (IoT) is the ability to connect ordinary things to construct an intelligent system that can create efficiencies, support sustainability, and reduce costs. WasteVision AI takes sensors and cameras and turns waste management into a digitally enhanced smart application.



The Background

WasteVision AI is a leading provider of smart waste management solutions, including on-truck cameras enabled with artificial intelligence (AI) to identify contamination and overflows during pick-up.

With WasteVision AI, garbage collection trucks are equipped with their high-definition cameras, which use an AI and machine learning (ML) model to look at pictures of garbage as its picked up. Particularly with recycling trucks, the model can pick up details such as whether a plastic bag was recycled, thus creating contamination.

Contamination in a recycling truck is detrimental for several reasons:

- **Decreased Recyclability**

Contaminated materials can render entire loads of recyclables unsuitable for processing. If non-recyclable materials are mixed with recyclables, it can be difficult or impossible to separate them, leading to the rejection of the whole batch.

- **Increased Costs**

Contamination increases the cost of recycling. Facilities must invest in additional sorting processes and machinery to attempt to separate the contaminants from the recyclable materials. If the contamination is severe, the load might need to be sent to a landfill, incurring additional disposal costs.

- **Equipment Damage**

Contaminants can damage the machinery at recycling facilities. Items like plastic bags, which are not recyclable in curbside bins, can get tangled in the equipment, causing downtime and requiring repairs.

- **Lower Quality of Recycled Materials**

Contamination can degrade the quality of the end product. For instance, food residue on paper and cardboard can compromise the strength and usability of the recycled paper products. This can reduce the marketability and value of the recycled materials.

- **Regulatory Compliance**

Many regions have strict guidelines for recycling contamination levels. High contamination rates can lead to fines and penalties for waste management companies and municipalities, as well as loss of contracts with recycling processors.

WasteVision AI also offers applications of IoT that do not leverage AI – most extensively in detecting how full a waste disposal unit is. For example, a restaurant leveraging an outdoor waste disposal unit can leverage a WasteVision AI that uses a radar sensor. This beam can be programmed with a customizable frequency – whether that is every hour or several times a day – to detect how full the bin is.

Routes can be programmed in advance based on what bins need emptying, which helps optimize service and reduce wasting time and resources visiting bins that are not yet ready to be emptied.

The same holds true for smaller trashcans leveraged on university campuses, business parks, and more, where personnel can be decided based on how many trashcans need to be emptied on any particular day.

These solutions all carry the benefits of efficiency, optimization, and cost containment, but also sustainability. With recycling, more loads picked up without contamination can be properly recycled and not thrown in with ordinary trash. With smart management of routes for regular garbage pick up, trucks run less, reducing overall carbon footprint.

Additionally, WasteVision AI is seeing significant growth in providing its solutions outside of solid waste within the restaurant sector, which is the disposal of cooking oil. Cooking oil is disposed of daily and collected in large tanks. Once enough oil is collected, the restaurants will sell the cooking oil to companies who turn it into renewable fuel.

Because these tanks are opaque, there is no truly accurate way of knowing when the tanks are full. Just like with the trash bins, collection trucks will come by, and sometimes, tanks will be full or empty. With WasteVision AI devices monitoring levels, this allows for dynamic route planning based on how much oil is in tanks and which ones need collecting. This can save the

companies significant costs on collecting and help optimize a sustainable initiative in renewable fuel.

Small sensors can have powerful applications and building entire smart systems, including waste management. It's the power of IoT to help drive significant, measurable impacts, but it all hinges on the best IoT connectivity.

Business Impact of floLIVE

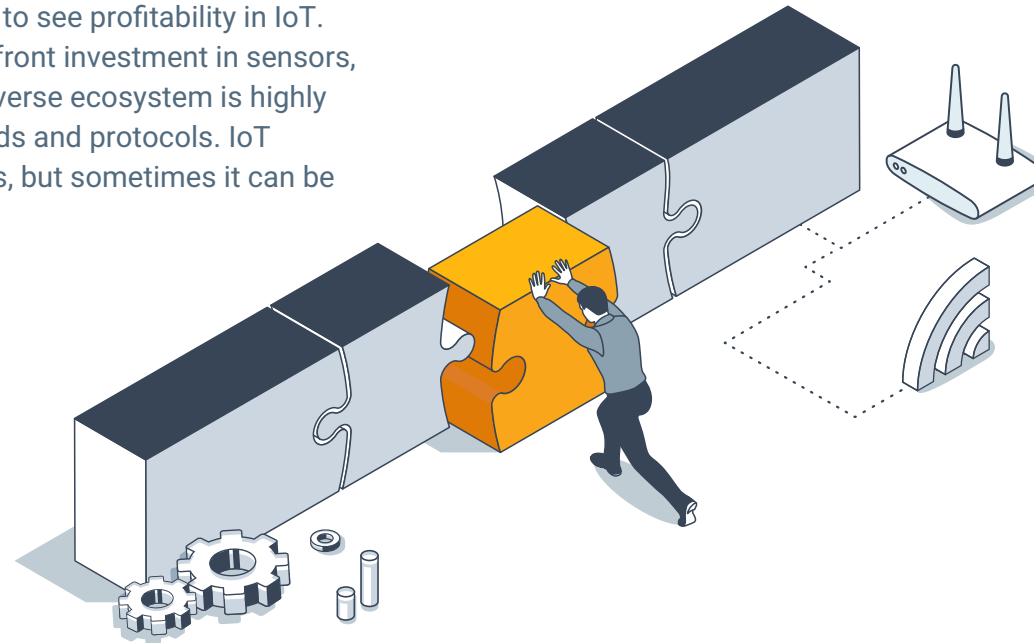
- **Network Coverage:** By leveraging an IoT connectivity provider with its own technology stack and strong partnerships with mobile network operators, WasteVision AI has access to the best and broadest network coverage in their service area.
- **SIM Flexibility:** WasteVision AI currently uses a single SIM solution with floLIVE but has the opportunity to expand into multi-profile SIMs, whether that is eSIM (eUICC), Multi-IMSI, or a combination of eUICC over Multi-IMSI in the future as the company expands.
- **Easy Management:** With a single, unified platform, WasteVision AI has visibility into and control of each active SIM.

The Challenge

The balance between coverage, cost, and reliability can be a hard balance to strike in IoT. Deployment and management of solutions require technical skills and dedicated resources while building connectivity into solution design adds many hurdles. The cost of IoT connectivity can fluctuate greatly, and adding video capabilities into solutions can run up costs quickly.


Overall, many enterprises leveraging IoT need help to see profitability in IoT. Implementing IoT systems requires substantial upfront investment in sensors, devices, connectivity, and infrastructure, while a diverse ecosystem is highly fragmented with a wide variety of devices, standards and protocols. IoT connectivity should be a simple aspect of solutions, but sometimes it can be the most challenging.


When devices are on the move and leveraging large data packets—like in video solutions—or are geographically dispersed or located in difficult-to-reach areas, the situation becomes even more complex. For the best pricing structure, coverage, and simplicity, WasteVision AI turned to floLIVE.





The Results


For WasteVision AI, floLIVE's suite of solutions and services means they have the visibility, control, flexibility, and coverage needed to deliver success and reliability in their waste management solutions. Overall benefits include:


 **Reach**
floLIVE's direct integrations with mobile network operators provide the greatest coverage so devices remain always connected.

 **Control**
Beyond visibility, WasteVision AI manages billing, usage, device activation, provisioning, and suspension through floLIVE's CMP.

 **Pay-as-You-Go Model**
floLIVE only charges for active SIMs, making it easy for WasteVision AI to scale its business without upfront costs.

 **Transparency and Support**
floLIVE's platform offers WasteVision AI a comprehensive view of all customer accounts and network events, significantly reducing incident rates and enhancing the end-user experience.

 **Visibility**
By utilizing floLIVE's single, cloud-based connectivity management platform, WasteVision AI gains detailed insight into their customers' connected devices.

 **Scalability**
With multi-profile SIM choices and a robust global library of IMSIs, WasteVision AI can scale within the country and even the globe with ease.

floLIVE also provides a widely available and resilient network for connectivity that works anywhere – whether that is in a device moving with a waste management truck or underground monitoring volume levels.

About WasteVision AI

As a leading player in the waste management industry, WasteVision AI is committed to delivering value by leveraging on-truck camera systems with its cutting-edge AI technology. At our core, we aim to contribute to reducing our carbon footprint by mitigating contamination and promoting sustainability. Our extensive tech experience can directly translate into value for your company as we address bin overflows and pick-up verification thereby enhancing operational efficiency and thus a tangible return on investment. These innovative technologies help us optimize waste collection and disposal, ensuring greater efficiency, safety, and environmental sustainability.

About floLIVE

floLIVE designed and developed an elastic, robust core cellular infrastructure that is the largest connectivity infrastructure in the world. Through this powerful infrastructure, the company offers numerous services to mobile operators, IoT MVNOs and Global Enterprises seeking seamless, compliant, high performance and regulatory compliant connectivity, anywhere in the world.

With a global carrier library that is based on interconnected local core mobile networks, floLIVE ensures low latency, high performance, and full compliance with privacy acts, data regulations, and roaming restrictions. As of today, more than 20 mobile operators are on board the platform, giving companies multi-tier connectivity access.

Through direct access to our network, customers can monitor their devices, access real-time network events and usage, switch operators remotely, and troubleshoot failures ahead of time, providing a seamless experience that keeps devices connected at all times. Through one integration, one SKU and one platform, customers have a world of connectivity and endless possibilities.



Let's connect

Get in touch to discuss how we can meet your IoT requirements. We're sure to surprise you.

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