



E3 Edge Processing

The Los Angeles Department of Sanitation wanted to upgrade its sanitation fleet to support artificial intelligence processes that could improve departmental performance. Their immediate desire was to reduce the operational costs, however, they realized that with the proper system in place, this same system that supports the needs of the Department of Sanitation could also be used to provide important operational data to other city departments.

Organization's are driven by policies that change over time. For an AI system to successfully be deployed in support of a city, the AI processes have to be modularized so they can be updated, expanded, or reduced as policy changes evolve over time. In support of the City of Los Angeles, i3 Systems has developed an edge processing system that is able to remotely support a wide range of i3 device wrappers coupled with a modularized architecture that supports plug-in AI processing modules created by independent developers (or self-developed by the City of Los Angeles). The system can be deployed at a remote location or it can be installed on a mobile vehicle such as a city truck. The long-term vision is that a vehicle equipped with this technology will be able to gather operational data on a plethora of city services and the i3 core information fabric can be used to deliver the information to various city departments (or external city service partners). From a smart city perspective, this technology serves to transform a city from a position where cities reactively support their citizens to one where they can truly be proactive in supporting city services.

i3 Systems, working with the larger i3 Consortium community, stepped in to work with the City of Los Angeles to unpack the requirements that would be needed to enable the technology to fit into the city's operational environment. While some systems require organizational or policy changes to support a new technology, i3 Systems accepted the challenge to design a solution that understood existing organizational structures and avoided putting undue burdens on existing staff.

While the solution is based on the i3 core information fabric, an important component of the solution called for the use of a mobile edge processing system that would support AI-enhanced i3 wrapper functionality. The modularized AI framework allows adaptable vision analytics to control these local wrappers.



A key aspect of the project is that the system needs to support a variety of different kinds of data including video. A series of truck-mounted video cameras generate live video streams that can be analyzed with image analytics to identify potential service issues.

I3 Systems has been working with the University of Southern California (USC)'s Viterbi School of Engineering to create AI blades that recognize various city service issues that might warrant increased attention by the city.

When i3's edge processing system is used by other cities, these other cities are free to use private and academic AI talent to focus their mobile information collection systems to collect information relevant to their specific city's needs. And, as city operational priorities change, these software blades can be changed to focus on new priorities without forcing the city to undergo an expensive update process