

AIPHONE SOLUTION SHOWCASE

Adding Security and Communication to a Highway Toll Facility



THE SCENARIO

A highway toll facility consists of toll booths and a toll office, with the toll booths positioned along the toll road and the toll office situated either adjacent to or at some distance from the booths. In a certain highway toll facility at an interchange, a video intercom system, a paging system, and a surveillance camera system were in operation. The video intercom system was utilized to verify visitors to the toll facility, the paging system facilitated communication from the toll office to the exterior of the toll booths, and the surveillance camera system monitored an underground passage designed for toll booths access. The lack of communication methods between the toll office and the toll booths prompted the facility administrator to consider installing new equipment, specifically to ensure clear communication during noisy traffic situations. Additionally, the exterior paging system fell short in providing audible communication within the booths due to high traffic noise.

Each existing system operated independently with analog equipment. Due to the lack of interconnectivity between the facilities and the independent operating procedures, toll staff had to provide training for new personnel on the operation of all facilities. As a consequence, dissatisfaction grew among the staff. Moreover, some systems had been in operation for over 10 years and were showing signs of malfunctions, leading to increased maintenance costs. It was evident that the time had come to consider replacing the equipment.

The facility administrator of the highway toll facility selected an IP video intercom system that can integrate the paging and surveillance camera facilities.

THE SOLUTION

The facility administrator decided to adopt the IP video intercom system to enhance communication between the toll office and the toll booths, utilizing the intercom's internal communication function. The built-in handset on the master station provided clear communication even in noisy conditions. Visitor confirmation was achieved using the IP video door station and the IP intercom master station in the toll office, providing a clear image.

Simultaneously, upgrades were made to the paging and surveillance camera systems, and all equipment was interconnected by selecting IP-compatible devices. Through the integration of IP video intercom and IP surveillance cameras, images of visitors seen on the video intercom and surveillance camera footage were recorded using a network video recorder (NVR). Moreover, the integration of the IP video intercom system and paging speakers enabled emergency announcement from the intercom master station at the toll office to interior and exterior of the booths. Consolidating independent systems through IP integration not only simplified operations but also improved overall system efficiency, effectively addressing the previous complexities. Additionally, the elimination of wiring constraints resulted in a reduction in installation costs.



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Toll Office



The staff between office and booth could clearly communicate each other through the built-in handset on the master station.

Toll Booth



THE BENEFITS

- A user-friendly video intercom system provided simple operation to verify visitors and internal communicate between the toll office and toll booths
- Clear communication was achieved even in noisy conditions by integrating a handset with the intercom master station
- Integrating video intercom, paging speakers, surveillance cameras, and NVR resulted in more efficiency and satisfaction
- The installation cost was affected by the elimination of wiring constraints and due to IP devices

Toll Booth Outside



System configuration Example

