HONEYWELL HELPS TRAINS RUN AND PEOPLE SOAR

Honeywell's integrated technology solutions contribute to make Delhi Airport Metro Express into a world-class metro express link.

Case Study

As one of the busiest metro services in India, the Delhi Airport Metro Express Link required a solution that would ensure a reliable, secure and comfortable experience for all passengers. Honeywell's Station Management and Access Control System not only enhanced passenger experience but also streamlined process and operations.

Honeywell

THE CUSTOMER

The 23 kilometer Delhi Airport Metro Express line* is one of the busiest in India, linking the New Delhi Railway Station with Indira Gandhi International Airport.

More than 20,000 passengers per day travel through its six underground and elevated stations thanks in part to an innovative check-in system.

THE CHALLENGE

Honeywell was brought on board to implement the station management system (SMS) and access control system (ACS) across numerous facilities. The SMS would need to be integrated with key systems at each station, including electrical, electronic and electro-mechanical systems, signaling, baggage handling, and fire systems.

The Metro Express link also needed Honeywell to provide a unified platform for its Operation Control Center (OCC), which acts as a master supervisory monitoring system for all available station facilities and networked buildings.

THE SOLUTION

The competition was tough, but Honeywell secured the contract based on a proven record integrating complex systems. In particular, Honeywell Enterprise Building Integrator (EBI) proved to be a key consideration, given its ability to integrate virtually any industry-standard protocol (such as OLE Process Control, BACnet, and Modbus) over a single supervisory control and data acquisition (SCADA) system.

Using this intelligent platform, Honeywell integrated the full metro link system into the OCC oversight platform, as well as the station management and access control systems.

The OCC solution provides a direct interface to the metro link's SAP system, and also tracks energy use for all six stations. The SMS is also connected to SAP using a "computerized maintenance management system" (CMMS) to provide data and reporting on maintenance. This integration enables the metro link to enter and track equipment data for scheduling preventive maintenance or shutdowns at optimal times with the least disruption to travelers.

* Delhi Airport Metro Express Pvt. Limited (DAMEL) operates the Delhi Airport Metro Express link, which runs from to Dwarka Sector-21, through the IGI Airport.

STATION MANAGEMENT SYSTEM AND OPERATION CONTROL CENTRE

- Provide data through the client's SAP and for maintenance using Computerized Maintenance Management System (CMMS)

- Implement customized reports and ACS graphics based on client specifications

- Develop extensive graphics to assist smooth operations

- Control operation of all tunnel supply fans, ventilation fans and other devices using the Tunnel Ventilation System (TVS), which is directly related to efficient train operation and tunnel ventilation

- The SMS also interfaces with signaling, coordinating all operational data for trains and baggage handling

- Implement Enterprise Buildings Integrator (EBI) for centralised control through OCC with negligible data loss and maximum reliability and availability

- Present historical data in graphical and text formats for all environment control system and auxiliary sub-station data

  - Trends for chiller temperatures and flow meters

  - Trends for AHU supply, return temperatures and space temperatures

  - Trends for ASS breaker data (power and energy use)

  - Calculation and trend analysis of total energy consumption for each station

- Reduces labor requirements through monitoring of services from one location

- Integrate diverse third-party systems using multiple protocols:

  - Tunnel ventilation system (TVS): OPC protocol

  - Signaling data: TCP-IP protocol

  - Baggage handling: TCP-IP protocol

  - Platform screen door: Modbus RS485 protocol

  - Escalators: Modbus RS485 protocol

  - Power supply traction: OPC protocol

  - Elevators: hardwired

  - Communications: hardwired and via OFC network

THE INSTALLATION

The Honeywell solution includes equipment and subsystems such as:

INSTALLATION	PURPOSE
SCADA	**Supervisory Control and Data Acquisition (SCADA) computer systems are used for:** Gathering and analyzing real time data. Trends of energy consumption at stations, temperature trend analysis for effective HVAC system. Ability to monitor and control both a plant or equipment in metro stations. Monitoring and controlling of various HVAC devices like air handling units, fresh air fans, smoke extraction fans etc. in metro stations, airports and office buildings.
BS RIO and SIL-2 PLCs	BS RIO and SIL-2 PLCs were installed for life safety and other field system integration and control. SIL-2 PLC's systems control and monitor the smoke extraction fans, fire alarm system, staircase pressurization fans and emergency backup systems at various stations. Building Services RIO control and monitor plumbing, sump, lifts, escalators, platform screen doors, fire fighting systems, ASS etc.
Access Control System	All access control systems were installed by Honeywell through the Tema server for safety and to ensure system security.
Servers	Two servers were installed that acted as SMS for monitoring of services installed in the respective buildings and stations.
Distributed System Architecture (DSA) licenses	DSA licenses were issued for effective communication between all SMS Servers.
EBI Servers	EBI machines provided on Windows platform with Redundant Array of Independent Disk (RAID) with 5 configurations for maximum reliability and availability.
HVAC Controls	HVAC controls were provided for field devices to control energy consumption.
EBI Scripting	EBI scripting and database were customized in a client-defined format. Customized scripts provided enhanced animation features for equipment in the EBI system to meet client's reqiurements for operation.

THE
FUTURE
IS
WHAT
WE
MAKE IT

Honeywell