Excellence through Integration

Tata Medical Centre, a big name in Cancer-Research facilities in India, had bigger and complex management requirements from safety and security to administration. With the adoption of IBMS technology which integrates different systems, Honeywell not only provided a comfortable and secure facility, but delivered a single solution to meet futuristic management needs.
The Customer

The core mission of Tata Medical Centre (TMC), a philanthropic initiative from the House of Tata Group located at Kolkata (West Bengal), is to promote prevention, early diagnosis, treatment, rehabilitation and palliation and research for cancer patients. Needless to say, the safety, security and comfort of its patients and caregivers become top priorities. India’s best known Cancer Hospital and Research Centre, TMC (Kolkata) was established in the year 2005. The Centre sought to create a best-in-class facility which was efficient and secure.

In a competitive bid, the contract was won by Honeywell Building Solutions in July, 2009. With TMC’s vision in mind and their confidence in Honeywell Building Solutions (HBS) expertise, the project was launched in October, 2009. While maintaining business standards and quality, Honeywell delivered the project well within a stiff deadline in May 2011.

The Challenge

The system had to be designed and integrated from scratch. The customer demanded a Building Management System (BMS) from HBS, to turn their facility into a world-class centre of excellence. TMC is setup in 13 acres of land, with the main hospital having a capacity of 167 beds. The scope of this mammoth project was widened by the fact that several other buildings are built on carefully landscaped grounds, making integration of different security systems with the main BMS all the more complex. Another requirement of the customer was a Surgeon’s Panel Solution (SPS) for their operation theatres.

The major challenge of laying 130kms of cable and installation of systems like fire alarm, access, closed circuit television (CCTV) and Public Address (PA), was overcome in a timely manner through a planned approach.

The Solution

HBS was the only integrator for the entire project. The project involved the use of 100 cameras, 1400 smoke detectors, 3 fire alarm panels, 500 data points, 700 speakers and temperature humidity control for the full facility.

A touch screen PC provided the solution for customer’s demand of a Surgeon’s Panel. With the help of this PC, a surgeon can easily control and monitor temperature, humidity and gas levels in the operation theatre. The surgeons panel was further integrated with EBI, BMS and field devices like low pressure transmitter, occupancy sensor, room temperature sensor to control pressure, temperature and air flow along with sequential operation of fumigation/de-fumigation by utilizing tools and logics of Honeywell’s Comfort point programming software.

Features

- Seamless Integration with Honeywell BMS and EBI
- Real Time Data update (rate of 6 secs)
- Fully customizable with multiple customized displays
- Plug and Play by design
- Running EBI Client
Life Safety System
Comprised of fire detection and alarm system of XLS1000 series with below components:
1. Fire alarm panel (2): XLS1000;
2. Repeater panel (1): XLSLCDAN;
3. Smoke detectors (Around 1300): XLS-PS;
4. Heat detectors (20): XLS-HRS;
6. Control relay modules (87): SIGA-CR;
7. Hooter with strobe (53): XLSG1RHDVM and
8. Response indicators (220): SIGA-LED;

The fire alarm system had 2 panels, one in the main hospital for the whole block and other in the service block covering service, academic and admin block and power block. The panels get connected to each other via optical fiber cable. Fire alarm system covers the whole hospital with distribution of smoke and heat detectors as per the customers requirement.

Fire alarm system also hooks up with Access control system, HVAC and Public address systems there-by providing the necessary tripping of these in the event of a fire condition.

Security System – Closed Circuit Television
The CCTV system was designed as per the requirement to cover all strategic locations inside the various blocks of the building. It is a combination of analog cameras with IP based video encoders and Honeywell’s Digital Video Manager as the front end monitoring and control software. The various components of CCTV are as below:
1. Fixed dome color indoor camera (30):
   HDC 690P-36;
2. Vary focal lens color indoor camera (36):
   HD3DX;
4. 4 channel video encoder (15): AXIS 241Q blade with 291 U rack;
5. DVM Data base server (1);
6. DVM Camera server (4);
7. DVM Client work station (1);
8. Network attached storage (1) of 4TB storage for recording clips;

Security System – Access Control System
The access control comprised of TCP/IP based main controllers and door modules for each access door having proximity reader for entry and push buttons for exit. At two of the locations, biometric fingerprint readers were called for entry. The details of components used are as below:
1. Access controller 12 channel (12 door controller) (6): TSAC01;
2. Access controller 16 channel (16 door controller) (8): TS2;
3. Door module (142): RTUA08;
4. Proximity reader (140): HID 6005B;
5. Exit push button (138);

In addition to these, 28 access door holders were installed in corridor areas (door without access control) which get released in case of a fire condition. The graphic user interface was along with BMS work station at the main telecom room.

Public Address System
The public address system at Tata medical is a digital TCP/IP controller based system having following sub components:
1. Six watts indoor ceiling mount speakers (300):
   Bosch LBC3090;
2. Outdoor horn speaker for car park (9):
   LBC 3470;
3. Zone amplifiers – two channel and four channel (8);
4. Call station (3):
   LBB 4430;
5. Wall mounted hand set station (10):
   LBD8921;
6. Network controller (1):
   PRS NCO B;
7. Volume control (17):
   LBC 1400;

At Tata medical, each floor is a single zone (there are in total 21 zones) with call station located at three places – one each at reception in ground floor of both wings of main hospital block and other one at main telecom room in the service block. In addition to the zone based PA system, main hospital block has two way talk back system at each of its five floors.

Building Management System
The Building Management System consists of 25 direct digital controllers which covers 35 air handling units, four chillers including primary and secondary pumps monitoring. In addition to HVAC, BMS interfaces with energy meters of electrical sub-systems for monitoring of real time energy consumption data. Additionally, we provided eight surgeon’s panel for Operation Theaters.

Network: In order to facilitate network interconnectivity of each of our IBMS systems, we delivered a combination of four layer two network switches in each of the blocks connected in a ring topology over fiber back bone.
Key Benefits

Honeywell Building Solutions helped Tata Medical Center in achieving its vision of a top-notch facility with best in class products, synchronised well within themselves that made the facility more comfortable, safe and energy efficient. Impressed with Honeywell Building Solutions project delivery capability, Tata Medical Center also awarded the Operations Contract to the Honeywell Team.