

Water management network solutions from Adept for an Integrated Building Management System (IBMS) of leading IT parks



Raheja Corp achieves significant saving in fresh water consumption for this project by efficiently monitoring water usage and recycling waste water. Adept Flowmeters and automation solution play a significant role.

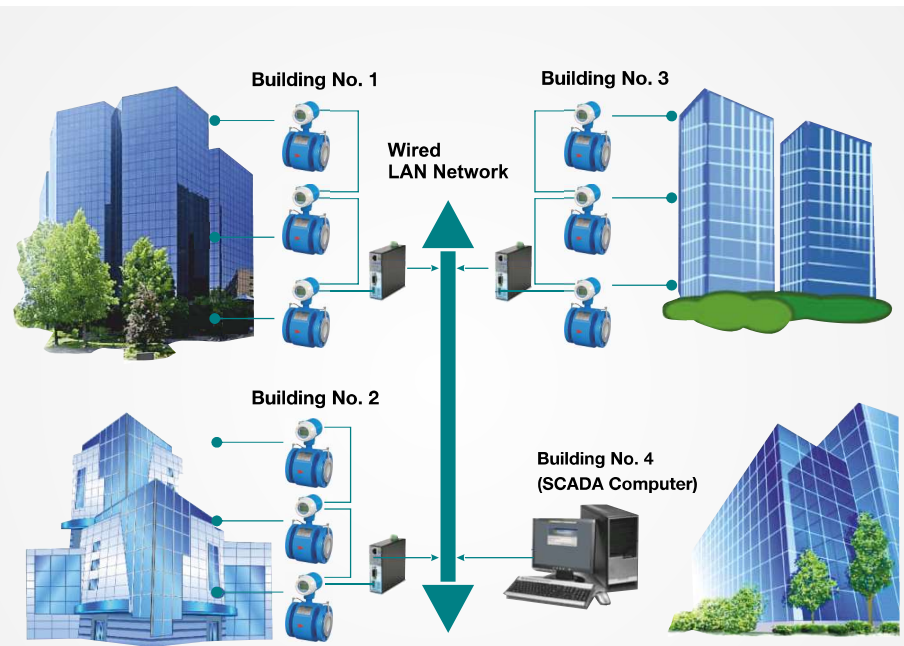
Introduction

K Raheja Corp is one of India's leading developers with over 60 years of experience in Indian real estate sector. From exquisite residences to adaptive workplaces, hotels, convention centres to outstanding retail destinations, K Raheja Corp has made a significant impact on the construction and real estate sector in India.

Commercial spaces created by K Raheja Corp are marketed under the Mindspace brand and provide revolutionary work environments. Mindspace is gaining fast acceptance from MNCs and large corporates in India. K Raheja Corp delivers aspirational spaces with distinct characteristics and attributes, making them unique. The company has also been ahead of the curve in the green development sector.

Obviously, the company lays a great emphasis on ensuring judicious water usage at its various projects. For this, the company has invested in large resources and employed manpower to monitor and control water usage at its facilities in different cities. **Matrix Services is a division of K Raheja Corp** which is responsible for Building Management Activities of all its IT parks. Mindspace is now operational in India's top IT cities such as Pune, Mumbai, Hyderabad and Chennai.

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General IP Base SCADA Architecture



Challenges

With large MNCs occupying vast spaces in Mindspace IT parks, there is a growing awareness about self-sustaining, efficient development which costs less to operate. Also, as per the government of India's Green building policy, there is need of monitoring and recycling utilities and cause minimal environmental impact. These IT parks require millions of litres of fresh water supply every day. In order to restrict the daily consumption of fresh water, it is mandatory to strictly monitor its usage. It is also mandatory to recycle and reuse water to the maximum possible extent as per the norms of Central Pollution Control Board.

The Green Building concept also necessitates maintaining green landscapes and the buildings are centrally air-conditioned. In addition to the regular water usage, landscaping and air-conditioning also require large quantity of water. **Integrated Building Management System (IBMS) requires 24 x 7 monitoring and control on water usage on a real-time basis.**

To achieve this, Matrix Services Building Management Team requires to manage the following activities related to its water usage.

- ▲ **Net Zero Concept Buildings (Zero Water Concepts):**
Minimal fresh water consumption
- ▲ **HVAC (Heating, Ventilation and Air Conditioning):**
Reuse treated water for chiller
- ▲ **Water Efficiency:**
Domestic water from corporation / Tankers from private supplier
- ▲ **Sewage Treatment:**
Process and reuse treated water for landscape activities and cooling tower
- ▲ **Rainwater Harvesting:**
Storage and reuse

Considering the scope of activities, it was becoming a mammoth task for the entire team of Matrix Services located at its various facilities. In addition to collection and analysis of data at each facility and exercising timely control, the team at each location is also expected to send this data every day to its head office.

Pune		Pune 1		Pune 2		Pune 3	
PUNE							
B1 - STP output		B2 - STP Output		B3 - STP Output		B4 - STP Output	
0.000 m ³ /h	61322.430 m ³	0.000 m ³ /h	77224.930 m ³	0.000 m ³ /h	77865.780 m ³	10.05 m ³ /h	56104.290 m ³
31.07.2018 2:00 AM		31.07.2018 2:00 AM		31.07.2018 2:00 AM		31.07.2018 7:45 AM	
B5 - Domestic Output		B5 - Flushing Output		B5 - HVAC		B5 - STP Input	
0.000 m ³ /h	14086.190 m ³	0.000 m ³ /h	20234.938 m ³	2.837 m ³ /h	12033.538 m ³	0.000 m ³ /h	1094.506 m ³
30.07.2018 3:15 PM		30.07.2018 3:15 PM		30.07.2018 3:15 PM		30.07.2018 3:15 PM	
PUNE							
B5 - STP Output		B5 - STP Treated to		B5 - WTP Room		B6 - Flushing Output	
0.000 m ³ /h	33765.190 m ³	0.000 m ³ /h	4409.718 m ³	11.27 m ³ /h	26409.995 m ³	0.000 m ³ /h	14526.923 m ³
30.07.2018 3:30 PM		30.07.2018 3:15 PM		30.07.2018 3:15 PM		31.07.2018 2:01 AM	
B6 - STP Input		B6 - STP Output		B7 - Ground Water		B7 - STP Output	
0.000 m ³ /h	27024.675 m ³	0.000 m ³ /h	56533.640 m ³	2.953 m ³ /h	17332.025 m ³	9.254 m ³ /h	63564.180 m ³
31.07.2018 2:03 AM		31.07.2018 2:01 AM		30.07.2018 5:00 PM		30.07.2018 5:15 PM	

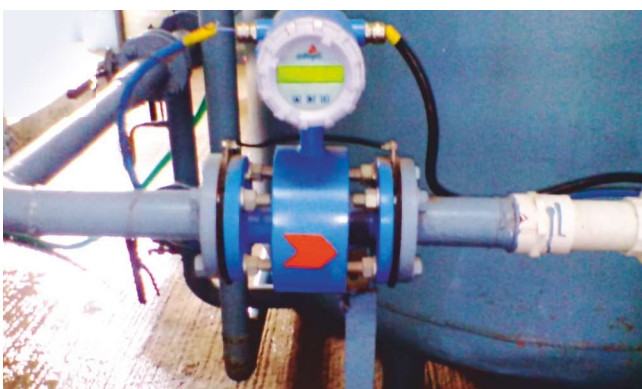
Solutions from Adept

Knowing our reputation of providing Flowmeters and automation solutions to most challenging requirements across various industry sectors, K Raheja Corp approached us for addressing this complex requirement. Broad level objectives of the project were -

1. Precise measurement and real-time data of water consumption by various users
2. Automatic Email generation to every user on a daily basis
3. Remote monitoring of such data
4. Automatically generating water usage bills
5. Compile and analyse data for exercising effective control
6. Send a daily report to Head Office in Mumbai

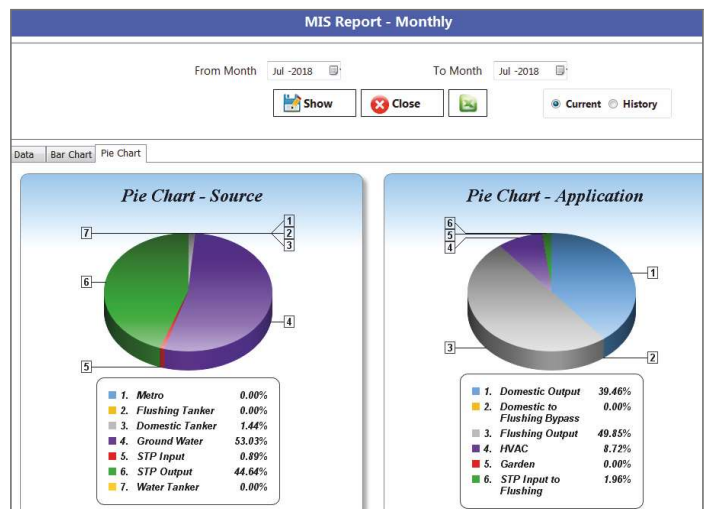
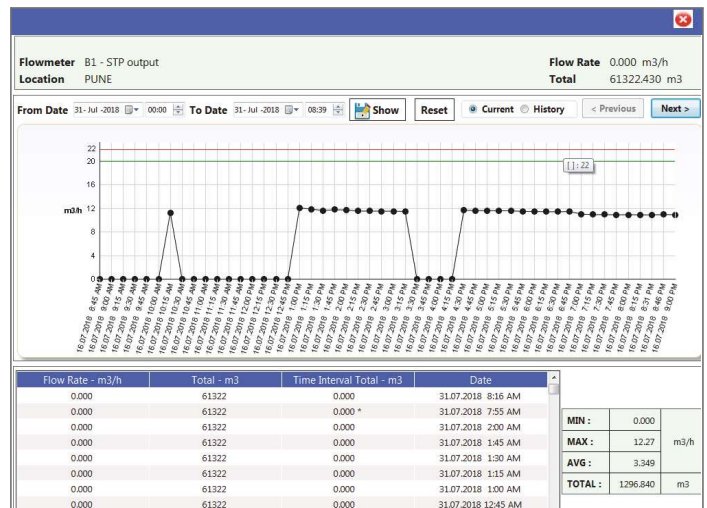
After carefully analysing the requirement, we proposed a Local SCADA System for each IT park and a Centralised SCADA System for their server at BKC Head Quarter, Mumbai. We have designed a customised TCP/IP base SCADA System to suit the requirements at each IT Park which is capable of handling the entire water management system on real-time basis and which works 24x7. The local SCADA System at each IT park uploads the data automatically to the main server of centralised SCADA system at BKC.

Local SCADA System also sends auto generated mails to the concerned team for monitoring and auto-generated bills based on their daily water consumption. Through a TCP/IP network, an authorised person can access data and information about any of the facilities, from anywhere in the world using their log-in ID. Due to the use of TCP/IP network protocol, maintenance of SCADA Software can be carried out online by the Adept team. This ensures timely updation and enhances the efficiency of the software.



Benefits to K Raheja Corp

- ▲ Real-time data generation makes it easy to monitor and exercise precise and faster control.
- ▲ Manual reading is completely eliminated which saves human efforts and prevents errors, resulting in increased efficiency of operational team.
- ▲ Completely hassle-free operation due to quick report generation for monitoring and maintaining billing cycles.
- ▲ Customer gets informed through daily mail about water consumption.
- ▲ Customised software makes it more user-friendly. Even a non-technical person can operate and monitor activities very easily.
- ▲ Real-time/History data available in the form of Excel sheet or in Graphical format for ease of understanding.
- ▲ Data of nationwide IT parks is available in the Central SCADA Server and creates a long-term record for future analysis.



K Raheja's Building Management Division, Matrix Services has benefited a lot through online monitoring using SCADA system.



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