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Madhav: A fully-automated private house in Vadodara

By: DTI Automation Pvt Ltd.

A project that bagged the prestigious “Best Project 2016” award by C4 and gained the position of the second runner up at Tech X Awards.



The vision:

The client had a very simple idea. He wanted that whatever is implemented should be easy to control, upgrade & maintain. Most importantly, the entire control system should be designed in a way that even the not-so-technical elderly people could easily use it. Therefore, the user interfaces had to be implemented considering all members of the family.

Client's requirements and our offerings:

A hybrid system was designed to switch on/off or just dim the architectural as well as decorative lights throughout the house. Wall-

mounted keypads, C4 touch screens along with occupancy-based sensors were integrated. Twenty-two independent audio zones were installed. "The client wanted to have music distributed throughout the house with independent control. Therefore, we set up a Sonos speaker system, managed by Control4, to create a flawless music experience. The DTI team made sure that the entire video solution is managed centrally with 10 video zones including a home theatre. For the climate control of the entire house, a complete HVAC control system was designed to operate and manage each zone separately. Energy-saving was efficiently done by Occupancy sensors and time-based scheduling. A system with

multiple access points was designed to manage the networking of the entire house. We also installed home security systems, blinds & shades control", says Prakash Rola & Jaymin Patel, Directors, DTI Automation Pvt Ltd. "The client was inclined towards the Control4 system and requested us to stick to the same. We had to design a flexible system which would consider the basics like lighting control, HVAC, security, audio and video distribution along with a sophisticated home networking", they add.

The architect's conception:

The conceptualization of the project "Madhav" was completely based on the thought of creating

CASE STUDY



an amalgamation of nature and technology. The land was blessed with 20 full-grown trees and the idea was to preserve each one of them. Architect Dipen Gada & Associates planned the house in such a way that they managed to preserve 18 Trees and they are now a part of the Home.

The roadmap followed:

The project was initiated with a planning stage that comprised providing drawings and instruction to electrification work, followed by pre-installation of cables and necessary wires. Post that, installation of light distribution unit and wire termination were done.

Networking rack and equipment were also installed. Finally, media device installation and configuration were completed and then the system was programmed as per the client's requirement.

Cutting through the stumbling blocks:

The house was constructed with thick RCC walls, so planning for a wireless communication system and Wi-Fi was a bit challenging for us. Also, the challenge was to design a system that the client's mother, who is unable to freely move around the house, can also easily understand and control. "We planned a system in a way with enough access points for Wi-Fi. We planned a wired keypad from Control4 for the whole house. But to maintain Zigbee strength we added some wireless Zigbee keypads in each room. Keeping in mind the client's mother, the DTI team designed a simple 4 button control system for her room using a card access remote. Each button would execute her required commands without even moving out of her bed including lighting, HVAC, TV, Devotional Music as well as panic





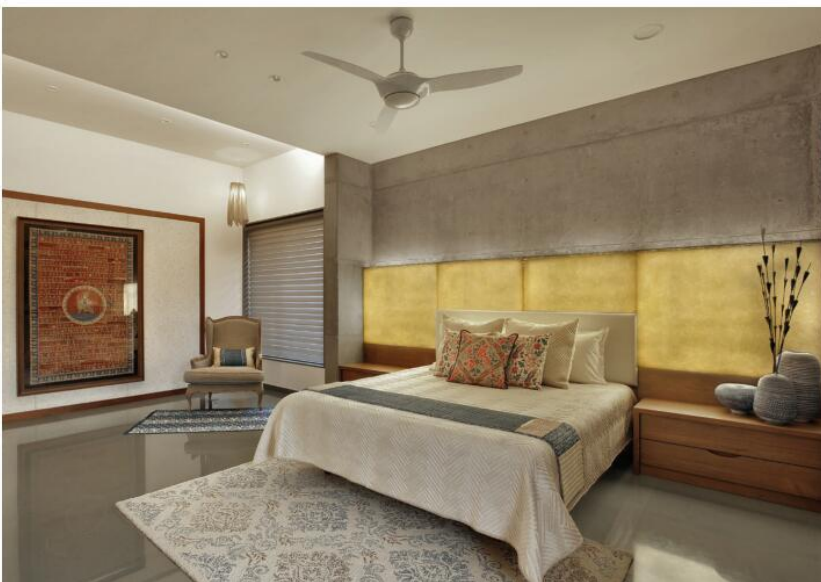
button whenever she wanted. The speakers fitted behind the bathroom ceilings and walls imparted a clutter-free appearance while offering crystal clear music” stated Prakash & Jaymin. Another challenge was to create a multipurpose room, that can be used as a home theatre, media room as well as a meditation room. That particular room had a window, overlooking a garden, through which sunlight flooded the room every morning. The screen of the home theatre system was set to drop down while the window went behind, transforming the complete look and feel of the room. Also, the ceiling was covered with fabric, behind which, speakers were fitted to create a clean look.

The feedback:

After the completion of the project, everything in the house was synced with the client’s routine and the regular change of programming made the system more comfortable. “We noted micro-details from the client’s lifestyle and programmed the system to fit perfectly into it. He was simply amazed at everything, ranging from engraved buttons to scheduled music”, said Prakash & Jaymin.

Final takeaway:

“When you plan a project by keeping every small detail in mind, no matter what scale your project is, you can do it easily”, concludes Prakash & Jaymin.



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CASE STUDY



Additional automation devices integrated:

Controllers

1. EA 5 - Master Controller
2. HC 800 - Zigbee Server
3. EA 1 - Slave Controller

Control4 Panelized Lighting

1. 8 Channel Relay Modules- 20 Nos.
2. 8 Channel Dimmer Modules - 8 Nos.
3. Adaptive Phase Dimmers - 21 Nos.
4. Wired Configurable Keypads - 54 Nos.
5. Bus Ethernet Gateway - 3 Nos.
6. Bus Power Supply - 3 Nos.

Multi-room Video Distribution

1. Control4 8 X 8 Video Matrix

Multi-room Audio System

1. 22 Sonos Wired and Wireless Zone

Networking

1. Packedge RK-1 Router - 1 Nos.
2. Packedge WX-1 Access Point(In Ceiling) - 10 Nos.
3. Packedge SX-24p - 1 Nos.
4. Packedge SX-24 - 2 Nos.
5. Packedge Nk-1 Network Controller with Backpack - 1 Nos.

Sensors

1. Ceiling and wall Mount Motion Sensor - 22 Nos.
2. Nyce Contact Sensors - 19 Nos.

Interfaces and Access Control

1. Control4 Door Station
2. Control4 10' Touch screen - 2 Nos.
3. Control4 7' Tabletop Touch screens - 7 Nos.
4. Yale Real Living Door Locks - 8 Nos.

Accessories

1. Zigbee Extender - 4 Nos.
2. All wired keypad and APD Rocker Buttons Engraved

