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and INTERIORS INDIA

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Vol 10 | Issue 10 | January 2019 | ₹50

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TECH TALK

VOICE-CONTROLLED AUTOMATION SYSTEMS AND SMART SWITCHES RULE THE INDUSTRY

BY CAROL FERRAO

1,2&4. ATPL provided the most comprehensive automation solution for this 9,750sq-ft apartment in Gurugram, From lighting controls to Audio Video Systems and Security systems, the house virtually responds to the owners needs.

Man's quest for comfort is reaching new heights, and this reality is most evident in the switches and home automation market. The Internet of Things (IoT) has transformed this segment and brought with it a level of convenience that would have been unfathomable decades ago. Two things stand out currently: the sophistication of voice control systems and its impact in the automation segment, and the influence of Smart technology on switches. Thanks to Alexa, Google Home and HomePod, more consumers are using voice-activated commands to control their surroundings. Meanwhile, smart technology has given us USB plug points, wireless solutions,... to address the modern need of switches.

This, then, is the future – despite the many privacy concerns and fear of extreme dependence on technology. Whether it is novelty or genuine need, the masses are attracted to these solutions regardless. "People are using voice control commonly to play music, organise calendars, control home appliances, etc. Consumers are finding it more efficient, as they are user friendly. Artificial intelligence is booming right now and is progressive. Gradually, they will understand, interpret and make decisions based on the consumer's past behaviour and give a more personalised experience," points out Jayanth Jain, MD and CEO, GM Switches and Home Automation.

Virtual assistants are making such a big impact in the automation industry that most new devices have inbuilt virtual assistant skills . "The most efficient virtual assistants in the market today, are mainly from very large brands who are driving the customer education process and adoption through their customer connect & communication channels. The automation devices are becoming much more easy to install, and already reaching near plug & play capabilities; and with the controls on VA, the user shifts from mobile app based controls to voice controls is imminent in times to come," says Vivek Yadav, senior VP, Havells India Ltd.

Such high level of reliance has been possible because of developments in key technologies that support home automation. As Sameer Saxena, director - Marketing, Legrand (Group) India, shares, "Wireless technology is playing a major role in multi-dwelling units. Moreover, technologies like Radio frequency/Zigbee, Infrared, Z-wave, etc have been game changers in the automation industry." The average consumer, or even [the average] architect, may be oblivious to the nitty-gritties of such technologies, and would judge products and solutions on usability and efficiency.

In terms of technology, the most noticeable advancement that is within the grasp of lay consumers is the advent of the iPad, smart phone and its touch screen that is now commonly used as an interface for controlling virtually every electronic device in the house. "Not that touch screens did not exist. They did, but they were expensive and the battery did not last. The iPad and, then, the iPhone and the smartphone was convenient and had the best user interface at the price that was much, much cheaper than the proprietary touch screens that control and automation companies provided," elaborates Alok Hada, director, ATPL.

Meanwhile, the switches industry had to take note of this shift in consumer behaviour (as well as expectation). The need for transition in the product range was invariable. Ahraaz Khan, marketing leader, Connected Living Solutions, Honeywell Building Technologies, India, explains, "The switches industry has undergone great evolution starting from 'piano' switches to 'modular' switches to the 'aesthetically designed flat' switches. Right now, it is an era of 'smart switches' and the industry will see a shift towards such devices that add con-

venience to the lives of the users." In fact, 'smart' has become the defining factor in both segments.

DEFINING VOICE
If the advent of iPads and smartphones made automation more accessible, the rise in popularity of voice-activated systems like Alexa, Google Home… is widening the landscape of

3. The Crabtree home automation systems always operate at peak efficiency to provide the occupants with customised environments.

5. Seven- inch multimedia VDP from Havells.

6. Vivek Yadav, senior VP, Havells India.

7. Vetaar Smart Home solution by Anchor by Panasonic.

8. Dinesh Aggarwal, joint MD, Anchor by Panasonic.

9. Jayanth Jain, MD and CEO, GM Switches and Home Automation.

10. GM Modular's Wavio switch and dimmer.

this industry. "Consumers are getting more familiar with voice controls and use of these devices, which has increased accessibility to devices and helped create greater demand. Consumers are happy with the interactions and highly recommend these devices to their network. This has created subtle behavioural changes in terms of acceptability and accessibility of use, and the dependency on them is increasing." confirms Saxena.

It is the efficiency of these systems – besides accessible prices – that makes them an alluring addition to homes. Ripu Daman Sharma, country manager Sales, India Subcontinent, Lutron Electronics, explains, "Modern voice-activated systems are efficient to a large extent. They are very helpful when your hands are occupied at home, like cooking or the control devices that are kept at a distance. Some softwares even have self-learning ability to 'learn' your voice and accent for enhanced accuracy." Like every other technology, there is still room for improvement, and Sharma points out that the accuracy in terms of self-learning or environment noise isolation requires upgradation.

There is a lot that can be improved within this technology, agrees Jain. "Considering the diversity of languages, dialects and accents, there is an opportunity to configure technology to cater to this prevalent intricacy. Technology should make life easier and, therefore, to identify the region of their target audience and try to develop devices which supports local language could be an advancement." This challenge is unique to our country. Voice-controlled devices rely on generalisation and rough approximation. Where does that leave individual variation in accent, tone of voice, pitch, etc? That is pertinent in the Indian landscape. Only time will tell...

Even Hada sees voice-activated systems as "work in progress", especially since Alexa or Google Home are still largely dependent on the internet. "If the net is down or speed is slow, so is the response of the things being controlled." Another challenge, he notes, is the complexity of multiple commands – such as "turn my study lights on, and at the same time draw the curtains and flip the TV channel" would be multiple commands happening in progression. "Although there are companies now offering the ability to have multiple commands as well. I would say while the technology has definitely

CASE STUDY: PRIVATE RESIDENCE BY ATPL

ATPL provided the most comprehensive automation solution in a 9,750sq-ft apartment residence in Gurugram, for a client who leads a large infrastructural firm in India. With prior experience of automation systems in his earlier home in Hyderabad, the client was clear in his brief. Alok Hada mentions, "This job was particularly satisfying, because in addition to lighting controls that we normally do in every house, we were able to fulfill a larger need for audio video systems, security systems, complete home automation with controls of pretty much everything that is controllable in the house." ATPL provided Lutron Homeworks QS System for this residence, along with the latest Palladiom keypads with custom engraving. Built-in timeclock capabilities allow all the lighting to be automatically controlled in order to simulate occupancy while one is away, deterring potential intruders. The entire home is set up to play common music on special occasions or individual music in private rooms, as per preferences, on speakers from Sonance USA. Surveillance is provided by indoor cameras in the car park, lift lobby, wide lobby and staircase with eight channel DVR. Access is controlled by an Ekey biometric server that provides a convenient, secure and simple alternative to conventional access solutions. "The client was very informed and knowledgeable and laid down a specific brief in terms of the User Interface design and functioning of each and every key pad button, which translated into an exciting project for us," adds Hada.

improved from the original Siri commands available 2-3 years ago to today, there is still definite scope for improvement."

Adding his views to the discussion, Yadav shares, "Most voice-enabled systems work on specific input commands which are programmed into the app, hence they are currently not able to accept and work on generic commands. Device diagnostics/trouble shooting/device malfunction capabilities are yet to appear at both ends of the device and VA, and is limited to feedback status of on/off only as of now."

Talking about the advantages of such systems, Khan mentions how modern voice-activated systems are highly effective in performing routine and repetitive activities. When quizzed about scope for improvement, he adds: "For the ecosystem to have voice interface and other hardware to be popular, all the devices in the value chain should be innovative and should solve the same use cases effectively and up to the consumer's expectation. Coherent move on target segment, use cases and technology would speed up the
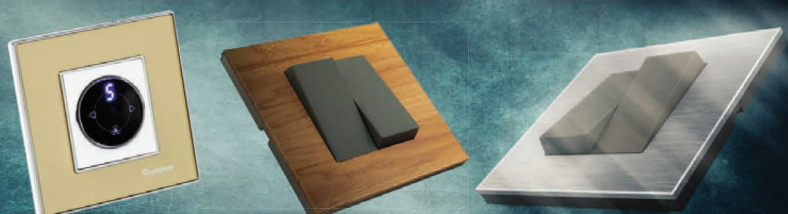
popularity further. This should go along with the number of critical use cases the same solution can solve." (Use case is a software/engineering term that describes how a user uses a system to accomplish a particular goal.)

In a nutshell, there is an expectation for the technology to behave less like a machine, ironically, and more like the intuitive human mind. As Dinesh Aggarwal, joint managing director, Anchor by Panasonic, points out, "The incorporation of artificial intelligence and machine learning will make the voice-activated systems become feature rich and will provide a more human-like experience."

RETROFIT EFFECT
As voice-activated systems become a household staple, the need for retrofit solutions in automation is bound to increase.

11. Honeywell's Blenze plus range of wiring accessories offer protection against microbial contamination.

12. Ahraaz Khan, marketing leader, Connected Living Solutions, Honeywell Building Technologies, India.

13. The Honeywell Citric range is shock-proof and has small LED indicators for identification in the night.

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home. "Hence, retro-fit HA has not been able to penetrate the market or fulfill any potential yet."

POWER-PACKED SWITCHES

As the most visible product, switches have gone through a definite change, becoming user friendly and modular. At Legrand, one strong differentiator in their range of modular wiring devices has been design. "Be it Arteor's floating design for a clutter-breaking look, Myrius's curved edge for dust-free operation or Mylinc's LincLoc mechanism for easy maintenance, Legrand's unique switches have kept aesthetics and user-friendliness at the centre of the product design through process," says Saxena. Besides offering IoT based switches, the company provides exclusive finishes like Mirror Finish, Galuchat Leather and Woven Metal.

Various trends are emerging in the design language of switches – and Yadav also notes that, in the future, switches will showcase minimalist to ethnic trends, in various innovative materials. "Though the functionality of the switch would continue to remain the same, the way of operation/form factor of the switch could see some new emerging trends like touch, flat switches, etc."

Combined with modern technology, switches are now programmable and can include humidity sensors or occupancy sensors. Programmable switches also include lighting controls such as dimmers and timers. Elaborating on their advantages, Sharma shares, "Lutron patented XCT technology, recognises the difference between fine human motion and background noise. Every Lutron dimmer (which is a type of switch) spontaneously saves 4 to 9% electricity – even at the highest lighting levels—over a standard on-off switch. When users choose to dim their lights, even more electricity is saved. Upgrading to dimmers not only improves the comfort of your space, it improves your return on investment as well."

Switches have gone through successive transitions, from touch switches to IR switches and, of late, WiFi switches. "The new-age wireless switches have succeeded their wire-based counterparts, and are far more user friendly and energy efficient," says Jain. "The smartphone-based control applications are largely driving the home automation market. With the introduction of light-sensitive switches, the idea of how a switch can function has also changed."

From an aesthetic as well as functional perspective, many designers are opting for keypads over switches. "A single keypad that comes in a variety of colours and finishes can replace a whole bank of switches, thus providing the interior designer the luxury of more wall space and an aesthetically matching

ILLUMINATING THOUGHTS

Lyle Lopez of Lirio Lopez throws light on the subject of home automation

Actually, home automation should have made a much deeper penetration into the consumer market a long time back. Marketers of new technologies have always had two choices: to take the long view and drop their prices to the point where the threshold buyer's income would be very low; or position the price point higher up where the product stays aspirational, and stands to gain on hefty profit margins per sale. Personally, I think the early players made the wrong choice.

Cellphones - with much greater capabilities and processing power than the most sophisticated automation systems - dived below this threshold early and earned billions for every ingredient technology supplier, or component supplier. The automation industry could have been enjoying that slot today. I'd be guilty of wisdom in hindsight if I didn't recall that, in 1999, I suggested to a major automation player that they should price their product at a point where a DDA flat owner (typically middle-income housing) could have a home automation system in his little apartment - at least in the living cum dining room.

Oddly, I found it strange that the product that automation threatened to displace most of all - the modular switch industry - was very slow to catch on to what was happening. Only a few modular switch manufacturers saw this coming and figured out that this was the place to be!

My second thought is a more basic one - calculating how useful a product really is to the user. Was it really worth spending Rs.300 to dim a lamp with a rotary dimmer as opposed to just switching it on and off? Was it then worth spending Rs.6,000 to enable the lamp to switch on at a particular brightness depending upon time of day, or the use of a room? And how about spending another Rs.3,500 to do this automatically each time somebody entered or left the room? These were deep questions in the early days of automation, but the matrix of stimuli we live in now has changed the nature of many of those questions.

The truth is that in the prevailing ether of complexity we live in and function in, there's no way around automation. It's ubiquitous. It's inevitable. You are where you are in the time-space continuum. Get used to it. Embrace it. Make it work for you. Enjoy it. You need it in your lifespace to integrate the management of lighting, edutainment (music, video, the Infonet, the Internet [yes, they are two different things!]), security, surveillance, air quality, HVAC, your health (if Yuval Noah Harari is to be taken seriously - and a life expectancy of 150 years is on the verge of happening!)... There are just too many things that need controlling and monitoring now.

In the blind corners that modern tech has swerved around in the last few years, I'm often reminded of Alvin Toffler's mantra: the need to "Learn, Relearn and Unlearn".

user interface," explains Hada. Moreover, these keypads also have custom engraving, annotating each button with a functionality – thus making it more user friendly. The fact that they can be either wired or wireless makes it a versatile solution.

It has been a remarkable shift from being a 'dumb' device for switching on and off any power load to the 'smart' switches' that hold within its sleek frame multiple functionalities. The future of this industry is marked with intelligence, with switches having built-in capabilities to track use pattern, store data on energy consumption and help optimise it. "Such switches could be operated remotely as well – for example; switching on your Induction plate to warm up food, while you are still on the way," notes Jain. A&I