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IoT Brings Pool, Irrigation, Lighting Data to Homeowner Association

San Diego homeowner association Westpark Maintenance District is trialing an Internet of Things (IoT)-based solution to automatically monitor lighting, swimming pool water quality

and irrigation, with a solution provided by smart cities electrical contractor Three Phase Electric. The system consists of sensors, as well as Wi-Fi and cabled connectivity to a cloud-based server, where Three Phase's software manages that data and displays relevant content for the community management on a dashboard.

Three Phase Electric developed its solution with software company Persistent Systems to offer communities or developments sensor-based data, allowing them to better manage conditions around residences and public areas, and enabling a faster response to data. The results, the company claims, could include a reduction in service calls, power usage (by identifying when lighting is or isn't needed) and water usage in irrigation systems. It could also boost safety by indicating when streets require lighting, and how much, in order to protect pedestrians.



Three Phase was founded three decades ago by CEO Kimberly Weiss to address the needs of homeowner associations (HOAs). She says 21 percent of the U.S. population lives within an HOA, and that percentage may be even higher in Southern California, where her customer base is located. "There's a need to maintain common area lighting," Weiss says, which was the initial challenge the company aimed to resolve.

The company began developing an IoT-based system in 2013, then turned it into a brand known as Common Sense. Community managers, service providers and residents worked with Persistent and Three Phase to find the greatest challenges that needed to be addressed with the technology. While most smart-city IoT-based solutions start with public street lighting, the Common Sense team began looking at other data of value to HOAs, such as pools and lawn care.

HOAs, according to Weiss, “have a lot of overlapping recreational needs, along with lighting,” that needed to be addressed, and most manage a variety of disparate systems, often by manually checking sensors or relying on information from homeowners when something goes wrong, such as in the event of a water leak. “We thought we could do some good here, so we dove in,” she says.

The proof-of-concept was launched in January 2018 at the Westpark Maintenance District in Irvine, and at San Marino Park, a community under the jurisdiction of Westpark. It will continue until next January. The system encompasses street and public lighting, swimming pool water quality, irrigation and a public Wi-Fi system. It receives and updates data about all of these functions every 15 minutes.

The solution tracks and manages lighting within parking lots, on pedestrian paths, on tennis courts, at the pool and on streets. Users can set the lighting output for specific times of the day, while sensors track light levels so users can adjust the lighting as necessary—for example, turning it up on an overcast evening.

In terms of irrigation, the community wants to know how much water is being used, and when. Because water is tightly regulated in California, communities can be charged fines if they use more than the allotted amount. With the Common Sense solution, community management can receive an alert, via Wi-Fi

transmission of sensor data, if the maximum water consumption is being reached. In the event of a problem, such as a water main break, the system detects that problem, then alerts the property manager, the utility or some other service provider, and automatically shuts down the related system (such as the water valve).



Kimberly
Weiss

Previously, pool filters and chemical levels were managed manually at Westpark. Now, sensors capture the percentage of chlorine and other chemicals, as well as the functionality of filters, then forward that data to the cloud-based server via a Wi-Fi connection. The software can send an alert to the HOA manager, as well as to the pool service provider, indicating that a service call is needed. The manager could then receive an update when the service staff has maintained the pool and resolved the issue.

In addition, the public Wi-Fi system can be managed to ensure that it is operating properly in all parts of the community. All of the data is provided on a dashboard viewable by authorized individuals. The Common Sense system comes with an app that residents can utilize to view such data as the water temperature in the swimming pool, or monthly water usage. Property managers, meanwhile, can use the system to make changes to lighting so that, for instance, light levels could automatically change at a particular time of day selected by the manager.

“Persistent has been key to our design,” Weiss states. “They take our ideas and put them in a system that works.” One of the greatest challenges has been working with all the third-

party equipment manufacturers so that Three Phase's system could have access to the sensor data.

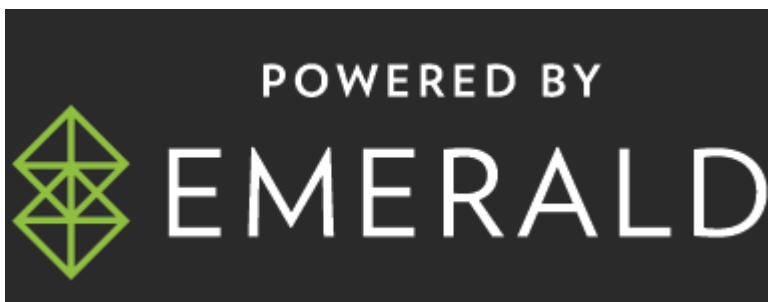
Initially, when the company chose to test the new system, it invited communities to participate in a proof-of-concept. Weiss says more than 50 communities responded to the request, adding, "That's when we knew we really had something here." The firm is now speaking with at least three neighborhoods of the Westpark community to install the system permanently, including San Marino Park.



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