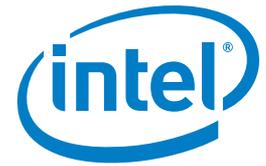


CASE STUDY

PEP Stations* Electric Vehicle Charging

Intel® Atom™ Processor Z530

Automobile Industry



Charging Stations Keep Electric Vehicles Moving Ahead



PEP
stations

Electric vehicles (EVs) are making exciting gains in both the U.S. and global marketplaces. Currently, the Nissan Leaf* (all electric) and Chevy Volt* (hybrid gas/electric) are leaders in the U.S. market. However, today, literally every major car company worldwide has an electric vehicle in its production pipeline and 40 to 60 different models are expected to become available over the next few years. The industry predicts 700,000 electric cars on U.S. streets by 2015 and, according to Pike Research* (pikeresearch.com), hybrid electric vehicles (HEVs) and plug-in electric vehicles (PEVs) will account for just over 5% of total U.S. vehicle sales by 2017.

Challenges

When discussing electric vehicles, we often use words such as “zero emissions”, “economical” and “energy independence”. But “range anxiety” is another term that EV drivers and potential buyers are talking about. At this time, electric vehicles don’t have the same driving distance capacity as their counterpart internal combustion-powered cars. For example, the Nissan Leaf can travel about 100 miles on a fully charged battery, whereas a similarly sized car may travel 300 miles on a full tank of gas. Understandably, EV drivers have concerns as to how far they can drive on a charge and where they can recharge on the road.

Opportunities

Electric vehicle charging stations are key to getting the most flexibility and enjoyment out of driving an electric vehicle. And because of the way people use their cars on a daily basis, these charging stations are being deployed in destination settings such as fitness centers, government offices, universities and schools, healthcare facilities, business campuses, restaurants, theaters, hotels, shopping centers, parking garages and sports arenas.

Studies also indicate that the number of charging stations must increase significantly to accommodate the growing number of EV drivers. Industry estimates recommend a ratio of 1.5 charging stations for every electrical vehicle on the road in order to meet driver needs. Based on a projection of 700,000 vehicles, there will be a demand for more than one million charging stations in the U.S., alone, by 2015.

“PEP Stations chose an Intel® Atom™ processor-based platform in order to provide options and functionality—for both the consumer and owner—that are unique to the industry. Its highly configurable nature, along with substantial yet economical compute power, made it the ideal choice.”

— James Blain
CEO and Founder,
PEP Stations

PEP Stations and Intel Team Up for Solutions

At its most basic level, an EV charging station is simply a connector from the electric grid to a vehicle—not much different than an adapter you might use to charge your phone or laptop computer. While there are a number of charging station manufacturers that provide only that simple function, PEP Stations has taken the user experience to new levels, making it flexible yet simple and convenient for both the consumer and station owner.

As a premium solution provider, PEP Stations utilized the Intel® Atom™ processor Z530 and Microsoft Windows® 7 Embedded operating system to provide an array of differentiating features and functions. In addition to dispensing power, individual charging stations manage a variety of “smart” interactions—similar to the conveniences one would find at a gas station pump—while a hardwired Internet connection provides remote reporting, monitoring and diagnostic capabilities.

Features include:

- **8” interactive LED touch screen** - Easy step-by-step instructions create a user-friendly interface, leading the user through the connecting and payment process, with the ability to select the specific charge-time desired.
- **Four payment options** - Includes 1) credit cards, 2) debit or access cards (distributed by the station owner), 3) free access (i.e., as an amenity for employees or patrons), or 4) disable/off mode (during closing hours).
- **Off-site management** - Station owners can remotely set hourly fee, as well as the hours of operation.
- **Service alerts** - 24/7 remote monitoring and diagnostics, with service provided by Diebold, Incorporated, keep PEP charging stations up and running with minimal downtime.
- **Online reports** - Usage statistics are available on a per-station and aggregate basis so that owners can understand usage patterns, connect time, charge time, energy consumption, etc.
- **Messaging** - Soon to come is an option for station owners to include messaging or advertising on the touch screen display.





PEP Stations' reliability, durability and distinctive styling led to recognition in 2011 from the international industry publication, *Architectural Record*^{*}, an honor awarded to new products that offer improved performance, attractive design, and fill a functional need. Each station provides dual-port, level 2 charging for two vehicles to charge simultaneously, saving space and providing economy of scale. These stations are also the only ones on the market to be "out of the box" ADA compliant. In addition to numerous educational, retail and commercial settings across the United States, PEP Stations can be found on the Las Vegas Strip in Mandalay Bay^{*}, at the Smithsonian Institution^{*} in Washington, DC, and Hershey Chocolate World^{*}, PA. Sales and marketing for PEP Stations is represented exclusively by Hubbell Wiring Device-Kellems^{*}.

Intel Helps Lead the Charge

PEP Stations chose an Intel Atom processor-based platform in order to provide options and functionality—for both the consumer and owner—that are unique to the industry. Along with a Microsoft Windows Embedded 7 operating system, this Intel[®] platform was selected to intelligently control and manage the interactive touch screen user interface, magnetic card reader functions, vehicle connection and power distribution, access control modes, diagnostic alerts, report generation, and customer messaging. The highly configurable nature of the Intel Atom processor Z530, along with substantial yet economical compute power, made it the ideal choice for PEP Stations.

Learn more:

Intel.com

PEPStations.com

Hubbell-wiring.com

