




## A Look Ahead at Wireless Charging

Just before Thanksgiving, I had the opportunity to attend the fourth annual Wireless Power Summit, a two-day conference held in Oakland, Calif. It was a pretty good mix of “suits” and engineers. The suits got to hear forecasts and updates on how wireless charging is or will be applied, and the engineers attended sessions in which university researchers addressed technical issues. Here are some of my observations:

1. Free charging of smart devices is creeping into consumer services. The free charging lures customers in the door, and the data collected about those customers justifies the free services. Interestingly, at the same time that we were meeting, Starbucks outlets in the Bay Area were publicizing the availability of charging stations built into their table surfaces. There would be no monitoring of the customer’s activities, but there is a built-in handshake between chargers and smartphones that does provide a customer’s preferences for seating, length of stay, and so forth that will tell the corporation about habits and preferences without breaching privacy.
2. One thing about wearable tech: In general, chargeable wearables present a challenge for coil orientation. Phones have big flat surfaces and users lay them on top of other flat surfaces, so the problem is reduced to two dimensions. Charging somebody’s raincoat—one that lights up at night, perhaps—is a lot more challenging.
3. There was some talk about wireless charging of objects in the Internet of Things (IoT), but not much. It was more as if people felt they *had* to say something about the IoT, without actually having anything to say.
4. There was a lot of interest in how wireless charging would be implemented in personal vehicles. I was reminded of a talk I heard last year at Cisco about how cars would become people’s personal gateway to the IoT, routing data through the most cost-effective gateways. Obviously, that would only work if driver and passenger phones stayed charged up all the time.
5. Technical challenges are fascinating. Presently, there are two popular approaches, both near-field. The least efficient is simply to create a transformer by bringing two coils into close proximity. A step up from that is to tune the coils to resonance, a la Nikola Tesla. What’s still in the university labs involves, among other things, coupling coils between charger and the unit being charged. Essentially, energy is stored in the intermediate tuned circuit. This overcomes some of the problems of an over-large air-gap. 

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