



product development  
technologies, inc.

# PULSE

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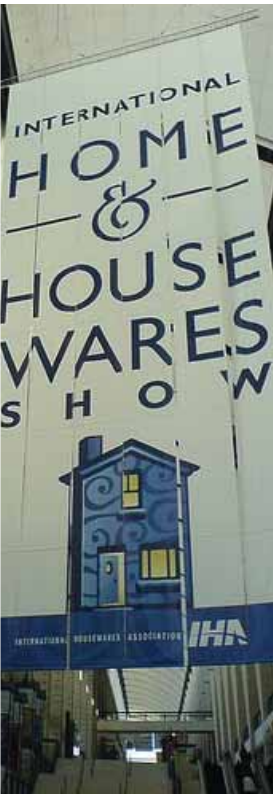


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# Housewares Show '08: All That's Hot in the Kitchen



If you're turning green these days, you're not alone. Eco-friendly living is in. As trends go, this one seems to have staying power. I attended this year's International Home & Housewares Show last month, knowing I'd be served up a whole lot of "green" products, but I wasn't prepared for just how far companies have gone to make their products more environmentally friendly. Companies are lining up to help shape the way we live and how we impact the world we live in.

One of the more noticeable trends this year is the increase in products that make it easier to prepare, cook and eat more healthfully, including apple and potato slicers, juicers, meat slicers, dicers and storage devices. But while products geared toward convenience still dominate, many manufacturers are also looking to improve and promote the overall "green" experience. New designs, technologies and packaging for "aeroponic gardens" were in abundance, offering a variety of in-house gardening options for growing herbs, fresh fruit and flowers all year long. Just imagine, walking over to the window sill, pulling off some basil leaves or cherry tomatoes, chopping them up and throwing them into your pasta sauce - flavor, freshness and quality, all grown in your indoor garden.

The popularity of organic food also continues to grow. In just one decade, from 1997 to 2006, sales of organic food have increased by nearly 80 percent to \$17.7 billion, reports RedOrbit.com. This growing popularity will likely continue to drive the ever-growing segment of the population that considers organic food healthier, safer and better for the environment.

Another continuing trend is the popularity of designer kitchenware and chef-branded products. Ever since

Michael Graves created designs for Alessi and later for Target in the mid-1990's, more and more manufacturers have turned to artists, industrial designers, and architects to give a "face" and personality to the products they're pitching. The proliferation of cable TV food shows like The Food Network have also fueled the market for chef-branded products, leveraging the popularity of chefs like Emeril, Wolfgang Puck, Rachel Ray and Paula Deen to enable manufacturers to enter broader markets and bigger channels.

To help everyone feel like a professional, the stainless steel look still remains popular and continues to rule the premium category for everything from major appliances to small electronics and kitchen accessories. Edge Craft, Waring and Universal displayed new food slicers that resembled meat slicing equipment seen at your local deli, while other manufacturers displayed commercial grade knife sharpeners, and meat grinders - another nod to the consumer trend for taking more responsibility for food preparation, storage and serving.

As an ever-growing segment of the population is trying to avoid chemically treated, genetically altered and antibiotic-fed food products, a natural growth area for manufacturers targeting these consumers is high-end products using higher-end (and perceptually safer) materials for food preparation, such as:

- pillows made from a soy based polyol, a material the manufacturer says produces less emissions during manufacturing



## Inspired Build

- cutting boards and rugs made from bamboo, a material that is 16% harder than maple and eco-friendly for its ability to regenerate itself
- "Green" cookware designed and engineered to use more energy efficient manufacturing techniques

Given growing concerns about food quality and safety, you can expect to see more manufacturers turning green into green.

- Mark Kiel



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Over the past five years our model making and prototyping department has seen a gradual shift in what is considered the industry standard for a typical model. The demand for higher quality, shorter lead times and a truer representation of the end product has driven us to research and incorporate new finish treatments and building strategies. Production type finishes and materials, tactile feel buttons and switches, fully articulating hinges for cell phones and laptops are now the norm. Add to this the consumer electronics trend for thinner, lighter, diverse materials and sophisticated finishes and it's plain to see that the industry is much more challenging than it was just a few years ago. Through meeting these challenges I've gained the upmost respect for the client who wants, needs and stays up at night worrying and hoping for perfection from the model maker working on his or her project.

In the past for example, a typical cell phone model would be machined in two solid halves of REN or ABS and glued together. Today our typical models make more use of real USB ports, headphone jacks, LCD screens, and keypads with functioning tactile feel, camera lenses and actual production hinges. Models are required to weigh and articulate like the real deal and be durable enough to handle the abuse of multiple research sessions and trade shows. All this requires the models be shelled out to closer match the actual injection molded part geometry. The nature of production flip phone and laptop hinges requires us to use stiffer and more durable materials such as aluminum and metal. Crafting these metals to match molded parts geometry sometimes requires a pretty creative spin on the usual machining techniques, which brings me to the personal side of this story.

After eight years at PDT and lots and lots of



experience applying these machining techniques, my job took a personal spin- it may have been a combination of my wife's nail polish remover fumes wafting into our front room and too much pepperoni pizza, but it was crystal clear I needed to build what I thought was the coolest looking vacuum tube guitar amplifier. Entirely out of aluminum. Just because.

The machining on my West Coast Chopper-inspired amp required a unique look, but I also wanted to be able to machine it quickly. This required designing the parts (machined entirely out of 6061 aluminum and polished to look like its chrome plated) in a way that would require the least amount of machining and setups. I also wanted to use the proprietary fixturing and part holding methods used in our model shop.

Typical machine shop practice requires that the initial part be milled square and to a specific dimension because its sides are going to be used to locate it in the CNC machine. It also requires

## Point, Click. Control.

the use of clamps and vises to hold parts for machining and dial indicators to pick up location of the part relative to the CNC machine. Clamps and vises can get in the way of the cutter's tool path, requiring the model maker to shift clamp locations or reposition the work piece in the vise. Traditional clamping methods sometimes do not allow 100% access to the work piece from one setup, creating extra work.

PDT's system of work holding and fixturing eliminates these obstacles, so I was able to machine all the parts in considerably less time than using traditional methods.

Another challenge in the build was making the spider web looking grill for the cage on top of the amp. I was able to machine this flat in one setup with no squaring and indicating, and no vise or clamps to get in the way. After machining, I gave it a brushed finish and then hand bent it to match the radius of the end hoops of the cage and welded it in place.

In the end, I wound up with my 'Alchemyst' – a 30 watt, single channel EL84- powered guitar amplifier that was featured in an issue of Guitar World magazine.

-Frank Pistorio

Our sister company achieved a notable milestone this month that piqued our interest because of the wide-reaching implications within a host of industries.

Intevia®, a technology owned by TZ Limited, was exhibited at AFCOM's DataCenter World 2008 Spring Expo where data center components were successfully controlled and monitored via the Internet. Attendees could unlock, open and close doors and panels located in Amsterdam and Australia remotely from the show in Las Vegas. This was made possible by their Intelligent Fastening Technology (IFT).

IFT is an assembly enabling technology that embraces the philosophy of software driven assembly through a new class of remotely activated intelligent fastening devices and tools. Whereas traditional fastening requires the physical application of a tool directly to a fastener to make the joining of parts possible (i.e. nails, screws, bolts, and rivets), intelligent fasteners are a new class of fastening device that can be operated remotely without any physical contact being made with the fastener and without the normal physical effort applied for fastening.

At AFCOM, Intevia® Enterprise was on display in a mock-up of a data center room where it was shown for the first time networking and security management systems can reach beyond the server room door to control some of the data room equipment- for example, server and equipment racks integrating task lighting and local air boost fans. The demonstration consisted of the integration of communication gateways, database and application software, remotely-controlled sensing, monitoring and intelligent locking fastening devices. It is an integrated management system for physical security, environmental

monitoring and energy control at the component and device level that can be scaled from a single server room to global deployments and is easily integrated into traditional network, access control and facilities management software offerings. Managers can connect, control and monitor any device or building element remotely- imagine an IT pro checking in on the temperature, moisture





levels and other monitoring information while sipping a margarita on the beach.

So how does this work exactly?

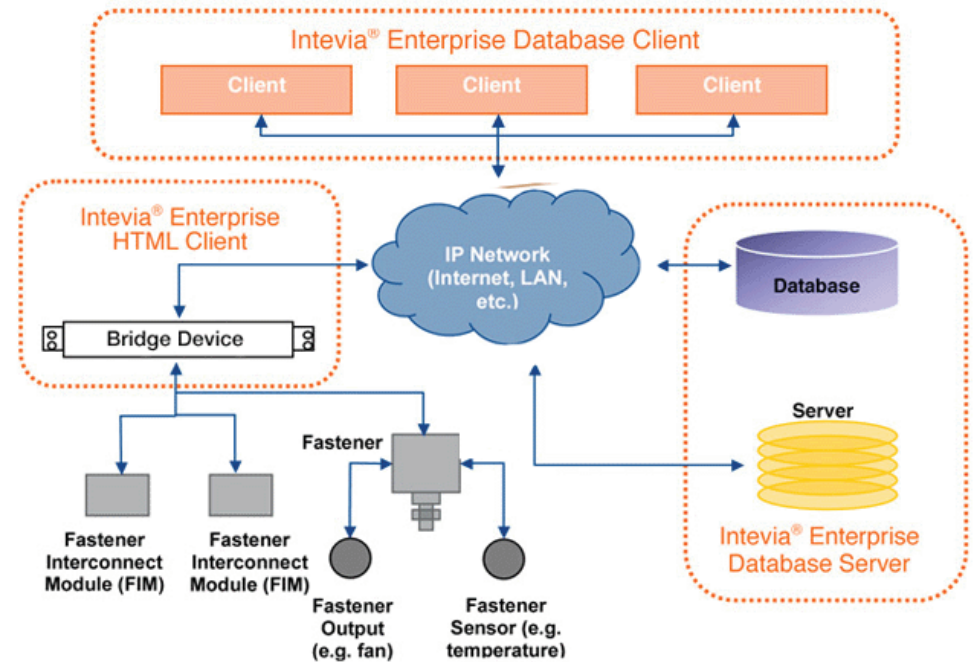
Intelligent fasteners comprise a specially designed coupling or fastening mechanism driven by a smart material actuator, which is controlled by an embedded microchip. Unlike conventional fasteners, intelligent fasteners are activated by an instruction rather than an applied physical force through a manipulating tool (think a screwdriver turning a screw). The actuator uses smart materials technology, such as shape memory alloys, to achieve efficient and cost effective actuation. In contrast, conventional actuation methodologies such as electric motors, solenoids and bi-metallic strips are generally power hungry, bulky and expensive to produce... which brings me to the next beautiful advantage of Intevia®- its environmental benefits.

In certain instances, the application allows pre-finishing of products under a factory-controlled environment, therefore minimizing the potential for uncontrolled waste, while quicker production processes reduce energy consumption. In addition, disassembly is achieved in a non-destructive way, therefore maximizing the potential for re-use and recycling. Finally, the technology allows control, audit and management of environmentally sensitive systems to minimize the risk of pollution and manage the use of energy. While the achievements at the show specific to data center control are

interesting, I think the more interesting aspects are the limitless opportunities outside the data center world. Imagine feeding your fish, turning on the lights and opening the door to let the dog out all from your office 30 miles away... or hospitals being able to monitor access to secure cabinets that hold commonly stolen prescription drugs...or parents of pre-teen and teenagers being able to monitor their medicine and liquor cabinets- or even their garage doors...

Opportunities extend beyond the home in areas like vending- providing a means to remotely unlock vending machines, or aerospace- creating a quick means to lock and unlock making it possible to quickly reconfigure aircraft, or in yachting- offering secure deckhead panel mounting and access. The experts agree; Intevia® just won the "Nep-tune"- a coveted Boat International World Superyacht Award in the Technology category.

While some of this can sound like outtakes from "Back to the Future," IFT has become a very real option for enabling control and monitoring because of the reduction in the cost of microchips and the emergence of smart materials technology as a cost effective actuation methodology.



The unlimited ideas can translate into new product opportunities for countless OEMs in the housewares, computer, automotive, medical, defense, homeland security, and marine industries, just to name a few. It will be interesting to see where this will go and which of the companies that are already integrating the technology into their next-generation products will push the envelope and possibly reinvent the way we all control and monitor the world around us.

-Tanya Sillitti

## About PDT

At PDT we believe the success of a project relies on our team members' insight into today's product development issues, advances, technologies and trends. Therefore, we actively seek out information constantly to stay savvy to the issues and opportunities facing our clients. Our global team members use these insights in our work, resulting in products and strategies that make our clients succeed in bringing new products to market that spark desire and that inspire, directly affecting their bottom line. We are happy to share just a few of our team members' insights, observations and opinions with you in this publication. For more information, please visit us at [www.pdt.com](http://www.pdt.com) or contact us.



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## This Issue's Contributors

**Frank Pistorio** has worked at pdt for 8 years-initially as a mold maker, then moving into tooling engineering. When he was asked to help in model making, he decided that was where he wanted to be. "The opportunity to work in the model shop allows me to creatively use what I've learned from previous careers and hobbies, including SCCA racing, classic muscle cars, bmx/mountain biking, music and photography." "My biggest source of inspiration has been family- my wife and two daughters; it's amazing what you can learn from a two and five year old."

**Mark Kiel** is a senior account executive and has been active in the product development industry for nearly two decades. With a degree in ID and experience in both corporate and consulting environments, Mark takes a well-rounded approach to promote innovation, quality, and speed to market. Mark's passions are his family and the opportunity to live, learn and grow; "Why watch when you can play!"

**Tanya Silitti** has managed PDT's marketing efforts for 7 years. "I crave new information and read just about anything I can get my hands on." She enjoys doing home improvement projects and tries to take on a new hobby every year- "jewelry making and organic gardening are a few of my newest efforts. My favorite thing is to see things grow and evolve, whether it be PDT, my garden or my two year old daughter."



Frank Pistorio, Mark Kiel, Tanya Silitti