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DON'T FORGET TO PLUG IN YOUR SHIRT!

By Jennifer Swanson

What if you could charge your iPod or cell phone just by holding it against your T-shirt or putting it in the back pocket of your jeans?

Sounds neat, doesn't it? Well it may soon become a reality through nanotechnology, a science where engineering is done at a molecular level. Nanotechnologists work with very tiny electronics that you can't even see. And while nanotechnology has only been around the last twenty years, it'll play a huge role in the future of our electronic-dependent society.

Right now, scientists are trying to find a way to recharge our cell phones, iPods, and MP3 players—using our clothes! Imagine that. They want to use our clothes to store energy!

Scientists at Stanford University in California are working on developing wearable charging devices. Through nanotechnology, the scientists have found a way to insert small, specially designed electronic material into the fibers of your clothes, on a molecular level. This new material is then charged with energy which can be transferred to your electronic device. Thus, recharging your iPod or cell phone could be as simple as holding it up to your shirt for a few minutes.

It works this way. They create a special ink containing "single-walled carbon nanotubes (SWNT)". These things are tiny! Many times smaller than a human hair, a nanometer is one-billionth the size of a meter. You can't see a nanometer, except through a very strong atomic force microscope. Despite their small size, these nanotubes are able to hold an electric charge. Through a specific "dipping and drying process" the nanotubes stick to the cotton or polyester fibers of the fabric. Then the fabric can be used to make shirts, shorts, jeans, or perhaps even underwear. The new clothing created is called an e-textile.

So where does the energy come in? As mentioned above, the SWNT is capable of storing energy. But the key is that it is also a conductor - a substance that helps electricity to flow freely. So if you put these SWNT fibers into a shirt, the shirt will not only be able to store energy, but also transfer it.

But how does the shirt get electricity? For now, you have to get it from an outside source – an electrical outlet. That's right; you have to plug your shirt into the outlet. If

you charge it all night then it will be ready for you in the morning- and the plug comes off during the day.

But wait, you're still having to plug something in, aren't you? Yes, but think of it this way. If you own more than one electrical device, you'd have to charge them all, right? This way you only have to remember to plug in one thing, not many.

The possibilities are limitless. Think about it, how many times have you been in the car or on the plane when your phone turns off or your Nintendo DS dies. You are left with hours to go and nothing to do. Boring! Well now, if you've charged your shirt, all you have to do is to hold your electronic device up to it and your device will charge automatically. Then you can text, listen to music, or play on your electronic game as long as you want.

I bet you're wondering what these clothes will look like, right? You probably think they will have visible wires in them and look metallic or be ugly. Perhaps they'll even be scratchy and itchy. Not at all. These fabrics can be created with pretty much any color or design you wish. And they they are comfortable and light-weight, so people could wear them in all types of climates.

Finally, this technology can be used for many different things, not just a charger for your portable electronics. People that need to keep track of their health could plug in their health monitors to instantly know their heart rate or blood pressure. Athletes could use it to keep track of how hard they are exercising and whether they've reached their current goals. You could even use them to power your watch, so you always know what time it is.

Neat, huh? I would love a shirt like this, wouldn't you? It'll be here soon enough. One day in near the future you'll be packing for a trip and instead of reminding you to bring your toothbrush, your mom will say "Don't forget to plug in your shirt!"

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