

Earth's soil could transmit electricity to your home, car: University of Alberta researchers

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University of Alberta researchers have taken the first steps toward a wireless world in which houses, cars and personal devices are powered simply through contact with the ground.

The team has shown how low-voltage electricity can be safely transmitted through the earth rather than using the normal two wires to carry a current, says Thomas Thundat, the Faculty of Engineering's Canada Excellence Research Chair in oilsands molecular engineering.

They connected a generator to a metal

rod, electrifying the dirt so that LED bulbs with a special circuit lit up when they were attached to special receivers stuck in the ground about 20 metres away, Thundat said Tuesday.

People aren't harmed by the process because the real amount of electricity it puts out is negligible, he said.

While more work remains to be done, he said the possibilities are huge.

"You can make your whole work desk a source of power. Your cellphone or your laptop or other device, you can leave on the surface and it will get charged," he said.

"You can put a conducting paint on the road and then drive your (electric)

car without any batteries ... or you can have a battery that will be charged while you're driving."

In the longer term, there's potential for building homes without wiring, sending electricity underground at oilsands facilities to heat and recover bitumen that's too deep to mine, or remediating tailings ponds by using power to help settle out the tiny clay particles, Thundat said.

Their work follows ideas explored at the turn of the 20th century by inventor Nikola Tesla, who constructed a giant tower in Long Island, N.Y., in hopes of creating a worldwide wireless transmission system.

Unfortunately, Tesla's earth transmis-

sion technology was never documented, Thundat said.

Students on the U of A team are already developing chargers for personal devices, and bases to wirelessly charge cars could be built in about a year, he said.

Work has just started to find contracts to commercialize their discoveries under a patent held by the university, he said.

"It's limited only by your imagination at this time ... Different people have to come in and take up different parts of the patent to start companies."

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