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A battery-less cardiac pacemaker

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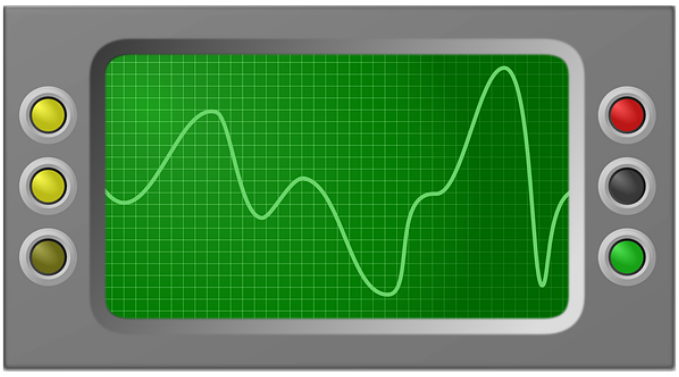

Researchers at the University of Bern, Switzerland have developed a newÂ cardiac pacemaker, which runs without a battery and is modelled on an automatic wristwatch and is powered by heart beats.

"Batteries are a limiting factor in today's medical implants. Once they reach a critically low energy level, physicians see themselves being forced to replace a correctly functioning medical device in a surgical intervention. This is an unpleasant scenario which increases costs and the risk of complications for patients. We have come up with a way to power a cardiac pacemaker with an alternative energy source - the heart movement," said Mr Adrian Zurbuchen from the University of Bern, Switzerland.

He added, "The heart seems to be a very promising energy source because its contractions are repetitive and are present 24 hours a day, 7 days a week. Furthermore, the automatic clockwork, invented in 1777, has a good reputation as a reliable technology to scavenge energy from motion."

The researchers successfully tested the system using in-vivo experiments in domestic pigs. The mechanism allowed them, for the first time, to perform a overdrive-pacing of the device, without a battery, at 130 beats per minute. "We have shown that it is possible to pace the heart using the power of its own motion," he further said.

The research was presented at European Society of Cardiology (ESC) Congress in Barcelona.

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