Longer Lasting Batteries for Medical Implants

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Technology description

Current Recycling in Multiple Linear Regulating Power Supplies

The Technology

Neurostimulation in implanted medical devices requires a high voltage at the implanted electrodes. A new current recycling technology developed at the UNSW for multiple linear regulating power supplies reduces power losses associated with generating internal low-voltage implant supply voltages for powering implant electronics

This innovation can deliver extended battery life or alternatively a smaller battery size for comparable battery life. These advantages become more valuable as implantable medical devices become smaller and more sophisticated.

Advantages

The technology has the potential to lead to improved battery life and performance in implanted medical devices such as cochlear implants, vision prosthesis, deep brain stimulators, artificial pacemakers and functional electrical stimulators, where large stimulation voltages are required and where both volume and power use of a device is restricted.

Reduction of power consumed by implant electronics is potentially 50% or higher, depending on architectures and power load profiles, resulting in increased life of the battery powering the device.

The new power supply technology would not result in an increased manufacturing cost and is suitable for any battery powered device where high-voltage actuation is needed.

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