

Powering Pacemakers from Heart Pressure Variation with Piezoelectric Energy Harvesters

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Abstract : Present project consists in a study and a development of piezoelectric devices for supplying power to new generation pacemakers. They are miniaturized leadless implants without battery placed directly in right ventricle. Amongst different acceptable energy sources in cardiac environment, we choose the solution of a device based on conversion of the energy produced by pressure variation inside the heart into electrical energy. The proposed energy harvesters can meet the power requirements of pacemakers, and can be a good solution to solve the problem of regular surgical operation. With further development, proposed device should provide enough energy to allow pacemakers autonomy, and could be good candidate for next pacemaker generation.

Keywords : energy harvester, heart, leadless pacemaker, piezoelectric cells, pressure variation

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