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Energy-Efficient Strain Gauges for the Wireless Condition Monitoring Systems in Mechanical Engineering

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This work focuses on the development of novel strain gauges, which are suited for the operation in autonomous wireless condition monitoring systems. For this purpose, capacitive as well as highly resistive strain gauges were designed and fabricated. The C- and R-sensors were utilised in combination with demonstration circuits, which integrate the circuits for instrumentation, A/D-conversion and furthermore comprise a microcontroller with a wireless transceiver system, all on a small separate printed wiring board. The authors will also be able to present a small demonstration system in operation during the oral presentation.

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Ключевые слова:

Содержание

Abstract

Introduction

Development of the capacitive strain gauges

Development of the high-ohmic resistive strain gauges

Comparison capacitive strain gauges with resistive strain gauges

RDMS demonstrator

Conclusion