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Bulletin of Electrical Engineering and Informatics
Volume 8, Issue 3, September 2019, Pages 798-807

Parasitic consideration for differential capacitive sensor (Article)

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Abstract

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Parasitic integration for a single supply differential capacitive sensing technique is presented in this paper. In real capacitive sensor measurement, parasitic impedance exists in its measurement. This paper objective is to study the effect of capacitive and resistive parasitic to the capacitive sensor circuit. The differential capacitive sensor circuit derivation theory is elaborated first. Then, comparison is made using simulation. Test was carried out using frequency from 40 kHz up to 400 kHz. Result is presented and have shown good linearity of 0.99984 at 300 kHz, R-squared value. This capacitive sensor is expected to be used for energy harvesting application.

SciVal Topic Prominence

Topic: Capacitive sensors | Capacitance | Capacitance-to-digital converter

Prominence percentile: 84.948

Author keywords

CVC | Differential capacitive sensing | Parasitic impedance | Results improvement | Sensor sensitivity

Funding details

Funding text

This work is funded by the Research Initiative Grant IIUM/504/G/14/3/1/1/RIGS17-023-0598) by the Research Management University Malaysia.

ISSN: 20893191
Source Type: Journal
Original language: English
DOI: 10.11591/eei.v8i3.1526
Document Type: Article
Publisher: Institute of Advanced Engineering and Science

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