

Accepted Manuscript

Title: Piezoelectric Energy Harvester Impedance Matching Using a Piezoelectric Transformer

Authors: Hamid Jabbar, Hyun Jun Jung, Nan Chen, Dae Heung Cho, Tae Hyun Sung



PII: S0924-4247(16)30488-5
DOI: <http://dx.doi.org/doi:10.1016/j.sna.2017.07.036>
Reference: SNA 10231

To appear in: *Sensors and Actuators A*

Received date: 15-9-2016
Revised date: 17-7-2017
Accepted date: 18-7-2017

Please cite this article as: Hamid Jabbar, Hyun Jun Jung, Nan Chen, Dae Heung Cho, Tae Hyun Sung, Piezoelectric Energy Harvester Impedance Matching Using a Piezoelectric Transformer, *Sensors and Actuators: A Physical* <http://dx.doi.org/10.1016/j.sna.2017.07.036>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Piezoelectric Energy Harvester Impedance Matching Using a Piezoelectric Transformer

Hamid Jabbar ^a, Hyun Jun Jung ^b, Nan Chen ^c, Dae Heung Cho ^d and Tae Hyun Sung ^{e,*}

^{a,b,d,e} Electrical Engineering Department, Hanyang University, Seoul, Korea

^c School of Computer Science and Technology, Northwestern Polytechnical University, Xi'an, China.

^aHamid Jabbar: (e-mail: jabbar81@hanyang.ac.kr).

^bHyun Jun Jung: (e-mail: hiphophj@naver.com).

^cNan Chan: (e-mail: nanchen0929@gmail.com).

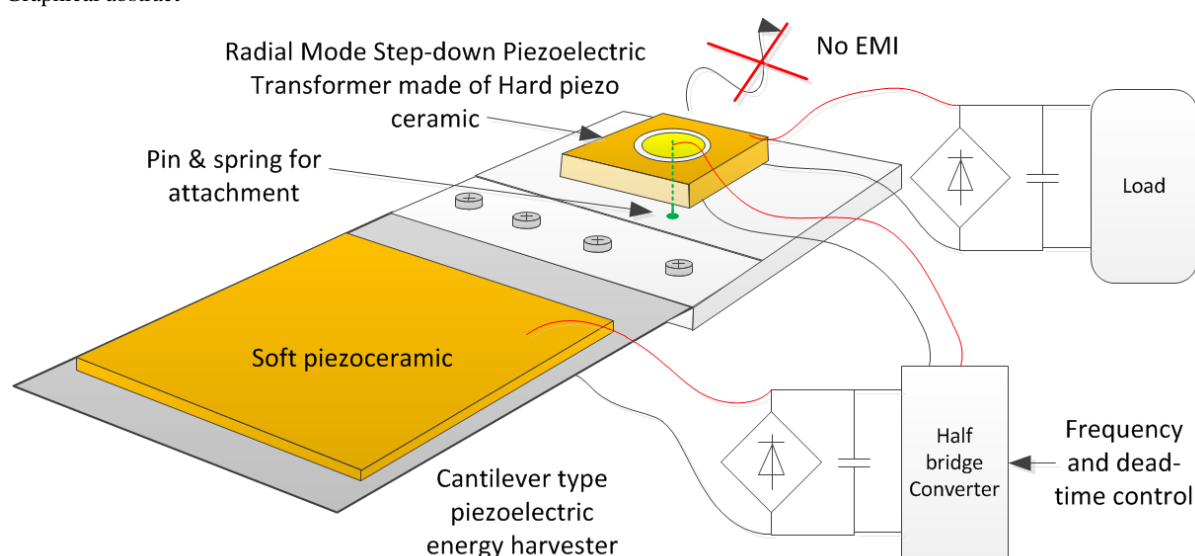
^dDae Heung Cho: (e-mail: wheogmd7@naver.com).

^{e,*} Tae Hyun Sung (corresponding author)

(e-mail: sungth@hanyang.ac.kr, Phone: +82-2-2220-2317)

Address: 408, HIT, 222 Wangsimni-ro, Seongdong-Gu, Seoul, 133-791, Korea

Graphical abstract



Highlights

- Piezoelectric Energy Harvester impedance matching is performed.
- Piezoelectric transformer also lowers high piezoelectric energy harvester voltage.
- Circuit generates no electromagnetic interference.
- The impedance matching control is simple.
- Piezoelectric transformer and harvester can be made on same substrate.

Abstract—To harvest maximum power from a piezoelectric energy harvester requires conjugate impedance matching, consisting of both resistive and inductive load. In practical circuits, dc-dc converters working in discontinuous conduction mode are used for emulated resistive impedance matching. These converters contain a large and expensive electromagnetic component to reduce the wire conduction losses. A new approach toward piezoelectric energy harvester resistive impedance matching is presented by using a step-down piezoelectric

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات