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(LPPM)

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Nomor : Sket/ 5711/2023/LPPM/UBHARA

Yang bertanda tangan dibawah ini :

Nama : Drs. Heru Irianto, M.Si
NIP : 9000028
NIDN : 0714056102
Jabatan : Kepala Lembaga Penelitian dan Pengabdian Kepada Masyarakat
(LPPM) Universitas bhayangkara Surabaya

Dengan ini menerangkan bahwa dosen prodi Teknik elektro Universitas Bhayangkara Surabaya atas nama **Dr. Ir. Saidah, MT** benar telah melakukan kegiatan :

1. Menjadi Reviewer pada Seminar Internasional **2020 International Conference on Smart Technology and Applications (ICoSTA)** yang **terindeks IEEE**, dengan judul artikel
 1. Characterization of Magnetic Induction Coil Sensor for Void Detection in Steel Plate
 2. Capacity Analysis for Hybrid Beamforming MIMO Channel using Discrete Cosine Transform and Antenna Selection,pada **18 Februari 2020 dan terbit di IEEE XPLORE pada 27 April 2022.**
2. Telah melakukan korespondensi review melalui email, bukti pendukung artikelyang terbit dan sertifikat adalah benar sudah dilakukan oleh yang bersangkutan serta sudah dilampirkan bersama surat ini.

Demikian surat keterangan ini dibuat untuk kepentingan kelengkapan pengusulan Guru Besar.



Surabaya, 31 Januari 2023

Kepala LPPM

Drs. Heru Irianto, M.Si.

PADA TAHUN 2020 MENJADI REVIEWER
PADA SEMINAR INTERNASIONAL “ICOSTA”
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Saidah Ubhara <saidah@ubhara.ac.id>

[ICoSTA 2020] Review for paper #1570610828 assigned

icosta2020@ubhara.ac.id <icosta2020=ubhara.ac.id@edas.info>

18 Februari 2020 pukul 03.33

Balas Ke: icosta2020@ubhara.ac.id

Kepada: S Saidah <saidah@ubhara.ac.id>

Cc: icosta2020@ubhara.ac.id

Dear Dr. S Saidah:

The paper "Characterization of Magnetic Induction Coil Sensor for Void Detection in Steel Plate" has been submitted to 2020 International Conference on Smart Technology and Applications (ICoSTA). It has the following abstract:

In this study, characterization of magnetic induction coil sensor for detecting void within the steel plate has been conducted. The aim of this study is to evaluate performance of coil designs in measuring some objects accurately. Experiments were performed by varying the frequency from 10 kHz to 2.5 MHz with input voltage of 20 V. The results obtained show that all designs can distinguish air and normal steel objects by amplitude measurements. Only design 3 and 4, however, can distinguish the normal and defect steels. Design 3 can differentiate them at the frequency of 250 kHz, while design 4 can distinguish at the frequency of 50 kHz. From phase different measurements, no significant differences are presented by all designs.

We believe that this paper falls within your area of expertise and would appreciate if you could serve as the TPC member responsible for handling this paper. Please confirm that you have received this assignment and indicate whether you accept at

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- I. Introduction
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- III. Experimental Method
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- V. CONCLUSION

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Abstract:

In this study, the characterization of the magnetic induction coil sensor for detecting void within the steel plate has been conducted. The study aims to evaluate the performance of coil designs in measuring some objects accurately. Experiments were performed by varying the frequency from 10 kHz to 2.5 MHz with an input voltage of 20 V. The results obtained show that all designs can distinguish air and normal steel objects by amplitude measurements. Only designs 3 and 4, however, can distinguish the normal and defect steels. Design 3 can differentiate them at the frequency of 250 kHz, while design 4 can distinguish at the frequency of 50 kHz. From different phase measurements, no significant differences are presented by all designs.

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I. Introduction

One alternative technique that is being developed for non-destructive testing applications is Magnetic Induction Tomography (MIT) [1]. The MIT system generally consists of the coils that act as the transmitter and receiver coils. When a sinusoidal current is injected into the transmitter coil, a primary magnetic field (B) generated induces a voltage on the receiver coil. If a conductive material is placed between the two coils, the eddy current will be induced in the object and produces a secondary magnetic field (ΔB) that interferes the primary magnetic field (B). Thus, the signal detected in the receiver coil can be expressed as a fraction $\Delta B / B$ of the primary magnetic field [2]. The working principle of MIT is systematically shown in Fig. 1.

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Saidah Ubhara <saidah@ubhara.ac.id>

[ICoSTA 2020] Review for paper #1570613216 assigned

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18 Februari 2020 pukul 03.45

Balas Ke: icosta2020@ubhara.ac.id

Kepada: S Saidah <saidah@ubhara.ac.id>

Cc: icosta2020@ubhara.ac.id

Dear Dr. S Saidah:

The paper "Capacity Analysis for Hybrid Beamforming MIMO Channel using Discrete Cosine Transform and Antenna Selection" has been submitted to 2020 International Conference on Smart Technology and Applications (ICoSTA). It has the following abstract:

User expects a new level of experience for 5G services. One of them is high data rates that can deliver smooth high definition streaming in mobility. There has been so much efforts to increase throughput per user. The Massive Multiple Input Multiple Output (MMIMO) is one of technology enabler in 5G. However, implementing MMIMO requires large number of antennas and costly Radio Frequency (RF) chains as well. To reduce the large number of RF chains, beamforming technique can be considered. This paper proposes a hybrid beamforming using Discrete Cosine Transform (DCT). We put the DCT matrix in front of RF chain. Moreover, the transmitted signals may experience correlation due to adjacent antenna spacing that can deteriorate the capacity. Hence, we propose antenna selection to maintain the capacity. We conduct simulations over thousand number of channel realizations, we show that the capacity increases by using DCT rather than DFT. Furthermore, the antenna selection performs well! I over the random selection.

We believe that this paper falls within your area of expertise and would appreciate if you could serve as the TPC member responsible for handling this paper. Please confirm that you have received this assignment and indicate whether you accept at

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- II. System Model
- III. Result
- IV. Conclusion

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This certificate is presented to :

Dr. Saidah

as REVIEWER

for outstanding contribution to The International Conference on Smart Technology and Applications 2020 held in Surabaya, Indonesia.

Topic :

“Empowering Industrial IoT by Implementing Green Technology for Sustainable Development”

on 20 February 2020 at Mercure Hotel Surabaya



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