Guillermo Barrios del Valle <gbv@ier.unam.mx>

Reviewer Invitation for Digital Twin ready Encapsulated Thermal Lab: A Modular System for Remote Thermal Imaging and Condition Monitoring

1 message

HardwareX <em@editorialmanager.com> Tue, Dec 10, 2024 at 5:50 AM
Reply-To: HardwareX <support@elsevier.com>
To: Guillermo Barrios del Valle <gbv@ier.unam.mx>

Ref.: Ms. No. **OHX-D-24-00184**
Digital Twin ready Encapsulated Thermal Lab: A Modular System for Remote Thermal Imaging and Condition Monitoring
HardwareX

Dear Dr. Barrios del Valle,

I would like to invite you to review the above referenced manuscript for HardwareX. To maintain our journal's high standards we need the best reviewers, and given your expertise in this area I would greatly appreciate your contribution.

I kindly ask you to give this review invitation the same consideration that you would want one of your own manuscripts to receive. Please note: Reviews are subject to a confidentiality policy, for more information please visit:
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If possible, I would appreciate receiving your review in **14** days. You may submit your comments online at the above URL. There you will find spaces for confidential comments to the editor, comments for the author and a report form to be completed.

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With kind regards

Pawel L. Urban
Associate Editor

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Please also note that authors have been invited to convert their supplementary material into a Data in Brief article (a data description article). You may notice this change alongside the revised manuscript. You do not need to review this but may need to look at the files in order to confirm that any supporting information you requested is present there.

The abstract is:
This paper presents the Encapsulated Thermal Lab (ETL), a modular system for generating high-dimensional

thermographic data remotely, aimed at supporting anomaly detection, condition monitoring, and predictive maintenance. Using a controlled setup with an aluminum plate and a thermal camera, ETL captures and transmits thermal images to assess temperature dynamics. The system leverages thermal imaging for less invasive monitoring and is remotely operable via a local desktop connected to a virtual private network (VPN). With programmable power supplies and a variety of sensors, ETL can simulate dynamic heating cycles, offering flexibility in creating custom thermal scenarios for benchmarking data-driven models. This setup enhances anomaly detection and predictive algorithms by enabling real-time, automated experimentation and data collection. Additionally, the ETL's remote functionality facilitates its use in digital twin applications, broadening its potential across diverse industrial settings where real-time condition monitoring and data reliability are critical. Future developments could include adding more sensor types to further improve condition monitoring and predictive accuracy

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