



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

Reviewer Invitation for A 360-degree imagery-multisensor system for visualizing environmental parameters in architecture and urban spaces

1 message

HardwareX <em@editorialmanager.com>

Mon, Feb 3, 2025 at 8:14 PM

Reply-To: HardwareX <support@elsevier.com>

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

Ref.: Ms. No. **OHX-D-25-00009**A 360-degree imagery-multisensor system for visualizing environmental parameters in architecture and urban spaces
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

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 research has designed a 360-degree imagery-multisensor system aiming to capture and visualize environmental

parameters in architecture and urban spaces. Unlike existing tools, this system enables simultaneous recording of both imagery and non-imagery environmental data, including lighting, thermal, air quality, sound, and physical space parameters, within a 360-degree field of view. Lighting conditions are captured using panoramic high dynamic range imagery, complemented by a 360-degree array of sensors measuring illuminance levels and spectral power distribution. Thermal and air quality conditions are recorded using 360-degree thermal imagery, combined with hygrometers and air particle meters. Sound levels are also monitored across the full 360-degree field. The system is built using 3D printing technologies and Raspberry Pi computers, equipped with various sensor modules. Custom Python scripts enable real-time data capture, processing, and visualization. This cost-effective, easy-to-manufacture, programmable, and customizable innovation is aimed at students and educators in design and architecture, as well as building engineers. Furthermore, integrating imagery and sensor data supports the development of immersive virtual and augmented reality applications, offering new opportunities for education and the exploration of effective design solutions.

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