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*Dr. Tulika Mitra*
*Editor-in-Chief*
*ACM Transactions on Embedded Computing Systems*

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Dear Dr. Mitra,

We wish to submit an original research article entitled "Waldo: Batteryless Occupancy Monitoring using Reflected Ambient Light" to be considered for publication as a regular research paper by the ACM Transactions on Embedded Computing Systems (TECS) journal. We confirm that this work is original and unpublished. This work has been under development for many years and has only been published as part of a previous master's thesis and submitted for a patent in late 2018, with the application being formally filed in early 2020. The patent for this work was awarded to us in December 2022. The publication of this work was delayed in its submission due to changes in project leadership, submission directions, and the COVID-19 pandemic. COVID-19 restrictions caused significant delays by impacting natural movement in the buildings for an extended amount of time, thereby delaying the evaluation experiments of this work. Since the time of the master's thesis in August 2018, we have more robustly redesigned the system, furthered our understanding of the limitations of the sensor, and evaluated the sensor in extensive controlled and in-the-wild studies, as well as added a comparison of our solution to a commercially available sensor that was not part of the early attempts to publish this work. No part of the manuscript has been formally published before, other than the mentioned master's thesis and patent, nor is any part of it under consideration for publication elsewhere.

In this paper, we present Waldo, a batteryless, room-level occupancy monitoring sensor that harvests energy from indoor ambient light reflections and uses changes in these reflections to detect when people enter and exit a room. Waldo is mountable at the top of a doorframe or passageway, allowing for the detection of a person and the direction they are traveling at the entry and exit point of a room or hallway. This is significant because Waldo represents the first step into batteryless room-level occupancy detection using its harvested energy as its data source simultaneously and demonstrates that ambient light reflections provide both a promising low-cost, long-term sustainable option for monitoring how people use buildings and an exciting new research direction for batteryless computing.

There are no conflicts of interest between the authors and the available list of TECS editors and associated editors that I am aware of at this time.

Please address all correspondence concerning this manuscript to me at rtobias@clemson.edu.

Thank you for your consideration of this manuscript.

Sincerely,

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