



STUDENT SUSTAINABILITY COMMITTEE

Funding Award and Acceptance Letter

May 21, 2022

Project: **Intelligent Mobile Sensing Unit for Building Energy Efficiency**

Dear **Nidia Bucarelli**,

On behalf of the University of Illinois at Urbana-Champaign Student Sustainability Committee (SSC), we would like to thank you for initiating a project that improves the sustainability of our campus. SSC is pleased to inform you that your project will receive **\$35,198.52** in grant funding.

In order to remain eligible for this award, you must agree to the following conditions:

1. The project must be completed within two years. A final report of all work completed should be provided to the SSC Assistant Director by **May 21, 2024**.
2. Project status updates and detailed account statements must be provided at the end of each semester, in the method requested, until the project is completed.
3. The Contact Person will be individually responsible for all official communication and the execution of this agreement.
4. The awardee will take the appropriate steps to create a CFOP with OBFS UAFR University Accounting Services. The CFOP provided for this award shall strictly be used for the money awarded in this proposal.
5. Any substantial modifications to project scope, budget, or timeline must first be approved by SSC. These requests must be submitted in a formal letter to the Chair and the Assistant Director.
6. All projects will be expected to follow campus policies and procedures as well as any applicable State and Federal laws.
7. SSC reserves the right to revoke funding if the project does not comply with the terms and conditions outlined in this letter.
8. Any press releases or educational/promotional materials involving the project should acknowledge SSC funding.
9. Any signage involving the project or events surrounding this project should include SSC's logo and/or a statement of which fee funded the project. Projects must coordinate with SSC to ensure promotion appropriately highlights the SSC's contributions to the project.

If you agree to the terms and conditions for the funding, please sign on the designated line at the bottom of this letter. If you have any questions regarding these requirements please contact the SSC, at sustainability-committee@illinois.edu. You will be notified when the Institute for Sustainability, Energy, and Environment and Vice Chancellor for Student Affairs officially approves this project. Again, thank you for your interest in improving the sustainability of the University of Illinois at Urbana-Champaign. We look forward to working with you in the future.



STUDENT SUSTAINABILITY COMMITTEE

SSC Signatories

Jack Reicherts

Jack Reicherts, Chair
Student Sustainability Committee

Awardee Signatory

Nidia Bucarelli

Nidia Bucarelli
Applicant

**Faculty or Staff Project Advisor
(for Student-Led Projects)**

Nora El-Gohary

Dr. Nora El-Gohary
Faculty/Staff Project Advisor

iSEE Signatory

Madhu Khanna

Dr. Madhu Khanna, Director
Institute for Sustainability, Energy & Environment

Student Affairs Signatory

Dr. Danita M. B. Young

Dr. Danita Brown Young, Vice Chancellor
Division of Student Affairs



STUDENT SUSTAINABILITY COMMITTEE

Project Information

Project: Intelligent Mobile Sensing Unit for Building Energy Efficiency

Funding Source:

Cleaner Energy Technologies Fee (302571)

Sustainable Campus Environment Fee (303692)

Funding Amount: \$35,198.52

Receiving Campus Unit: Civil & Environmental Engineering

Unit Financial Contact: Heidi Thiele

E-mail: hlgreen2@illinois.edu

Project Description:

Most of the current initiatives for energy savings are not adaptive and rely on (1) models that are not generalizable, which use limited data in terms of size and variability that are collected from fixed/rigid sensors installed in limited locations, and/or (2) pre-defined standards, schedules, or limited occupant feedback, which prevents energy-related strategies to be coupled with occupant thermal comfort preferences. To tackle these limitations, the proposed project would bridge the gaps between building energy efficiency and (1) the initiatives that cannot be fully or efficiently implemented because of infrastructure requirements, (2) occupant thermal comfort feedback in the system feedback loop, and (3) lack of generalizability or external validity.

The goal of this project is to develop an intelligent system that (1) can autonomously navigate Campus building spaces, limited to open spaces (e.g., open spaces in student offices and other lounge/student areas) and excluding classrooms and other types of offices (e.g., faculty and staff offices). The experiments for this project will be limited to the following space: Room 2017, Civil Engineering Hydrosystems Laboratory Building; (2) can collect data on the indoor environmental conditions (e.g., temperature, humidity, lighting levels) using multimodal sensors, and (3) recommend indoor environmental settings for energy savings and increased occupant comfort.

This proposal directly funds:

- Mobile robot: \$5,000.00
- Autonomy navigation, LIDARS: \$8,500.00



STUDENT SUSTAINABILITY COMMITTEE

- Robot accessories: \$6,000.00
- Heater and cooling devices and sensors: \$1,500.00
- CPU/GPU: \$4,000.00
- Research assistant wages (25% appointment, 1 semester): \$9,198.52