STUDENT SUSTAINABILITY COMMITTEE

Funding Application – Step I

Funding Criteria

A. General Rules

1. Students, faculty, and staff are encouraged to submit requests for funding. Student-led projects require a faculty or staff sponsor in order to have funds awarded.
2. Funding can only go to university-affiliated projects from students, faculty, staff, and departments.
3. All SSC projects must make a substantial impact on students. All SSC funding is 100% from student green fees, so the projects funded by the students must benefit them.

B. Things SSC Can Fund, On A Case-By-Case Basis

1. SSC can fund feasibility studies and design work; however, it must work toward ultimately addressing a sustainability need on campus.
2. SSC can fund staff positions that are related to improving campus sustainability. Strong preference will be given to proposals receiving matching funding from departments and/or plans for maintaining continuity of the position after the end of the initial grant.
3. SSC can fund outreach events with a central theme of sustainability, provided their primary audience is the general campus community.
4. SSC discourages requests for food and prizes but will consider proposals on a case by case basis.
5. SSC can fund repairs and improvements to existing building systems as long as it works toward the goal of improving campus sustainability.
6. SSC can provide departments with loans for projects with a distinct payback. Loans will require a separate memorandum of understanding between SSC and departmental leadership pledging to repay the award in full and detailing the payback plan.

C. Things SSC Will Not Fund:

1. SSC will not fund projects with a primary end goal of generating revenue for non-University entities.
2. SSC will not fund personal lodging, food, beverage, and other travel expenses.
3. SSC will not fund any travel expenses.
4. SSC will not fund tuition or other forms of personal financial assistance.

Instructions

Submit this completed application and one map, graphic, or picture to Sustainability-Committee@Illinois.edu. Please adhere to the session word counts. The committee holds the right to decline applications over the designated word counts. If you have any questions about the application process, please contact the Student Sustainability Committee Coordinator at sustainability-committee@illinois.edu.

Project Name: Campus Landscape Performance Monitoring and Reporting System.

Total Amount Requested from SSC: $95,000 *[Approx. Cost of 4 Air quality Sensors and 4 Storm Water Sensors & operations for 3 years]*

Primary Project Leader Name & Email: Prof. Brian Deal, deal@illinois.edu

Project Abstract: In less than 100 words, briefly describe your project.

Engagement, Education, Reporting Progress, Energy and Research opportunity are among the major themes highlighted in the iCAP. As the campus advances towards achieving the iCAP goals there is uncertainty as to how campus is engagement in many of the project. This project is aimed at establishing monitoring systems at four locations within the campus to implement a monitoring and reporting system that allows stakeholders to monitor impacts and changes in the campus landscapes.

The goal of this project is to 1) To connect Students to iCAP by allowing them to realize the positive impacts of projects that have been implemented so far as part of iCAP on the campus. 2)Allow campus community to understand the seasonal and scaled variations on the air quality and stormwater in campus. 3) Explore possibilities to install a pilot sensor for monitoring stormwater flows to establish a system of smart landscapes on campus 4) Augment the existing efforts to implement sustainability projects in campus by establishing an impact monitoring system 5) Provide a long term tool to record and monitor the impact of iCAP and other projects on campus sustainability. 4) Develop datasets for furthering visualizations and educational research.

	Education	Energy	Food & Waste	Land & Water	Transportation
Project Category	✓	✓			

Project Team Member List (student projects must include their faculty/staff advisor's information)

Name	RSO/Department	Email Address
Brian Deal [Faculty]	Department of Landscape Architecture	deal@illinois.edu
Moazam Iqbal Hakim [PhD Student]	Illinois Informatics Institute (Department of Information Sciences)	mihakim2@illinois.edu

Questions	Yes	No
Is this a student-led project?		✓
If applicable, have you received approval from Facilities & Services and/or site manager?		✓
Do you have a plan for ongoing funding beyond SSC? (SSC cannot guarantee ongoing financial support)	✓	

Beyond SSC, do you have sources contributing funding or support (ex. staff time, external grants, etc.) to this project?		✓
Have you applied for SSC funding previously?	✓	

Project Timeline

SSC funding agreements remain active for two years. Please list your project's timeline and/or milestones.

- December 2020 – Finalization of installation sites and obtaining Approvals and Support letters from F&S
- January 2021 – Procurement of Sensors and begin Installation.
- March 2021 – Complete Sensor placement, installation, and trials.
- April 2021 – Check point for preliminary Dashboard.
- May 2021 – Final Dashboard layout and Data Reporting live/ Working with technology services to setup airquality.illinois.edu
- July 2021 – Campus roll out of the public dashboard and API's for campus wide use.

**periodic reporting to SSC to be separately followed as per established system.*

Project Description

In 250 words or less, describe your project. What does your project hope to accomplish? What are your project's deliverables? Bullet points welcome.

- The need for monitoring systems on campus is to encourage students about positive impacts of sustainability and help them realize the outcomes of the hard work they have done in past to help achieve campus goals listed in iCAP.
- Through use of sensors and modeling systems we can allow campus to intelligently manage their wastewater infrastructure that can turn storm water and wastewater into a critical asset instead of a recurring source of carbon emissions. Sensory system that uses artificial intelligence, real-time monitoring and predictive analytics for storm water and wastewater would provide an insight as to how to manage the system to reduce operating cost as well as operational emissions.
- Air quality monitoring system available for general campus community through a public website.
- Establishing a system for monitoring stormwater flows and modelling the outcomes in easy to understand metrics.
- Install 4 sensors that measure and report particulate (PM), NO, NO2, O3, CO, CO2, SO2, temperature, RH, and barometric pressure from three different campus locations at 10-minute intervals. Additionally, work with F&S to identify possibility for installation of stormwater sensors that model stormwater flows within the campus.
- This request for funding covers complete operational costs for the pilot system for initial three years.
- The sensors would be installed at 3 critical locations – Main Quad, Arboretum, Parking Lot E-14, and one inside one of the campus buildings. The sensors would be driven by 100% solar energy and connected to servers using inbuilt mobile technology.
- Through customized API's Collaborate with Rokwire project to report live information through the Illinois, Safer Illinois and Rokwire operating system or other campus websites.
- Air quality is an important parameter for monitoring impacts of climate change. Additionally, air borne diseases like COVID-19 have been linked to air quality through multiple research projects.
- This project aims to develop a system for students to know about the current campus air quality and instill in them a sense of belongingness towards campus wellbeing.

- The surge in cultivation of Soybean around Champaign County has degraded the air quality in last decade. This project would result in a secondary benefit to study this impact on our campus community by continuous monitoring of Air Quality parameters.

Environmental Impact

In 200 words or less, how does your project increase environmental stewardship at UIUC? If applicable, what is the carbon, water, waste, and/or energy savings? Does your project relate to the iCAP? Bullet points welcome.

- One of the critical goals of iCAP is improving the air quality in campus by reducing the carbon footprint. Through this project a reporting system to allow stakeholders (campus community) to realize the impact of reducing use of fossil fuels in the immediate landscape can be established.
- Environmental data for campus community needs to be in an easy to understand format. Through this project our aim is to engage students in the process by allowing them to understand, engage and introspect on their actions that lead to positive or negative impacts on campus landscapes.
- By monitoring stormwater flows at multiple locations, the impact of Green Infrastructure on water systems could be tracked and corrective measures could be taken.
- The environmental impact of this project is through its potential to augment other sustainability related tasks being undertaken in campus by measuring their impact on the air quality in and around campus.
- With a better understanding and scientific reporting system about the quality of air we breathe, stewardship towards a healthy campus environment would be encouraged in the campus community.

Student Impact

In 200 words or less, how will this project benefit students? How will students be involved with this project? What educational components are in your project? Bullet points welcome.

- The web dashboard to be developed as a deliverable of this project would benefit the campus community at large by allowing them to monitor their surroundings and evaluate the variations within different parts of campus.
- The API's to be developed have the potential to be engaged with other ongoing campus efforts like Rokwire, individual websites or SSC website to report information live for access by students easily.
- Additionally, the data to be collected over a period provides a chance for further studies and analysis to understand the impact of ongoing campus initiatives or changes that are taking place at the regional level.
- Graduate Student Moazam Iqbal Hakim would work on this project throughout its duration and work closely on its implementation and final deliverables. His background in Landscape Architecture and Urban Planning and over two years of experience of working with Smart Energy Design Assistance Center at the University make him a good fit for this project.
- The educational components of this project include- study of air quality parameters, study of impact of air quality at a micro as well as macro scale, stormwater studies and modelling, technological component involving data reporting and visualizations, understanding and inferring environmental

data to develop easy to understand inferences for general campus community through the common dashboard.

- To engage students, complete datasets would be made available for use by students in their research and study projects. This data shall be updated periodically and released for student use and general observations.

~ END~