*Please submit this completed application and any relevant supporting documentation by the deadline listed on the SSC website to* [*Sustainability-Committee@Illinois.edu*](mailto:Sustainability-Committee@Illinois.edu)*. The Working Group Chairs will be in contact with you regarding any questions about the application. If you have any questions about the application process, please contact the Student Sustainability Committee at* [*http://sustainability-committee@illinois.edu.*](http://sustainability-committee@illinois.edu.)

**General Information**

Project Name: Sustainable Dance Floor at the Illini Union

Total Amount Requested from SSC: $10,500

Project Topic Areas:  Land & Water  Education  Energy

Transportation  Food & Waste

**Contact Information**

Applicant Name: Ranjith Mahalikudi, Ria Narayan

Unit/Department or RSO/Organization: UIUC – Energy Systems (NPRE Department)

Email Address: [ranjith3@illinois.edu](mailto:ranjith3@illinois.edu), rian2@illinois.edu

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Project Team

|  |  |  |
| --- | --- | --- |
| *Name* | *Department/Organization* | *Email* |
| Ria Narayan | NPRE – Energy Systems | [rian2@illinois.edu](mailto:rian2@illinois.edu) |
| Ranjith Mahalikudi | NPRE – Energy Systems | [ranjith3@illinois.edu](mailto:ranjith3@illinois.edu) |
|  |  |  |
|  |  |  |

Financial Contact’s Name: N/A

Faculty/Unit/Department:

Email:

Phone:

(If Applicable)

Facilities Manager Name: David. C. Guth, Assistant Director of Facilities, Illini Union

Email: dguth@illinois.edu

Phone: +1 (217) 244-1505

**Project Information**

*Provide a brief background of the project, its goals, and the desired outcomes.*

**Project Overview**

Our plan is to design and implement a dance floor which harvests energy from footsteps, and stores this as electrical energy for future use. The principle of Piezoelectricity is the main driver behind this project. Vibrational energy generated from the footsteps is converted to electrical energy.

The Dance floor comprises floormats which contain piezoelectric crystals embedded in them. Floormats are connected in a cascading manner, and the net electrical energy generated is stored in a battery.

An energy meter will display real time energy generated in an attractive way, along with a battery bar which displays the total amount of energy collected from dancing.

**Goals**

We hope to emphasize the concept of sustainability in a fun and practical way. Solar, wind energy etc. are the forms of non-conventional energy that most students are aware of. Piezoelectricity has flown under the radar in recent times. By realizing the potential of this form of energy in a fun and exciting way, students start caring about the environment and how sustainable development and its applications can have a huge impact for the future.

*How will this project improve sustainability at UIUC?*

The Illini Union building consumes 250,000KWh of energy per month on an average for electricity alone. The dance floor would be self-sufficient in its operation. The energy generated will be stored and later used to power the display, music and lighting system.

Furthermore. this project can act as an example of sustainable engineering for new facilities and equipment that will be installed in the future. The concept of this dance floor can be applied to more locations and venues with large footfalls such as stadiums. Doorways, concert halls, auditoriums etc.

*Where will the project be located? Do you need special permissions to enact the project at this site? If so, please explain and attach a letter of support to your application.*

The project will be located at the Illini Union building.

We are currently in the process of figuring out the actual room we’ll be setting the dance floor in and obtaining lighting and sound permissions.

We are in contact with Mr. David Guth who is the Assistant director for Facilities for the Illini Union building.

*Other than the project team, who will have a stake in the project? Please list other individuals, groups, or departments indirectly or directly affiliated to this project. This includes any funding entities (immediate, future, ongoing, etc.) and any entities that will be benefiting from this project.*

We are currently being advised by Dr. Rizwan Uddin, the Director of the NPRE (Nuclear, Plasma and Radiological Engineering Department).

*Please indicate how this project will involve or impact students. What role will students play in the project?*

The purpose of this project is to raise energy awareness in the student population. Setting up and running a sustainable dance floor is not the primary focus of our idea. We want students to talk about this concept and realize the need for sustainability on campus and the real world. Our plan to make this project impactful and popular is summarized in the following points:

* We plan to host dance themed events at the location. Each event will have a goal where in students must dance and generate a targeted amount of energy. Students compete to better or improve the amount of energy generated from previous events. This kind of a unique goal will encourage students to be a part of this concept. Each event will have winners who will win freebies/ goodies and make it to our social media handles.
* Visual indicators are quite effective in sending a message. Students can see in real time how much energy is being generated while they dance. This makes them realize the beauty of how a sustainable system works, and how it is beneficial to the environment, while dancing.
* Generally, the energy created during dancing goes unutilized. This energy can be tapped and used for powering other devices instead. Such events would attract more students and not only spread a wave of awareness among them but also produce more energy consequently.

*Have you applied for funding with SSC previously? If so, for what project?*

No.

**Scope, Schedule, and Budget verification**

*What is the plan for project implementation? Describe the key steps of the project including the start date, target completion date, target date for submitting a final report, and any significant tasks or milestones in the table below. Please be as detailed as possible.*

*If the project is implemented, will there be any ongoing funding required? What is the strategy for supporting the project in order to cover replacement, operation, or renewal costs? (Note: SSC provides funding on a case by case basis and should not be considered as an ongoing source of funding)*

As far as replacement costs are considered, there will be no funding required. The floormats are very rugged, robust and designed to experience significant wear and tear.

We are planning to have weekly events where we will give out T shirts and freebies to winners. We are planning to rope in sponsors for the T shirts to cover the costs of printing. The freebies will also have sponsor logos as well as the SSC logo.

Renewal costs may come into picture if we plan to expand the size of the dance floor. This solely depends on the success of this and the amount of footfall each event generates. If the number of students coming to dance increases, we can invest in more on floor mats and expand from the existing design and setup without making too many alterations.

*Please include any other sources of funding that have been obtained or applied for, and please attach any relevant letters of support.*

*What is the plan for publicizing the project on campus? In addition to SSC, where will information about this project get reported?*

1.) We plan to create pages on Facebook, Twitter and Instagram, where in we constantly provide updates on all dance events that are and will be taking place. Students can get featured on these pages if they surpass milestones for energy generated. Social media is a very effective platform for word to spread very quickly and in a large circle.  
2.) Students will also be asked to share and publicize on social media which will further expand the outreach of our concept.   
3.) The Illini Union Student Board will be approached to display event notifications on their screens and pin boards through posters so that students and visitors can get notified.

4.) Also during themed events, we plan to hand out free T shirts and goodies to winners which will have our branding on it.

As of now, details about this project are known only to the SSC and the director of NPRE department as it is part of our ENG 572 curriculum.