



STUDENT SUSTAINABILITY COMMITTEE

Semesterly Report

Thank you for your commitment to green initiatives at the University of Illinois. One of the ongoing requirements listed in the terms of the funding agreement for your project is the submission of semesterly reports with key information about your project. In addition to this form, please provide additional financial documentation and/or progress photos if available.

Please be as accurate as possible in describing the project (including possible setbacks or challenges in meeting the initial goals of the project). Not fully meeting your project's goals will not disqualify you from making future funding requests as long as your reports are as complete and accurate as possible. If you have any questions, please contact the Student Sustainability Committee, at sustainability-committee@illinois.edu.

Project Name: InSPIRE Solar Charging Station (original Name); currently being called the Solar Powered Outdoors Table (SPOT) Project

Date of Report Submission: 4/7/2021

Project Purpose:

The SPOT project is a completely student designed and implemented outdoors table which will be retrofitted with solar panels used to charge an off grid solar energy system. The plan is to provide students in UIUC a space to sit and study outside while charging their devices (cellphones, tablets, laptops etc.) using solar energy. It will also better promote solar energy by allowing students to interact with solar energy first-hand through solar panels they can clearly see in-front of them. Lastly, the current plan is to provide a QR code on the SPOT which will direct students and RSOs to a website detailing design and construction plans for the project. This will allow students and other RSOs to replicate the project or parts of it in their own endeavors. The website will also include instructions to create an off-grid solar energy system.

Detailed Accounting of Expenditures to Date:

Attached as a Spread Sheet

Project Progress to Date:

** Since the Spring and Fall 2020 semesterly reports were not sent, this report acts as an update for those two semesters as well as most of the Spring 2021 semester.

Major Milestone	Approx. Time Completed	Description
Creation of Project Design Concept	Fall 2017	Decided on a picnic table fitted with solar panels and outlets to charge laptops and cellphones

Found Sponsor and Funding	Early Spring 2018	Gained funding from Student Sustainability Committee, and sponsorship of prof Erik Benson
Found Technical Support for Electrical System	Late Spring 2018	Found technical advice and support from Philip T. Krein for the design of an off grid solar energy system
Proof of Concept	Fall 2018	- Created Functional Prototype Solar Energy System - Initial 3D model of design completed - Gained an "ok" from Craig P. Grant and Joseph Y. Youakim regarding the structural design.
Technical Knowledge Preparation	Early Spring 2019	- Gained approval and permission to start building the solar energy system (SES) from Philip T. Krein - Began learning and gaining skills related to concrete/masonry work
Electrical System	Late Spring 2019	- Purchased electrical Bos and electrical parts - Began assembly of the electrical system
Electrical System Construction	Summer 2019	Completed Electrical System and began testing
Structural Design	Fall 2019	- Finalized structural design of the project - Compiled purchase list of parts for the structural system - Gained permission from Concrete Canoe RSO to share concrete workspace
Attained Approved Space for Installation	Spring 2020	- Gained Permission from the UIUC F&S Architectural Board and local Facility managers in the college of Engineering for a permanent location northeast of the Holonyak Labs

No progress was made Fall 2020 due to lack of access to campus facilities, lack of communication and lack of ability to meet in person.

For Spring 2021, we have begun carpentry and concrete work for multiple significant components. We have cooperated with ECEB officials who are willing to receive and store the large and heavy components for the project. We have also gained approval to conduct outdoor RSO groupwork by involve@illinois.

Student Involvement and Outreach to Date:

Students were involved in the following.

- Overall design of the table including what major components will be commercially bought and what will be created from scratch.
- Cooperating with professionals for consultation on the design, construction, and compliance with local campus codes as well as statewide & national codes.
- Construction
- Marketing

- Creation of signs
- Creation of the website with the design documents available to the public
- Hands on carpentry and masonry work

Marketing and Promotion Efforts to Date:

None

Additional Comments:

Since the Spring and Fall 2020 semesterly reports were not sent, this report acts as an update for those two semesters as well as most of the Spring 2021 semester. This is to make up for missing the 2020 semesterly reports and this report is not necessarily our Spring 2021 Semesterly report. If the project is not finished on the semester of Spring 2021 and notable progress is made from now till the end of the semester, another Semesterly report will be sent later this semester (Spring 2021).

Appendix: List of All Expenses to Date

Initial Amount	\$5,800.00
Est Sub-Total Expenses (excluding shipping & taxes)	\$3,473.57
Est Total (w/ shipping and taxes)	\$4,168.28
Est Remaining	\$1,631.72
Confirmed Remaining Amount (As of March 16, 2021)	\$1,752.41.

January 21, 2019			
Item	Quantity	Price/Unit	Price
DC Circuit Breaker #1	2	-	\$29.10
Ground Faults Protection Device	1	-	\$51.23
MPPT Charge Controllers	1	-	\$399
DC Circuit Breaker #2	1	-	\$28
Battery Bank	2	-	\$99.99
Inverter	1	-	\$642.08
AC Circuit Breaker	1	-	\$8.94
Outlets	2	-	\$20.99
Low Voltage Disconnect	1	-	\$55.50
Total			\$1,334.62

February 12, 2019			
Item	Quantity	Price/Unit	Price
Battery Bank	1	\$107.96	\$107.96
AC Circuit Breaker	1	\$9.20	\$9.20
Strike anchor	1	\$57.35	\$57.35
Orange ASA 3D printing Material	1	\$38	\$38
Total			\$212.51

February 14, 2019			
Item	Quantity	Price/Unit	Price
30amp DC circuit breaker	2	\$12.25	\$24.50
Electrical Enclosure	1	\$931.27	\$931.27
Rebar Bundle	2	\$17.44	\$34.88
Total			\$990.65

Appendix: List of All Expenses to Date

March 20, 2019			
Item	Quantity	Price/Unit	Price
100% Plastic Board	1	\$106	\$106
Total			\$106.00

April 20, 2019			
Item	Quantity	Price/Unit	Price
DC Circuit breaker box	1	\$49.88	\$49.88
Two Hole Conduit Strap (8mm)	1	\$8.73	\$8.73
16mm Drill Bit for Metal	1	\$15.11	\$15.11
Cable Glands	1	\$9.99	\$9.99
1/2 screws	1	\$5.25	\$5.25
10 Gauge Silicone Wire	1	\$16.48	\$16.48
MC4 Connectors	1	\$9.99	\$9.99
Power Strip	1	\$12.45	\$12.45
Temperature Controller	1	\$34.99	\$34.99
Total			\$162.87

December 10, 2019			
Item	Quantity	Price/Unit	Price
Cam Lock	1	\$14.65	\$14.65
Solar Mounts	2	\$259.20	\$518.40
4in Pipe Nipple	1	\$32.75	\$32.75
4in dia drill bit	1	\$22.55	\$22.55
Table grounding Clamp	2	\$13.50	\$27.00
Total			\$615.35

Appendix: List of All Expenses to Date

December 11, 2019			
Item	Quantity	Price/Unit	Price
Grounding Rod Clamp	4	\$2.35	\$9.40
6 awg bare solid grounding wire	1	\$20.96	\$20.96
Normal grounding lugs	3	\$3.15	\$9.45
Bus Bar	1	\$3.99	\$3.99
12 awg stranded wire	1	\$7.77	\$7.77
Total			\$51.57