STUDENT SUSTAINABILITY COMMITTEE

Funding Award and Acceptance Letter

November 13, 2015

Project Leaders: Tan Chee Sim
Project: Solar Car Electrical System

Dear Tan Chee Sim:

On behalf of the University of Illinois at Urbana-Champaign Student Sustainability Committee (SSC), I would like to thank you for considering the funds raised by the Sustainable Campus Environment Fee to implement a project that improves the sustainability of our campus. SSC is pleased to inform you that we are recommending to the Institute for Sustainability, Energy, and Environment (iSEE) that the Prototype Electrical System for Solar Car project **receives $4,913.00 in grant funding**.

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

1. A final report of all work completed should be provided to the SSC Program Advisor by December 31, 2017.
2. Project status updates and detailed account statements must be provided at the end of each semester until the project is completed.
3. 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 Program Advisor.
4. All projects will be expected to follow campus policies and procedures as well as any applicable State and Federal laws.
5. SSC reserves the right to revoke funding if the project does not comply with the terms and conditions outlined in this letter.
6. 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.
7. Any press releases or educational/promotional materials involving the project should acknowledge SSC funding. Projects must communicate with the SSC's External Vice Chair to come up with appropriate marketing for the project.
8. Projects must participate in the Campus Sustainability Symposium at least once before June 30, 2018.

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 Chair, Amy Liu, at amy.linqin.liu@gmail.com or the SSC Coordinator, Micah Kenfield, at kenfield@illinois.edu. You will be notified when the Institute for Sustainability, Energy, and Environment 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

Amy Liu, Chair
Student Sustainability Committee

Marcous Phillips, Treasurer
Student Sustainability Committee

Awardee Signatory

Tan Chee Sim
Illinois Solar Car

iSEE Signatory

Dr. Evan Delucia, Director
Institute for Sustainability, Energy & Environment

Student Affairs Signatory

Dr. Renee Romano
Division of Student Affairs

STUDENT SUSTAINABILITY COMMITTEE

Project Information

Project: Solar Car Electrical Sytem

Funding Source: Sustainable Campus Environment Fee

Funding Amount: $4,913

Award Code: 1-303692-XXXXXX-XXXXXX

Receiving Campus Unit: Illinois Solar Car / Electrical and Computer Engineering

Unit Financial Contact: Beverly Curtis, Electrical and Computer Engineering

E-mail : bcurtis@illinois.edu

Primary Contact: Tan Chee Sim, Illinois Solar Car

E-mail: ctan14@illinois.edu

Secondary Contact: Lee Jye Sze, Illinois Solar Car

E-mail: jlee641@illinois.edu

Project Description:
Illini Solar Car is a student led multidisciplinary team that aims to design, build, and race solar cars in the American Solar Challenge, World Solar Challenge, and various other cross country solar races. Our long term aim is to build a practical, road worthy, multi-seater solar car to participate in the World Solar Challenge 2019. To meet this long term goal, we have the interim goals of building a lighter, single-seat vehicle competing in the 2016 American Solar Challenge, 2017 World Solar Challenge, and 2018 American Solar Challenge.

Last semester, we utilized SSC's funding to build a scaled down electrical system of a solar car and to purchase parts needed for us to gain experience in building other parts of the car, for example, performing layup using composite material. That prototype project allowed our team members to gain valuable experience working in their respective subsystems.

This semester, we are designing and building full scale maximum power point tracker, battery management system, driver dashboard, and telemetry and data analysis system, all of which do not yet require high development cost. We aim to integrate the electrical system by building a full voltage electrical system of a solar car by the end of this year, and it will also include a ~100V lithium ion battery pack and a ~50V solar array. This system will enable us to debug the current designed boards, and design and increase the efficiency of the future revisions of the electrical system. We aim

to have two more revisions for the electrical system by the mid of next year, which is the time we aim to have the mechanical part of our car completed by.

Unlike the prototype project we built previously, this system, which has the same voltage as our solar car will also serve as a testbed for our future developments. This system will not have as many batteries and solar cells as our solar car, so it is safer and more convenient for us to test our designed circuit.

During the Quad Day and ECE Ignitions earlier this semester, we displayed mainly our prototype project, which consists of a 22 cells solar array, a maximum power point tracker, a 21 cells lithium ion battery pack, and a battery management system. As our display was tended towards the electrical system, we had twice as much electrical students signed up than mechanical students. Our project drew a lot of interests from the student body as we constantly receive emails from students interested to join our team. We intend to achieve the same outcome with this full voltage electrical system we are building. (Unlike the electrical system, the mechanical system needs to be built at full scale and at one go, so it is less likely to build a scaled down mechanical system and display it to attract members.) Besides allowing our members to learn and have a better platform of conducting experiments on the boards they designed, we aim to draw interest from ECE students as we will be working mostly in the ECEB Openlab, and will be testing our system at outdoors. As the electric automobile industry that aims to achieve sustainability in transportation, as led by companies like Tesla and BMW become more developed, our project will be the most beneficial to students as we expose to them the related technologies and provide them a platform to learn.