



STUDENT SUSTAINABILITY COMMITTEE

Funding Award and Acceptance Letter

December 13, 2019

Project: **Illini Formula Electric**

Dear Mx. Henry Steenkolk:

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 your project receives **\$50,000** 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 Coordinator by December of 2021.
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 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 Coordinator.
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.
10. Notify the SSC of general events associated with IFE. Promote SSC at those events.

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.

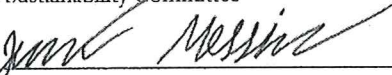


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SSC Signatories




Joseph Edwards, Chair
Student Sustainability Committee




Jonah Messinger, Treasurer
Student Sustainability Committee

Awardee Signatory



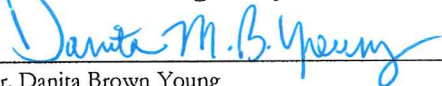
Henry Steenkolk
Applicant

iSEE Signatory



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

Student Affairs Signatory



Dr. Danita Brown Young
Division of Student Affairs



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Project Information

Project: Illini Formula Electric


Funding Source: Sustainable Campus Environment Fee

Funding Amount: \$50,000

Receiving Campus Unit: Mechanical Science and Engineering

Unit Financial Contact: Marcia Mathis

E-mail: mems@illinois.edu

Project Description: 

IFE is a student led organization that investigates methods to improve performance, efficiency, and reliability of electric vehicles. The car is designed and manufactured to compete against teams from many universities in the international FSAE Electric competition. This year, the team will be perfecting previous year's design through testing and data collection. We will improve battery efficiency through optimized temperature management and reduced losses in the drivetrain.

Our sight is set on developing an all-wheel drive platform where four hub-motors power the wheels independently. Doing so will require a completely new design of the entire car as the drivetrain setup, motor controllers, battery packs, suspension, and chassis will all have to be re-designed to accommodate the new layout. By developing custom motor controllers tailored for this application, we can implement many cutting-edge designs like higher switching frequencies and wide-band gap transistors which are not commercially available yet. These will enable us to utilize high fundamental frequency motors which are inherently more efficient and use less material to manufacture, while also being lighter, and thus increasing vehicle range.

The new layout will provide granular control over the vehicle dynamics which increases overall performance. It will also result in drastically lower weight in

- Motor controller due to accurate thermal margins
- Motors due to compact design and effective cooling
- Chassis due to reduced stiffness requirements



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All these, along with an inherently more efficient drivetrain, result in gains in efficiency, reducing the required size of the battery as well as the environmental impact of the design.

This proposal directly funds:

1. Frame Construction
2. Powertrain Components
3. Motor Controllers
4. Housing materials and CNC Costs
5. Custom Motor Gearboxes
6. Chassis manufacturing
7. Motors and batteries