# *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:** Eco Illini Supermileage 2

**Date of Report Submission:** 1/11/2019

**Project Purpose:**

The purpose of this project is to build a porotype vehicle to compete at Shell Eco Marathon Americas and SAE Supermileage Competitions, with a goal of achieving the highest fuel efficiency possible. We aim to teach our members how to design efficiency parts, system, and vehicles. We also help them understand the importance of efficiency in industry, especially when it comes to using less material and reducing manufacturing time. We also aim to start a conversation with students on campus about the importance of fuel efficiency and demonstrating what is possible. The focus of these funds is to develop an electric drivetrain for our cars. This will allow us to explore different ways of being efficient and give our members a more diverse knowledge base, as well as adapt to the push for electric vehicles in the world.

**Detailed Accounting of Expenditures to Date:**

To date we have spent $2261.34. The majority has been spent on the electric drivetrain development. Most of the costs listed are surface mount components for PCB boards. We have also purchased test motors, a battery from Eco Concept, and electrical components needed for wiring the car. We have also spent money on shop space improvements. We have purchased our new tool chest, shelfing unit, and other storage items. The rest of the money has spent on layup materials. The focus of these funds was buying new safety equipment for our growing team and buying materials for test and practice layups to get the team ready for full size layups in the spring.

**Project Progress to Date:**

This semester we have made substantial progress in the development of our electric drivetrain.  Our main focus has been on the development of our motor controller- which is near completion due to working with EV Concept to create a universal controller that can be used for both of our teams.  This saves both development cost and time for both teams. We are currently finishing the motor controller, acquiring our battery management system, planning our wiring harness layout, and finishing our car computer.  The next step for our electric sub team is to finalize the controller and start moving our components into the car to start testing.

 Body team has spent a considerable amount of time getting our new team familiar with the carbon fiber layup process. We want to make sure they every member on body team knows the ins and outs of the process before moving on to larger and expensive pieces. We also began experimenting between our two main core materials, nomex and lanter-soric. We discovered that each material offers its own benefits and drawbacks, while having similar weight. More testing is needed to determine which material should be used in each area of the car, but it is something we will be exploring during the upcoming semester.

 Lastly we focused on shop space organization. We purchased the tacklebox early on and placed our bolts, fasteners, and other small parts in it. This has greatly improved the speed at which we find parts that we need. At the end of the semester we focused more on organizing our larger tools. We purchased a new toolbox and were able to improve the layout compared to our old toolbox. Our tools are much easier to find. Lastly we put up the new shelfing unit and placed our carbon fiber layup materials on it. This has allowed faster and easier access to our layup materials as well as allowing us to store more material.

 We are putting ourselves in a good postion for this year’s comeptiton. We have high hopes that our new electrics system will preform on par with the competition and we have improved body panels for better aero.

**Student Involvement and Outreach to Date:**

The 30 students on our team have designed, built, and tested the car along every step of the way. We used Quad Day to engage with a large amount of students and spread our mission. Unfortunately the Homecoming Parade was canceled this year. Thus far we have struggled to meet deadlines and have been less focused on outreach. Next semester we will aim to hold more outreach activities.

**Marketing and Promotion Efforts to Date:**

This year we have been very active on Facebook, attempting and succeeding to make weekly, and sometimes biweekly posts. This helps us engage with the student body that follows us and with the greater community. We also attended the McHenry County Green living Expo and showed off our car and developments.

**Additional Comments:**

Additional funding specification: AliExpress order on 10/30/18

Surface mount components ---- 46.00

Transistors --- 15.02

Proto boards --- 10.58

Connectors  ---- 45.10

Shunt Resistors ---- 4.34

Led Strips ---- 3.24

Arduino boards ---- 25.40

Rim nipples ---- 9.98

Buttons ---- 25.35

Test points ---- 4.09

Through hole capacitors ---- 4.00

Screw Terminals ---- 6.87

Potentiometers ---- 14.97

Toggle switches ---- 14.21

Circuit breakers ----14.10

Horns ---- 13.18

Full semester budget is attached in the email.