Tufts University GREEN FUND

Tufts University Green Fund Application

Name: Matthias Scheutz   **Role:** Faculty

Email: matthias.scheutz@tufts.edu   **Campus:** Somerville/Medford

Project Title: Yes, we CAN

One Sentence Description *(This is how your project will be described on the Green Fund website)*:
An autonomous, interactive robot for collecting recyclables on campus while educating students and faculty about sustainability practices

General Application Questions:

1. **What project would you like to fund with the Green Fund?**

We would like the Green Fund to fund the development of an autonomous, socially interactive outdoor robot for recycling that can roam the main quad on campus and collect different recyclables from the students, faculty, and visitors it encounters. It will use an encounter to not only offer an opportunity for recycling, but to also inform the person about waste management resources on campus (e.g., by showing a map with recycling and compost stations) and other sustainability practices (e.g., by showing people videos on its built-in tablet). We hypothesize that the social interaction capabilities will make the robot compelling and lead to higher compliance with recycling and other sustainability practices, in addition to being a great PR tool for the Office of Sustainability and Tufts as a whole.

2. *Who would you work with on this project? Who would need to be involved? (For example: are there departments you would need to reach out to? If you are hosting an event, you might need someone to help you set up and to help clean up afterwards. Do you need permission from anyone to complete your project?)* **Include their role** *(collaborator, advisor, vender, resource).* **Have they been confirmed?**

Name and Title	Role	Status
Chris Thierauf	Robotics engineer	graduate student
Clara Scheutz	Environmental studies major	undergraduate student

3.   **What costs would be involved in your proposal? Please provide a rough budget.**

Roughly, we would need 4k for the robot parts and 3k for the UG to develop the interactive materials used on the robot. We will be able to leverage a large set of software tools as well as the design of our functional indoor robot prototype for UVC room disinfection (without that prior work this project would not be feasible; we are aiming for a launch in Fall 2021).

4.   **What steps would you take to accomplish this project?**

We will build on our successful robot prototype developed under Tufts Covid19 funding and reuse the design for an outdoor platform, replacing the current wheels, and addding GPS sensors as well as a tablet screen for displaying information and educational materials. Here is a video showing the operational Covid19 UVC disinfection robot at work (psswd:hrilab): https://hrilab.tufts.edu/owncloud/index.php/s/gxgvGCgRAXOlbJf
In addition, the undergraduate student would develop interactive materials for the robot's tablet, which would allow students to access various visual and informational tools featuring relevant sustainability topics.

5.   **How would your project help the Tufts community?**

This project serves not only to bridge a connection between the fields of computer science and sustainability, but it also provides a unique opportunity for sustainability education on campus. Because of the flexibility in the robot's location and its interactive features, it has the potential to reach hundreds of students, providing a personalized, educational experience. Through this work, we aim to teach Tufts students how to be informed, environmental allies.

What can I expect next?
The Green Fund Committee will meet in early October and decide which projects to advance to the second round. These projects will be asked to fill out a more complete application (which can be found at go.tufts.edu/GreenFund) these applicants will also be asked to fill out a budget and Gantt chart for their project as well as gain letters of support from vital parties.