UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

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Champaign, IL 61820

March 26, 2015

TO: Members of the Student Sustainability Committee

Dear Members of the Student Sustainability Committee (SSC), I write to enthusiastically support the proposal to fund start-up of an "Illini Gadget Garage." As an Affiliate Faculty with the Illinois Sustainable Technology Center (ISTC) for the better part of a decade, I have collaborated closely with ISTC center scientists to support the Sustainable Electronics Initiative (SEI) coordinated by Joy Scrogum and Nancy Holmes. In collaboration with SEI I taught the first classes at the university on the topic of electronic waste and established with SEI the first e-waste design competition on campus (which became an international student competition, www.ewaste.illinois.edu). I currently teach a sustainability and manufacturing course open to all university majors. A student run electronics repair facility in my opinion is an idea waiting to happen. I fully support this initiative an am excited to be invited to be a part of the well-conceived Idea of a consortium of key cross-campus stakeholders to see this idea to fruition.

Because of the expected education and practical benefits of an "Illini Gadget Garage" in addressing the issue of electronic waste by extending the useful life of electronic tools and the opportunity to help educate future leaders who will address the serious issues of electronic waste domestically and globally, I am happy to assist with project management and by teaching an "Illini Gadget Garage" special topic course with advisory assistance from colleagues in engineering and business (marketing). The "Illini Gadget Garage" budget reflects the necessary budget; this will fund stakeholder GRA undergraduate and graduate hourly from marketing and engineering plus provide course materials to include hand tools for disassembly/assembly and diagnostic equipment. This course would be offered through the Product Innovation Research Laboratory (PIRL) or Design for Energy and Environment Laboratory (DEE Lab) that I direct. This interdisciplinary lab environment combines research and education by bringing together faculty and students from industrial design, marketing, business, engineering and sustainability scientists (ISTC and others from relevant disciplines) to study and recommend innovative solutions to real-world problems. Students receive course credit and have the opportunity to develop leadership skills while learning through experiencing the multidisciplinary collaborative design problem solving process. Deliverable outcomes for the PIRL/DEE Lab research follow:

1. Development of a Marketing Plan - purpose is to sustain and guide the "Illini Gadget Garage" going forward (business/marketing driven); recommendations to draw from case studies of currently successful similar programs at this and at other universities (UIUC bike shop);
2. Sustainable Learning; course/research will provide theoretical understanding combined with practical hands-on experiential approaches to be used; the goal is to understand the technical and human dimensions of our existing product assembly and disassembly paradigm as a basis for understanding mistakes of the past guiding future improvements; content to include environmental and social impacts of electronics and the importance of extending their useful life.

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3. Creative Problem Solving/Learning - learning by creating is achieved in three ways:

a). export new knowledge by writing repair guides on electronic gadgets for iFixit's Technical Writing Program; potential to empower others, via the Internet, to repair their own devices. (engineering and design driven)

a). design of replacement parts by creating replacement parts for select gadget components that frequently break and/or are difficult to replace; communicated through maker bots and similar rapid prototyping methods (engineering and design driven)

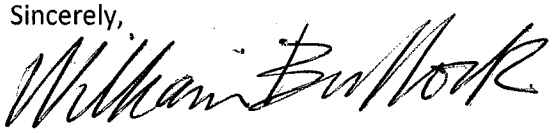
b). create sustainable new design solutions; opportunity to apply reverse engineering/design principles to existing poorly designed (unsustainable) products as a basis for envisioning more sustainable solutions for the future; communicated through drawings and rapid prototyping to guide any future re-design to achieve more sustainable design of new uses for discarded electronics.

Final research/class deliverables will be a report and or/presentation of results to begin establishment of a "Illini Gadget Garage".

In conclusion, this course will provides an excellent opportunity to learn theoretical and experiential collaborative pedagogical methods along with information on the environmental and social impacts of electronics and the need for more sustainable design, manufacture, use/extended/reuse of these products. It will also help create new knowledge and importantly produce a business plan to make the repair center self-sustaining. In support of this project, my PIRL/DEE lab will be available for holding demystifying technology workshops in conjunction with the course. As my time will be donated, the requested finding supporting this course is for a student (s) assistantship(s).

I urge the SSC to approve this grant request as the anticipated return on investment will be significant in terms of practical sustainable student learning outcomes, future student employment and student repair service learning and ultimately waste reduction.

Sincerely,



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