

UNIVERSITY OF LOUISIANA AT LAFAYETTE

STEP Committee

Technology Fee Application

3D Scanner

Title

Associate Prof. Adam Feld

Name of Submitter
(Faculty or Staff Only)

**The School of Architecture and
Design**

Organization

Title: 3D Scanner Date: July 15, 2024
Name (Contact Person): Adam Feld
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Department/College/Org: School of Architecture and Design, College of the Arts

ABSTRACT (250 words or less):

In the Industrial Design Program within the School of Architecture and Design, it is paramount to create tangible artifacts to place in the hands of perspective users. These artifacts are developed by a combination of physical sculpting and digital 3D modeling. Digital Modeling provides students with the knowledge/ability to construct and prepare files that can be physically made with digital fabrication equipment, e.g. 3D printer, Laser Cutter, and/or CNC-mill. Physical Modeling, made by hand, can develop anything from rough iterations to beautifully crafted models. Often, the students have the ability to develop higher detail in physical modeling, e.g. clay, than they are able to on the computer. At these times, a 3D scanner allows students the ability to hand craft a model, scan it, and then use that scan in a digital modeling program. The act of scanning a physical artifact to create a digital model produces a Digital Asset that can then be used for one or more projects. In addition, 3D scanners provide designers (students) with the digital ability to manipulate scanned artifacts such as: clean up physical models digitally, align models with other digital elements of a file, merge files with previously created digital elements, fill holes, smooth surfaces, mirror model halves, and/or trim unwanted parts. 3D Scanning benefits students by providing more tools.

A. Purpose of grant and impact to student body as a whole:

The primary purpose of this grant is to increase making opportunities in Design Studies where a physical artifact is the project goal. By integrating 3D scanning technology into the classroom, the Industrial Design program within the School of Architecture and Design, as well as other programs within the College of the Arts, stand to benefit from this technology.

To begin, not all students enter their college experience with a strong digital background thus affecting confidence in the classroom and their project exploration; you cannot create with unfamiliar tools. Some students have greater skill/preference to work by hand being able to create intricate designs that they are unable to translate in a Digital Modeling program. Some academic programs do not have digital design as a part of their curriculum. A 3D scanner will provide these students with the ability to work in their designated curriculum and skill level while being exposed to the digital environment thus providing more opportunities to explore and push their project boundaries.

In addition, the development of scanned artifacts provides students the ability to develop Digital Assets. These are files, created by digital modeling or 3D scanning, that can be used for more than one project and have the ability to be iterated upon, modified, and archived in digital libraries to be used by themselves or other students. There is an industry where Digital Assets are sold on websites like grabcad and thingaverse.

To conclude, the grant's impact can extend beyond the classroom and/or program, influencing the culture of innovation and iteration within the School of Architecture and Design. As students become adept at utilizing different technologies, they will have the ability to contribute to improvement and exploration within their own projects taking that ability into the profession. The implementation of 3D scanning into Design Studies will provide students the opportunity for more technological knowledge greater preparing them for the professional practice.

a. **Projected lifetime of enhancement:**

The 3D scanner will produce a digital file type, most commonly a Stereolithography file (.stl) or an Object file (.obj). These files have been around since the late 80's, The (.stl) being used since 1987 and (.obj) since 1990 and are used in most 3D printing applications. That being said, with proper maintenance and software updates, this enhancement will last more than 5 years potentially past 10.

b. Person(s) responsible for:

- i. **Implementation:** Associate Professor Adam Feld (PI)
- ii. **Installation:** any software will be coordinated with the College of the Arts Digital Media Resource Lab (DMRC) and the School of Architecture and Design's Digital Fabrication Lab.
- iii. **Maintenance:** The PI will be responsible for maintenance with check-ups to ensure the tool will work properly.
- iv. **Operation:** The PI who is also the Industrial Design Coordinator, will manage day-to-day operations working with the Industrial Design faculty as well as the School of Architecture and Design's Director to integrate this tool into the curriculum.
- v. **Training (with qualifications):** The PI will conduct training sessions for students and faculty members.
- vi. **STEP Plan Alignment:** This proposal aligns with the institution's Strategic Technology Enhancement Plan (STEP) by combining analog skillsets with innovative technologies to enhance educational outcomes, preparing students for industry demands, and fostering interdisciplinary collaboration.

Budget Proposal

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|-----------|--------------------|---|
| 1. | Equipment | \$5,990 Peel 3D Scanner |
| 2. | Software | \$0.00, software is included in the package and output works with 3D modeling software's currently in the Digital Media Resource Lab and on student computers. |
| 3. | Supplies | \$0.00, included |
| 4. | Maintenance | \$0.00 |
| 5. | Personnel | \$0.00 |
| 6. | Other | \$0.00 |

TOTAL: **\$5,990.00**