

**Pacific Library Partnership
2016-17 Grant Program**

Due Friday, September 30, 2016 by 5:00 p.m.

Please provide the following information in a Microsoft Word document. Please email the completed form to Wendy Cao at caow@plsinfo.org.

1. Title of Project Positioning Libraries for the Virtual Future
2. Category (A or B) A
3. Library applying for funding Palo Alto City Library
Name Monique le Conge Ziesenhenne
Email Monique.Ziesenhenne@cityofpaloalto.org
Mailing Address 270 Forest Avenue, Palo Alto, CA 94301
4. Amount of funding requested \$14,000

PLP Innovation and Technology Opportunity Grant Program

1. One paragraph project summary.

As technology changes rapidly, library users look to our sites as petting zoos, or public labs, to learn about hardware and software that may eventually be a commonplace feature in their everyday lives. The Palo Alto City Library embraces the future of libraries by experimenting with and adopting new technologies to improve and change how library services may be provided to the public. For this project, the library would like to test the use of two technology advancements: greeter robots and a design-oriented workstation. Our goal is to build and improve upon the available technology for users in a public library setting, evaluating practicality, costs to sustain services, and engagement. First, two robots will be introduced as greeters in one of the branches, providing directional assistance to anyone who comes into the building. Second, the project will utilize the Library's existing 3D printers to the fullest capability by pairing them with a powerful workstation that runs responsive and intuitive modeling software. As printing an object is often at the end of single design iteration, we want to be able to target earlier steps and incorporate a more holistic approach to show our users what it means to go from a concept or idea into a physical object. Through adoption of the two technologies, the Library will use a two-pronged approach as it aims to engage and draw in the community, generate excitement, find new partners, and expand our image as a technology resource for our customers.

2. Explain how this project fits with the library's strategic directions.

In Palo Alto, the library's vision is "A flourishing city where People achieve their dreams." To do this, the library's mission is "to connect and strengthen our diverse community through knowledge, resources, and opportunities. We inspire and nurture innovation, discovery, and delight." Our [Strategic Plan, 2015-2017](#) includes specific mentions of strategies related to evolving 21st century technologies, expanding virtual customer experiences, and fostering a culture of risk-taking. By positioning a robot at the entrance of a library, customers will immediately experience a sense of adventure and delight upon entering library space. That will lead people to understand library's emerging role as a center of innovation and exploration in the community, inviting them in to discover more about the possibilities in the world around them, as well as allowing staff to learn about the use of such devices as an alternative to other types of greeting communication.

Similarly, making a high-end design workstation available to the community provides a practical example of the kind of utility library technology services can offer. In design-thinking methodology, prototyping is a key element of the design process. Being able to use design software to envision a model and bring it to life on screen, by itself, is a delightful experience to users, especially children. It is also a skill that, when mastered, will enable users to make full use of our library's current 3D capabilities. The right environment enables the user to sketch out their design in 3D before extruding it, and is ideally intuitive and responsive to user manipulation. In this path of discovery and innovation, high processing power is required for a fast refresh rate and efficient rendering of designs. Users of this software environment would be able to envision their design as fully and realistically as possible, bringing another step of the prototyping and design process into the hands of our user community.

3. A description of the proposed project including the population served and the demographics of that population.

The robots will serve as one of the first points of contact for customers entering PACL, setting the tone for their experience with the library and the kinds of services and inspiration it provides. As retail stores, medicine, and museums have begun incorporating robots into their services and practices, it is only a short time before libraries consider their use. The presence of a robot in a library stimulates curiosity and excitement in children. For older customers, particularly our entrepreneurs and startup community, robots will help them reimagine the library as more than a meeting place with books. Additionally, it could potentially expand capacity, by allowing bilingual participants to have story times and translation services. It is even potentially possible that the homebound may be able to “appear” on the screen to “visit” the library!

In the status quo, modeling software exists that is free to use. However, software like the Adobe Creative Cloud suite of design tools is not. In addition, the computing power required for such software is beyond the reach for many. This presents barriers to innovation at the Library’s user community level, not limited to particular demographic groups. Bridging the brainstorming phase of ideation requires modeling environment that will be both accessible and easy to learn, as well as powerful enough to help its users accurately envision something they currently have only sketched out with basic, free tools. The additional set of tools we aim to have will enable users to fully explore in virtually 3D environment before printing objects, thus having an enriched 3D printing experience.

Based on a user survey recently conducted across PACL’s five branches, users who needed technology assistance consisted of 15% of all questions asked at the service desks. It is safe to deduct that these users can benefit any type of technical assistance when it comes to 3D printing. Also, in two community conversations the Library held, 100% of participants voiced a need for the Library to increase technology programs. The users who have used the Library’s 3D printing service have all needed variant level of assistance.

The Library will use the project as an opportunity to contribute to building libraries into centers for education and experience. Two different programs will be offered as part of the grant: 1 will be a community conversation about robots, and 1 will be an introduction for youth about robotics and 3D printing as a way to prototype. Since the school district has robotics programs, there are many teen users who will value the ability to work away from school, collaborating on project ideas. Having the first robots in a Bay Area library will potentially open the door for many future technology programs. At the same time, all of our adult users, children, and family can enjoy creative processes through virtual prototyping and 3D printing. Understanding user experiences in this environment will be valuable to all libraries.

4. Goals and objectives of the project.

Goal: Position libraries for the virtual future

Objectives:

- Generate excitement about library services
- Create opportunities for the public to engage in technology
- Library appears in media regarding use of technologies
- Community better understands virtual future of libraries

Goal: Increase user satisfaction with 3D printed objects

Objectives:

- 90% users report positively about the ability to prototype in a virtual 3D environment before actual printing
- 50% of frequent users request to start a printing job first with virtual 3D prototyping
- 80% of users report design thinking enhances their 3D printing experience

Goal: Understand how patrons perceive the robot greeter interaction

Objectives:

- User experiences reported through survey and community conversations
- User experiences guide recommendations for future technology experimentation

5. Project timeline (activities).

January-February 2017

- Purchase of equipment and software

March-May 2017

- Staff train and experiment with the robots
- Staff build the design workstation
- Staff train on the use of software
- Planning for the implementation: creating training materials, marketing materials, and evaluation materials

May-September 2017

- Deployment of robots as greeters
- Host community conversation about robots
- Use the workstation and software in 3D printing appointments; offer at least 1 training introduction to youth
- Evaluate the project through survey /focus group

6. Evaluation of the project.

To assist in evaluation of the project we will track a number of activities as the project is moved forward:

- Number of direct interaction the robots make with customers
- Number of user comments about the robots
- Number of sessions when staff uses the workstation with virtual 3D prototyping software
- User satisfaction level about the printed objects after prototyping using virtual 3D software
- Number of sessions when only proprietary 3D printer software is used
- User satisfaction level about the printed objects after using only the proprietary software to prototype
- Participation in community conversations/programming

In addition, surveys will be handed out to gauge the interest level in using a robot to provide directional services. We will learn the quality level of services provided by a robot.

An evaluation of the project as a whole will take place in October when the project is completed.

7. Project budget

Equipment:

--NAO Robot **\$8000**

--Beam+ technology robot **\$2500**

--Adobe Creative Suite Design & web Premium CS6 or comparable software **\$1000**

--Intel Core i7-6700K 4.0GHz Quad-Core Processor with required parts for workstation **\$2500**

In-kind costs:

--Staff hours on building the workstation **\$3200** (80 hours x \$40 hourly rate)

--Training on the use of software before using it in service **\$1600** (40 hours x \$40)

--User experience survey/focus group **\$400** (10 hours x \$40)

--Program supplies, outreach information **\$600** (10 hours of staff time x \$40 hourly rate; materials)

--Ultimaker II 3D Printer **\$2500**

--Filament **\$1000**

Total Cost: **\$23,300**

Grant Request: **\$14,000**

In-kind Expenditures: **\$9,300**

8. Sustainability analysis

This is a new opportunity for library customers to get access to high-end technology such as robots, 3D printers, powerful computer processor, and professional-level design and editing software. For the robots, this first test will be to understand whether or not the community would consider this a project worth continuing. Assuming that both levels of this project are embraced and valued, there are options for sustaining the programs.

To continue the availability of services in such manner, staff will first look to the community for resources. Palo Alto City Library has a very supportive and generous organization -- Friends of the Palo Alto Library (FOPAL). FOPAL supports library programs, particularly with supplies and promotions. Local businesses which incorporate similar technologies will also be approached for donations of services or supplies.

Palo Alto City's Information Technology Department, the Library Advisory Commission, and the library's user community are viable resource for technical expertise and refreshed ideas. Through community outreach activities, staff can build a network for technical support and referrals, as it has done in the past with other technology projects. Collaboration with the Palo Alto Unified School District and Stanford University are likely, as experts live in the community and have assisted with program presentation and other resources.

Finally, the City of Palo Alto strongly encourages innovation as a city-wide value. The library can gain funding to continue well-participated services as part of the City's annual budgeting process.