PLP Innovation and Technology Opportunity Grant Program Application

Library Name: Palo Alto City Library

Project Title: Light Up the Library with Drones

Select criteria that you are applying under (check all that apply):

- [x] Service that introduces a new idea, program or vision that is not currently used in libraries in response to the COVID-19 pandemic.
- [ ] Service that may benefit other PLP members in response to the COVID-19 pandemic.
- [ ] Service that may benefit other California libraries in response to the COVID-19 pandemic.

1. One paragraph project summary.

Built upon our library's successful Robot in Library programs and last year's FarmBot program "Harvesting at Your Library", we plan to continue expanding the robotics programs to drones programs. We will host drone coding workshops for customers and showcase the customer-created drone light show in holiday events for all audience groups in our community. The service can be hosted online or offline regardless of the status of COVID-19 pandemic.

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

One of the goals of the Library's Strategic Plan is to "Leverage technology to integrate the library into the lives of community members." Drone light shows have been popular around the world, but the general public do not necessarily understand backend technologies that make this possible, like the 3D design and coding technologies. The library would like to fill this digital gap by broadcasting the knowledge to the public. The Library, as a department of the City of Palo Alto, values environmental awareness. We are now seeing the trend of drone light shows replacing some of the July 4th fireworks in the US. The Library will lead the community to look into the future by experimenting drone light shows for holiday celebrations.

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

The project mainly has four components:

1. Staff get familiar with developing drone light shows.
2. Host coding workshops (online/offline) with mixed age groups (14+) to learn and develop customized drone light shows.
3. Evaluate customers' comfort level in the workshops and record their feedback and concerns with the service.

4. Experiment with live video streaming of coding and the drone light shows. Provide free online access to all customers.
5. Develop a documentation to share our experience and findings with other libraries in California.

We will use the grant to purchase **DJI RoboMaster TT Medium Classroom Pack**.

4. Goals and objectives of the project.

- Introduce drones technology to customers
- Provide workshops to customers to learn drones development technology
- Develop training documentation on how to use DJI RoboMaster drones
- Hold online streaming/in-person program of the drone shows to customers
- Gauge customer's interest in similar programs

5. Project timeline (activities).

Phase I: Internal deployment
- Purchase one **DJI RoboMaster TT Medium Classroom Pack**
- Staff spend time to learn the pack and code a light show
- Test run a drone light show

Phase II: Pilot program
- Design the workflow of the coding workshop
- Recruit volunteers
- Develop a questionnaire to gauge customer experiences and record comments.
- Try it out in a pilot program and adjust

Phase III: Launch the service
- Continue the regular online/offline coding workshops
- Schedule online/offline drone light shows
- Start marketing and promotion on the library's website

Phase V: Wrap Up
- Analyze feedback and comments
- Finalize documentation
- Write the final report

6. Evaluation of the project.

We will evaluate the project mainly by comparing the end results with the project goals and objectives:

We will report back on the following outcomes:

1. Customer comfort levels with developing drones, or customer feedback of the workshops
2. The number and duration of services, views and duration of live streaming video
3. Technical difficulties on the experiment of providing the service to customers
4. Recommendations for how drones can be used in public programs

7. Project budget. (Indirect costs are not allowed).

- Hardware: ~$3026.64 (DJI RoboMaster TT Medium Classroom Pack)
- Staff time: ~$1950 for installation time (78 hours at $25/hour)

Total budget: $4976.64

8. Sustainability analysis.

Drones do not last forever. The motors and battery will get worn out and in worst scenario, drones can get crashed. With the kit, we will have 10 drones, so we are well covered and hope that we can offer the services for up to 2 years.