Mobile ICT Applications to Improve Health and Function of People with Disabilities

Call for Proposals

Due September 1, 2020

Background
Through a grant from the National Institute on Disability, Independent Living and Rehabilitation Research (NIDILRR), the Rehabilitation Engineering Research Center for Community Living, Health and Function (LiveWell RERC) seeks to fund development of mobile information and communication technology (ICT) applications to improve health and function of people with disabilities. The LiveWell RERC's mission is to promote ICT access to emerging technologies for all people regardless of ability. Included in this effort is the RERC's mobile ICT applications development project, the "App Factory." The App Factory program description may be found at: http://www.livewellrerc.org/2020appfactoryrfp.

Call for Proposals
We invite experienced organizations and individual developers based in the U.S. and Canada to submit proposals for financial support to develop **mobile apps** designed for smartphone and tablet platforms (e.g., Android, iOS, Windows). An outline for the proposal is provided at the end of this announcement. **We are specially interested in funding apps that improve health and function, what are commonly referred to as mobile health (mHealth) and mobile rehabilitation (mRehab) apps.**

Developers can propose any mobile app that supports improved health and function of people with disabilities, either broadly or for a specific user group. Our consumer advisors have suggested several areas where apps are needed that are accessible and usable by people with disabilities:
- App to track individualized goals and completion of behaviors related to health goals
- App to track symptoms and circumstances related to their occurrence or alleviation for conditions such as chronic pain, fatigue, food allergies/reactions, asthma and related respiratory conditions
- App for easy input of daily food consumption
- App for adapted exercises, including goal setting, exercise tracking, and caloric expenditure (for example, for manual wheelchair users)

Developers may also request funding to modify or refine existing apps, so they are accessible and usable by people with disabilities or available on additional platforms. **No funding is available for indirect costs.**

Anticipating that development costs for individual projects may vary from $10,000-120,000 the App Factory plans to support development of at least 3 new apps under this RFP for the upcoming grant year (October 1, 2020 - September 30, 2021).

Developers **must conduct beta testing of apps with target users**. LiveWell RERC staff also might

conduct usability testing of funded apps. Developers will be expected to address reasonable usability issues identified through this testing prior to release. Please see the list of **Accessibility Guidelines** at the end of this document. Applicants may want to consult additional accessibility guidelines beyond those listed in this document. Upon release, the RERC will help to promote the app.

All funded apps must provide acknowledgement for support from the National Institute on Disability, Independent Living and Rehabilitation Research and the LiveWell RERC in the description field when published on the appropriate app marketplace. Additionally, funded projects are required to provide monthly install and usage data for their apps, as well as indicators of impact of their apps on user access and use of technology for up to 3 years after launch.

Proposals will be evaluated based on the following selection criteria:

1) *The app addresses an important health or function need (40 points).*
   a. Clearly defined target population: Proposals should clearly define the target end user population including functional limitations, ages and other pertinent demographic characteristics of intended users of the app or hardware.
   b. Cleary documented clinical or health need: Evaluation of importance of the app will be based on the degree of impact on that population (apps intended for use by a small population may be judged important if the impact is high).
   c. Addresses an underserved population: Proposal targeted at underserved populations will receive priority. Underserved populations are defined with respect to access and effective use of consumer technology, such as those with motor/dexterity impairment, deaf-blind individuals (including those who are both hard of hearing and low-vision), and individuals with cognitive impairment.
   d. Meaningful collaboration with recognized clinical or other subject matter experts: Developer has partnered with a clinical or other subject matter expert who can document expertise working with people who have the condition that the app proposes to address.

2) *The app is unlikely to be developed in the commercial marketplace (10 points).* Because the market is often small and less profitable for most of the apps people with disabilities need, priority will be given to these unrealized opportunities for assistive or accessibility apps. Other factors that will be considered include timeliness (i.e., addressing a current need) and anticipated obsolescence (i.e., will the need be diminished by other or emerging technologies).

3) *The app complements and does not duplicate other apps in the marketplace or under development (10 points).* Priority will be given to apps that address unmet needs, i.e., no existing app effectively addresses the need. Proposals must include a review of similar apps currently available and a description of how the proposed app is unique from these. Selection of new apps for development will also take into consideration the fit with other development efforts, including equitable attention to diverse consumer needs by the LiveWell RERC.

4) *The app is technically feasible, and the technical capacity required for development is documented by the developer (30 points).* The developer must demonstrate the ability to successfully develop the app with available technology, expertise and resources. Issues of timeliness, cost, and return on investment in meeting the stated consumer need will be considered in judging the availability of necessary technical capacity.

5) *The projected lifetime and maintenance plan of the app justifies the investment (10 points).* Proposals must include a budget and development timetable with specific milestones. Anticipated obsolescence and issues of sustainability, maintenance, and support from industry or user groups

will also be considered in gauging the potential benefits of the app. Applicants should include a plan for follow-up and maintenance after launch of the app. This plan will not be supported with funds from the LiveWell RERC. Developers will retain ownership of the Intellectual Property of their work.

Proposals addressing the above criteria should be submitted to the **App Factory Program Director**, **Raeda Anderson**, at raeda.anderson@shepherd.org**.** All submitted proposals will be held in confidence. In addition to the selection criteria noted above, the RERC's App Council (a panel of experts in the technology and disability fields) will review the app proposal to confirm that app functionality is clearly specified, timelines for development, testing and deployment are acceptable, and the budget is reasonable given the scope and complexity of the app.

To assure accessibility to all reviewers, proposals must be submitted in .doc or .html format.

2020-2021 Timeline
July 2020	Release of Call for Proposals
September 1, 2020	Submission of proposals due
October 15, 2020	Selection of proposals to be funded
June 30, 2021	Completion of user testing; any usability issues identified and resolved
September 15, 2021	Delivery/publication of final app

Proposal page limit: 8 pages double spaced, 12-point font, 1-inch margins
(not counting resumes/CVs)

Send questions and final proposal via email to:
Raeda Anderson
raeda.anderson@shepherd.org

Proposals must be submitted by: 11:59 pm, September 1, 2020

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Suggested Proposal Outline

1. Name/Working Title of App Development Project

2. Developer team/company/organization
   - Name
   - Contact person
   - Mailing address Phone
   - Email Website (if any)

3. Proposed Application
   a. Purpose (documented clinical/therapeutic need)
   b. Intended users
   c. Operating system(s) of ICT platforms, smart speakers, sensors, home automation, IoT or cloud technologies
   d. Platform/s: smartphone, smart speaker, tablet, wearable, etc.
   e. Function(s) [proposals may include storyboards, screenshots, etc.]
   f. Review of existing solutions (Contrast with similar or competing apps or hardware currently available)
   g. Clinical/therapeutic collaboration (if appropriate) or other subject matter expertise
   h. Technical capability (Project team, resumes, especially app or hardware development experience)

4. Budget (overhead costs are not covered by App Factory grants; only direct costs of developing the app will be covered)
   - Staffing cost
   - Required hardware and/or software acquisition (general use devices like laptops, tablets, etc. should not be included; receipts will need to be provided for any funded project that includes purchase of hardware or software)
   - Payment schedule (payment is provided based on completion of agreed-upon milestones)

5. Timetable
   - Development milestones
   - Lifetime plan for sustaining the app/service/hardware (expected charges for downloading app/subscriptions to services supported by app, maintenance/support needed)

6. Resumes/CV's of key development staff
   - (No more than 4 pages per CV. NIH bio-sketch format acceptable.)

Accessibility Guidelines

To ensure that apps developed under this project are usable for the intended population, apps will be tested for usability by the LiveWell RERC's Consumer Advisory Network. Developers will be expected to address reasonable issues identified in user testing.

Awareness of accessibility guidelines can help minimize these issues:

Web Content Accessibility Guidelines (WCAG) Overview
http://www.w3.org/WAI/intro/wcag

Shared Web Experiences: Barriers Common to Mobile Device Users and People with Disabilities
https://www.w3.org/WAI/mobile/

Principles of Universal Design
https://projects.ncsu.edu/design/cud/pubs_p/docs/poster.pdf

Introduction to Web Accessibility
http://webaim.org/intro/

Platform-Specific Guidelines

Android Developers Accessibility Guide
http://developer.android.com/guide/topics/ui/accessibility/index.html

The iOS Design Guidelines
http://ivomynttinen.com/blog/ios-design-guidelines

Apple - Accessibility for Developers
https://developer.apple.com/accessibility/

Windows - Design and UI for UWP apps
https://developer.microsoft.com/en-us/windows/apps/design

Microsoft – Accessibility Overview
https://docs.microsoft.com/en-us/windows/uwp/accessibility/accessibility-overview

Microsoft – Accessibility in Windows 10
https://developer.microsoft.com/en-us/windows/accessible-apps

Amazon - Make Your Skill Accessible to All
https://developer.amazon.com/docs/alexa-design/accessibility.html

"Accessibility Came by Accident": Use of Voice-Controlled Intelligent Personal Assistants by People with Disabilities
https://faculty.washington.edu/leahkf/pubs/CHI2018-IPAsAccessibility.pdf