Kosivira DetectAid Funding Brief

Funding purpose. Build and evaluate a wrist-worn assistive prototype with an open-ear earpiece. The project has an interactive software demonstration, four enclosure concepts, and initial sizing models. The funded milestone is a working wearable demonstrator and a report on its measured performance.

Who it serves

DetectAid is designed for blind and low-vision people, deaf and hard-of-hearing people, older adults, and autistic people. The project prioritises people who face financial or other barriers to assistive technology. Essential cues can be spoken, felt at the wrist, or both. We plan to test options for cue intensity and frequency with users who have different sensory preferences. Everyday watch functions include time, heart-rate display, and incoming message notifications.

What the product does

Obstacle awareness. The watch is designed to detect people, animals, and objects in front of, behind, or beside the wearer. About two metres is an initial range target for controlled testing.

Walking guidance. Stop, Continue, Forward, Backward, Left, and Right cues. A movement cue requires evidence of a clear path in that direction.

Accessible alerts. The paired earpiece speaks cues, and distinct wrist vibrations convey essential alerts without reliance on hearing or a screen.

Manual SOS. Holding a tactile button starts an emergency workflow at any heart rate.

Automatic SOS. A sustained unusual pulse and a separate danger signal together start a cancellable countdown. The planned escalation reaches up to three chosen contacts and local emergency services where supported.

Pedestrian signals. At a compatible crossing, the watch announces the current pedestrian phase and changes through speech and vibration. A stale or mismatched signal is treated as unavailable.

What makes it distinct

DetectAid combines wrist-based sensing, spoken and tactile mobility cues, and emergency escalation in one everyday wearable. The redesign moves the sensing from the earlier neck-worn concept to the wrist. Testing will determine what coverage the watch can maintain as the wearer moves.

Prototype Evidence and Build Plan

What reviewers can try today

The interactive prototype demonstrates automatic proximity alerts, all four obstacle directions, movement cues, both SOS workflows, and pedestrian phase changes. Automated behaviour checks passed. Distance, direction, pulse, danger, pedestrian phases, and contact attempts are simulated.

Open the interactive DetectAid prototype

If your PDF viewer blocks the link, open DetectAid-test-bench.html from the same folder. For a remote application, attach the HTML or add a hosted demo URL.

Three-minute demonstration. Set a nearby obstacle and confirm an alternate path to hear a walking cue. Apply a sustained unusual pulse with the separate danger signal checked to see three mock contact attempts after the countdown. Switch the pedestrian phase from Wait to Walk to Clearance, then mark the signal stale.

Milestones and evidence

1. Wrist sensing and fit. Assemble a controller, range sensor, wrist mount, haptic output, and tactile button. Compare sensor angles with the wrist still and moving. Record detection and misses by direction, target, distance, lighting, and arm position. Use the results to choose the enclosure and sensor placement.

2. Alerts and SOS. Connect the earpiece and heart-rate sensor. Measure alert latency, recognition of vibration patterns, false or missed check-ins, and cancellation success. Verify escalation and failure messages with consenting test contacts. Document the supported emergency-calling route separately.

3. Crossing and accessibility evaluation. Demonstrate phase translation in a controlled setup. Test stale data, the wrong crossing, and disconnects. Seek a compatible signal source and a transport partner before field integration. Plan supervised evaluation with intended users and accessibility or mobility partners.

Concept designs

Four exterior options are available. The enclosure choice is open pending fit, sensor placement, and button usability tests.



Classic



Round



Sport



Everyday

Funding Scope and Submission

What funding would pay for

Electronics and fit. Distance and heart-rate sensors, controllers, haptic motors, tactile controls, audio hardware, power components, and assembly supplies.

Design and fabrication. CAD work, print iterations, adjustable wrist mounts, and earpiece fit evaluation.

Integration. Firmware, earpiece pairing, a companion app or test calling connection, and compatible crossing-signal integration where available.

Testing and documentation. Bench equipment, accessibility evaluation, participant compensation and access support where eligible, and reporting.

Budget and schedule. Set the request amount and currency after collecting quotes and checking the funder’s eligible costs. Estimate quantities, unit costs, fabrication iterations, engineering time, and evaluation costs by milestone. Set delivery dates against procurement and partner availability.

What the award would produce

A wrist-worn demonstrator paired with an earpiece, an engineering and accessibility test report, and a costed plan for the next build. Report measured detection coverage, cue accuracy, SOS test outcomes, and crossing integration status. Include remaining limitations and the evidence required before wider use.

Path to a pilot

Seek feedback from blind, low-vision, deaf, hard-of-hearing, and autistic people, older adults, and the organisations that support them. Use supervised sessions to assess comfort, sensory preferences, and ease of use. DetectAid is planned as a paid product. Use component costs and user feedback to set an affordable price and explore distribution through community partners.

Complete for the chosen application

Applicant. Add the lead’s name, contact details, team roles, and any requested registration evidence.

Funding request. Add the funder’s programme, amount, currency, dated milestones, and quotes or cost assumptions.

Evidence. Attach the demo, concept images if requested, and any documented user feedback or partner letters available. Use a hosted demo link if the portal requires one.