

# VAMO



Independence



Safety



Mental health

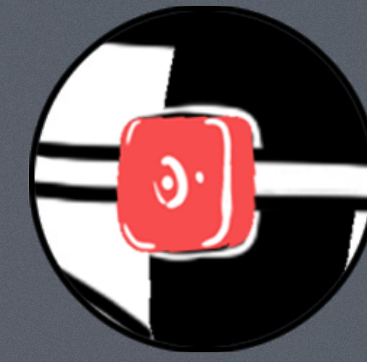
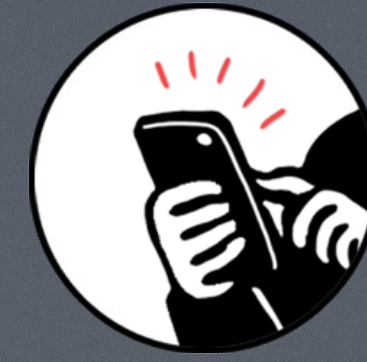


Physical health

## A product-service system for independent visually impaired mobility

VAMO is a modular assistive system designed to support independent mobility for people with combined visual and mobility impairments (MVIPs). The system consists of a **sensing module** that mounts onto an existing rollator and uses a wide-angle camera with AI-based object detection to identify environmental obstacles in real time. Based on this input, it sends directional vibration feedback to two **wearables** strapped to the user's knees, allowing them to feel where obstacles are and how

to navigate around them, entirely hands-free. An accompanying and accessible **smartphone app** enables personalization of the feedback intensity and configuration. VAMO empowers users by reducing reliance on stigmatized tools like the white cane, improving safety, confidence, and freedom of movement. It is designed to be intuitive, adaptable, and respectful of individual identity, offering a meaningful step toward more inclusive mobility.



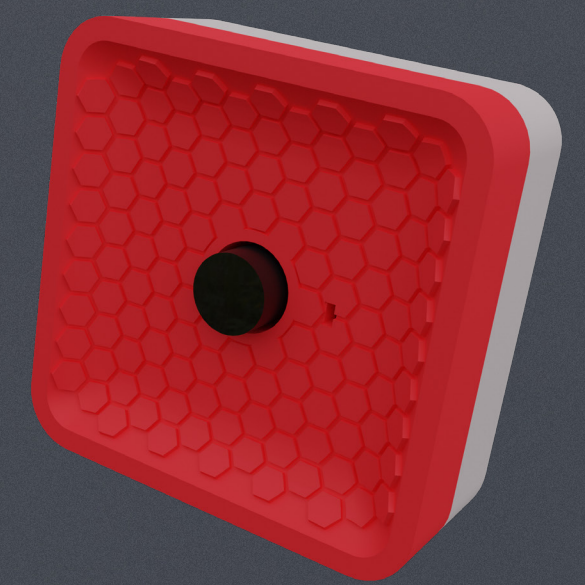
### ACCESSIBLE APP

The first part of the design is the app. This app is the UI of the project. The way for the user to communicate with the whole system is via this app. The design of the app stayed very simplistic to not distract the user or overstimulate them.



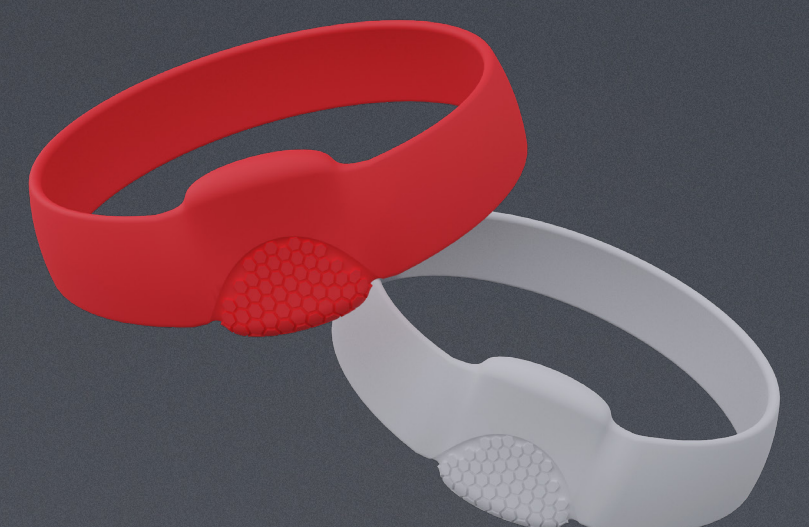
### SENSING MODULE

The sensing module functions as the 'eyes and brain' of the system. It captures the environment through a camera, processes the input using a compact computer equipped with AI-based object detection and estimates distances to potential obstacles. The module then sends relevant information wirelessly to the wearables for user feedback. Designed to be small, efficient and modular the sensing module integrates essential electronics such as the camera, AI vision computer, power source and distance sensor (micro-LiDAR).



### WEARABLES

The wearables of this system are designed to provide the user with intuitive feedback. They play an important role in translating the environmental information (obtained by the sensing module) into accessible haptic cues. Beyond its technical function, the wearable also addresses key human-centred design factors: it is customizable, modular and ergonomic, reducing stigma through thoughtful aesthetics and placement and offering comfort across different body types.



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Integrated Product design

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