

Those who are blind or visually impaired face daily challenges in regards to interacting with and navigating through their environments. While there are some support systems that have been integrated into assistive devices, most of these solutions provide audio feedback to the user to alert them of their surroundings. However, this solution doesn't offer support for those who are deaf as well as blind or for those navigating through noisy environments. The "Smart Cane" will be a device that assists blind/hard-of-seeing individuals in walking. In contrast to the auditory design, the Smart Cane relies on tactile signals to guide the user. The general concept has sonar sensors that detect objects in front of the device holder and sends back haptic signals to warn the user of upcoming obstacles.

The working prototype will integrate existing concepts from a previous iteration of this project. The cane will collapse into 8" lengths, have the ability to be collapsed or assembled in one minute by a blind person, and contain a rechargeable battery that lasts at least 8 hours on a charge. In addition, it will possess a 6 ft. detection range and cost at most \$125 to manufacture. The final assembly process for the cane will also be designed so that it can be performed by a blind person. Final design and prototype will be consistent with the intellectual property granted to the stakeholders, so as to provide the device with a competitive edge on the current market.