

Objective

The objective of the project is to improve the quality of daily life for those who are visually impaired.

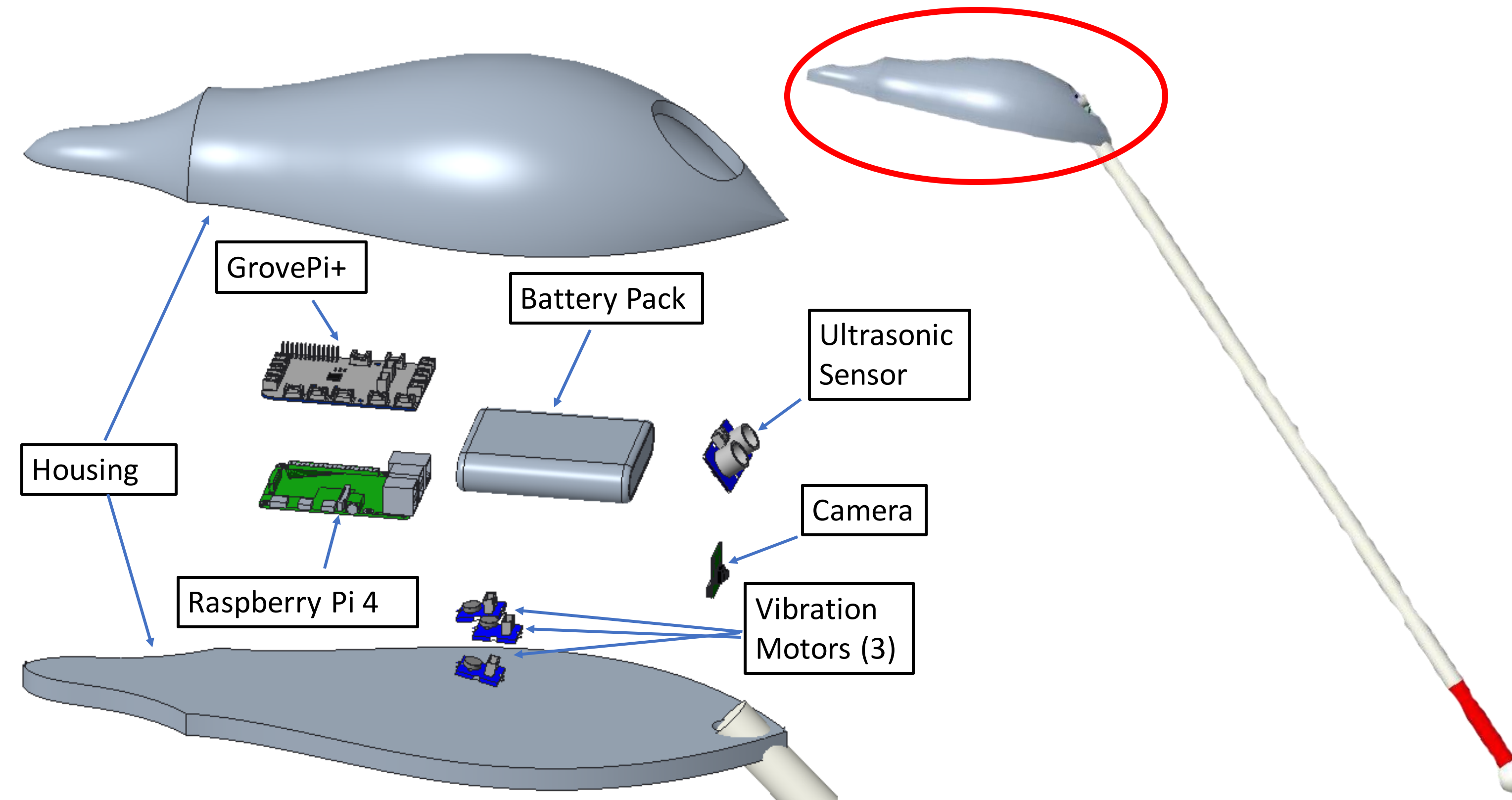
Background

- Individuals who are visually impaired or blind have been limited to simple products for navigation uses.
- Current competing products are often too expensive and require extensive training for its use.
- Some skills can be used to learn about their surroundings but are mainly tactile and uncomfortable to the user.
- The normal white cane only covers the lower range of motion, leaving the area above the waist unknown.

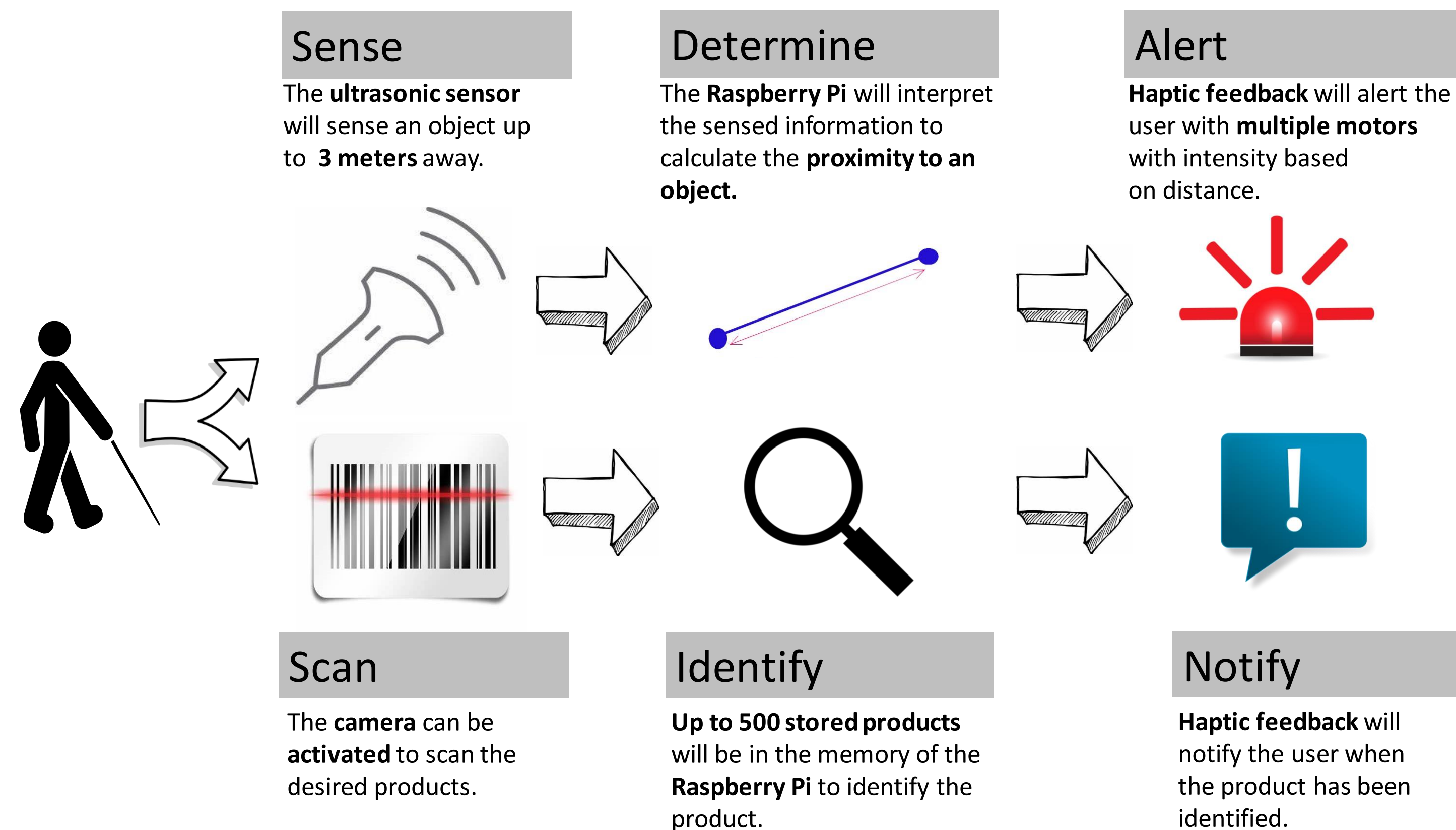
Motivation

- 109,000 of the 1.3 million legally blind people in the United States use a white cane.
- The annual earnings and poverty status of non-institutionalized persons aged twenty-one to sixty-four years with a visual disability in the United States in 2016 had a Median Annual Earnings of \$38,500.
- This population suffers from impairment that makes simple tasks difficult and even hinders these people from obtaining and maintaining employment.

Assembly



Functions



Potential Challenges

- Heat dissipation within the device housing
- Equipment is kept safe when used in all weather
- Operational Time – Information is translated to user in a quick and accurate manner
- Ergonomics – Device is comfortable for the user to use for extended periods of time
- Waterproof – Keep electrical equipment safe

Project Constraints

- Weight: < 5 pounds
- Cost: < \$350
- Adaptability : User can intuitively use device

Future Work

- Finalize part arrangement design
- Order parts
- Test for adequate heat ventilation
- Construct housing for mounting components
- Test product with volunteer O&M specialists
- Complete InNOEvation documents and compete during Spring
- Participate in Engineering Shark Tank