

AniSight

ASSISTIVE TECH FOR BLIND DOGS

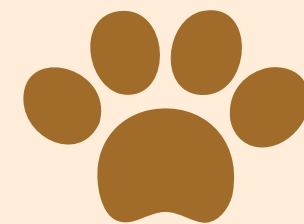
PRESENTED BY:

RINA YOO, SRIDEVI KASHINATH ALAWANDI, YEONSOO CHANG





Motivation



**FACILITATE EASY
NAVIGATION FOR
BLIND DOGS**



**PROMOTE WELL BEING
AND REDUCE INJURY**

Existing Solutions

HALO HARNESS

The pet halo will bump into walls, furniture, and even other pets before your dog does.

Cons: Easily deformable, comes in a standard size

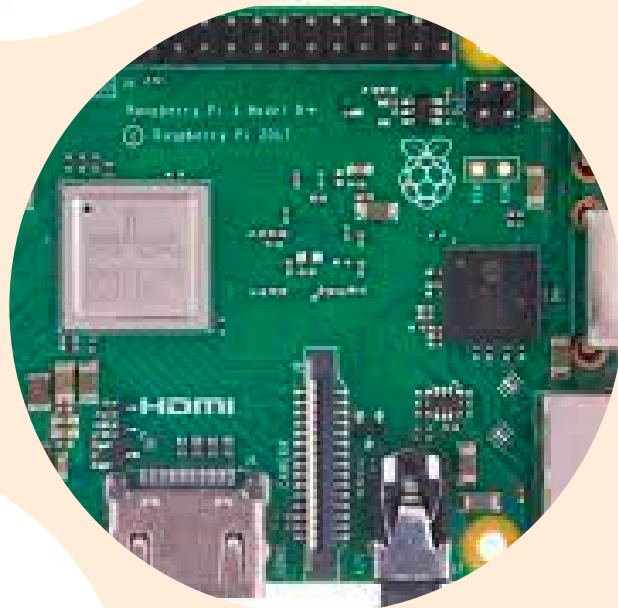


FURNITURE PADDING

Involves using bubble wrap to wrap sharp edges.

Cons: Not feasible outdoors or in unknown environments

Our Solution



Prototype Setup

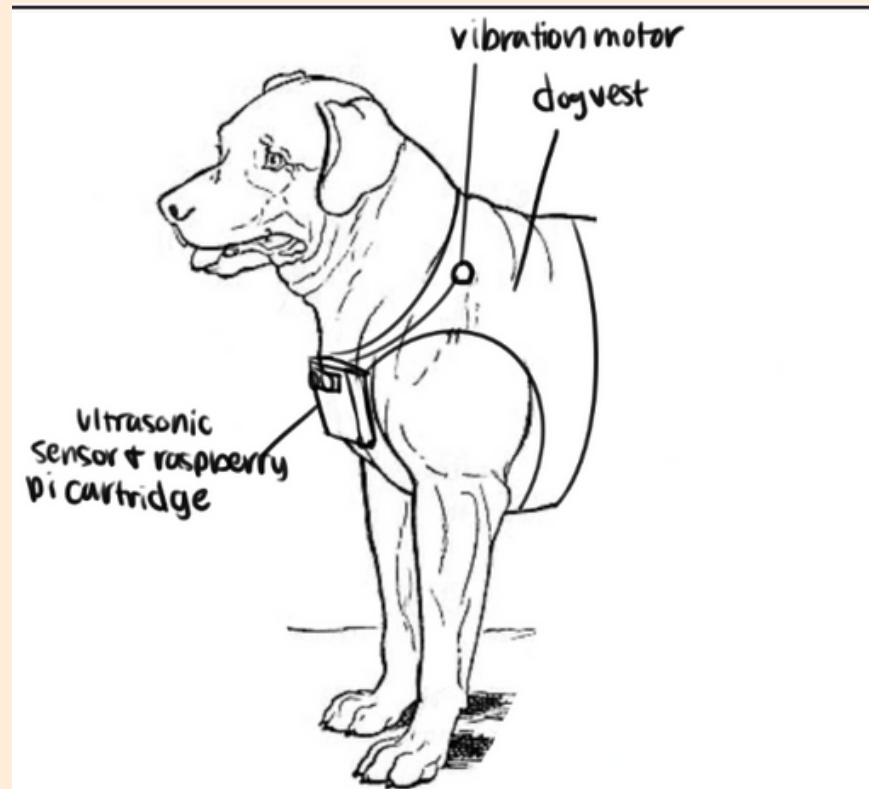
- The prototype is designed to prevent dogs from colliding with obstacles while moving.
- The setup includes a Raspberry Pi board, an ultrasonic sensor, vibrating motors, and a portable battery charger.
- The ultrasonic sensor is attached to the front of the dog's collar, and the vibrating motors are attached to the sides of the dog.
- The device is programmed to vibrate the motors when the animal is within 0.3 to 0.7 meters of an obstacle, ensuring the animal halts and avoids a collision.



Design Alternatives

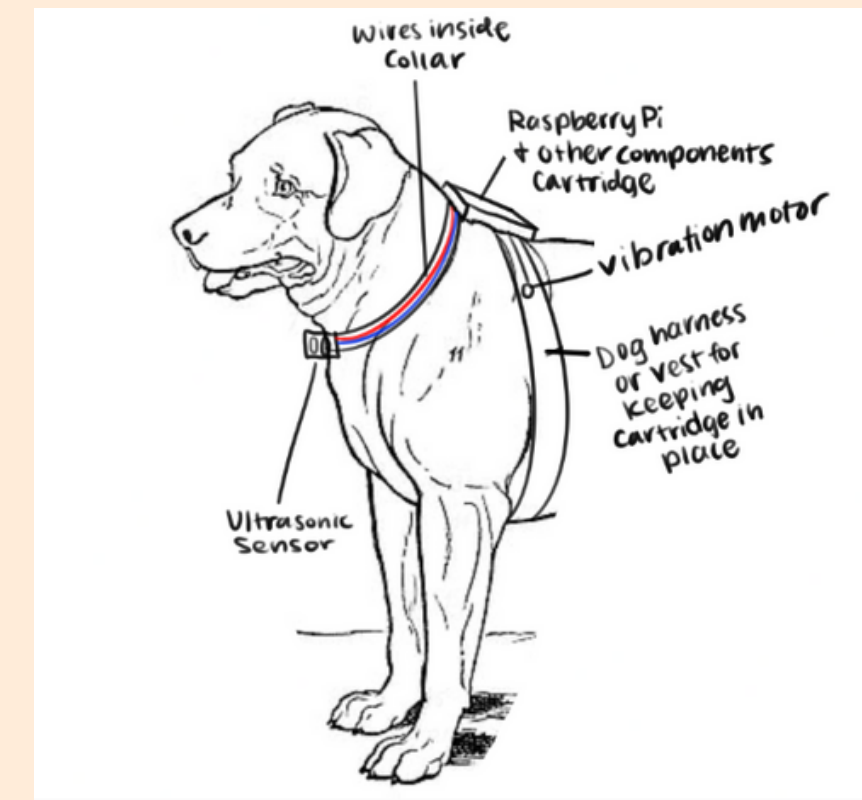
Design 1

The ultrasonic sensor and the Raspberry Pi board are bundled and hung on the collar of the dog



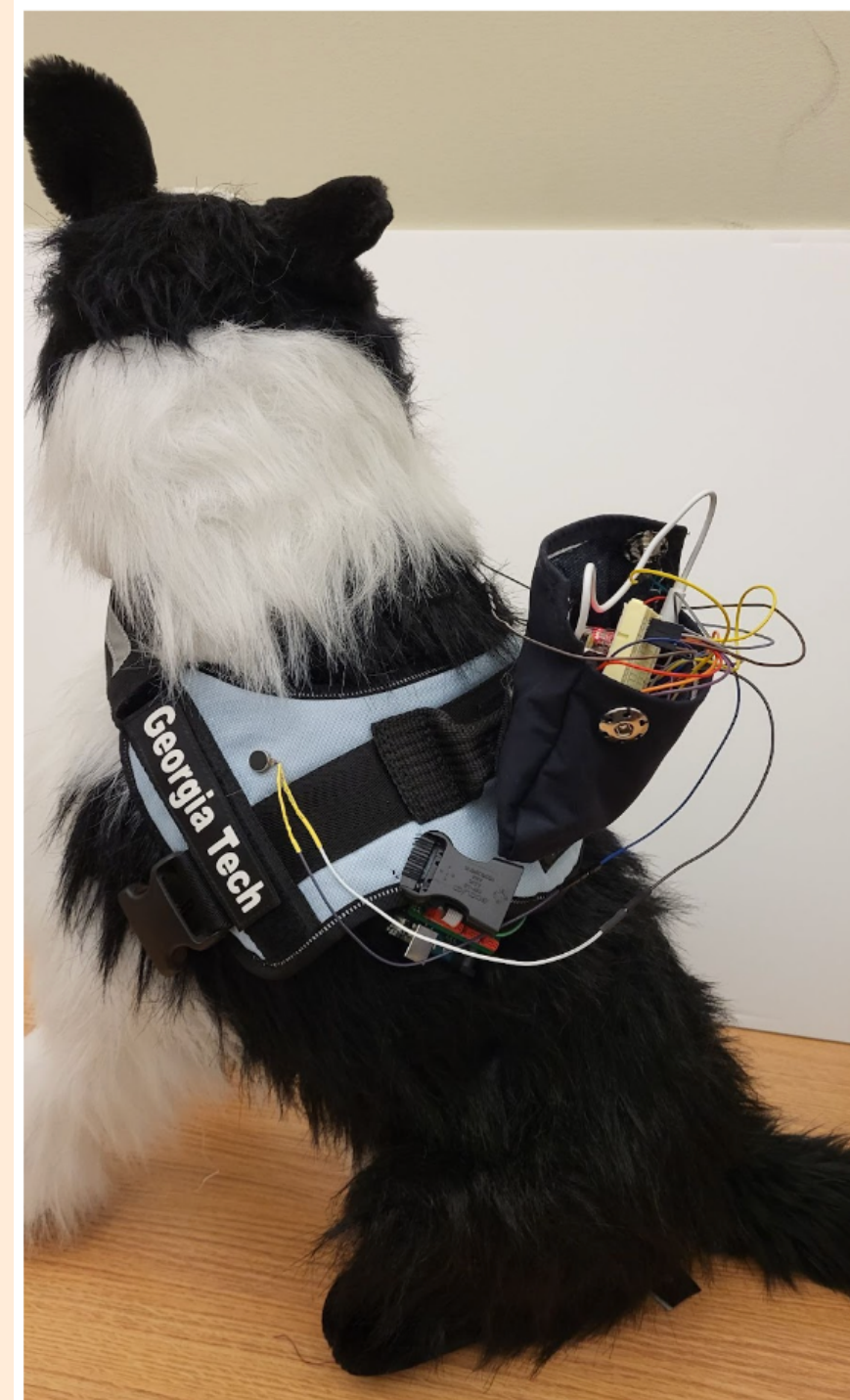
Design 2

The ultrasonic sensor is at the front of the collar and the Raspberry Pi board and vibrating motors are at the back of the dog



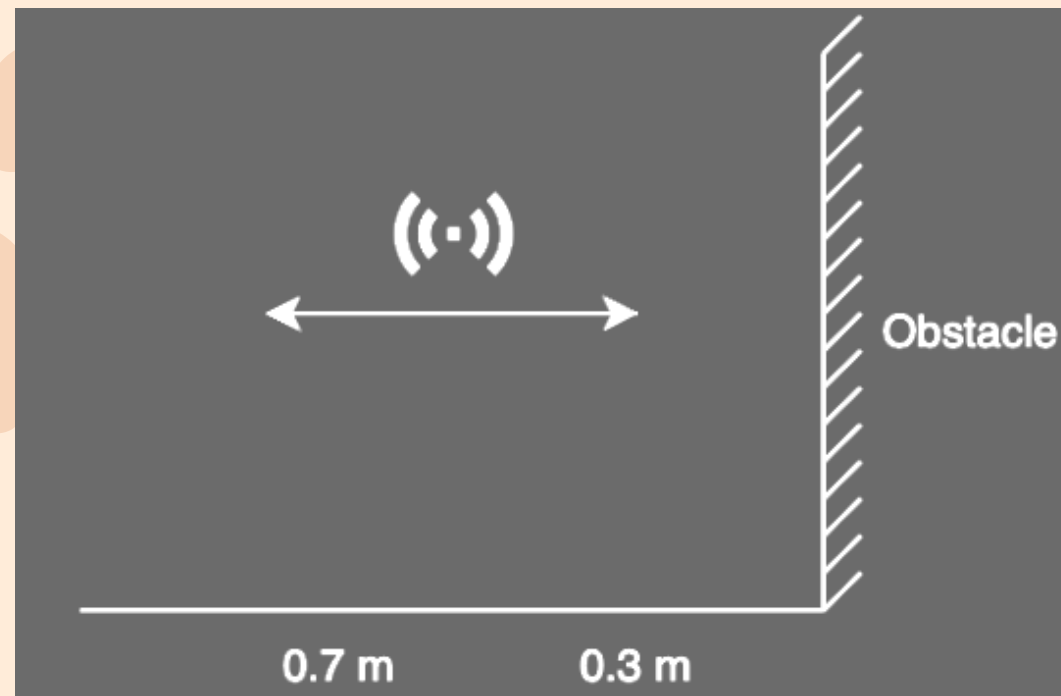
Testing Finds

- Design 2 was chosen as the final prototype after testing on a life-size dog toy. The block carrying the hardware was heavy and will impact the dog's movements. It is also more suitable for all sizes of dogs.



Testing Finds

- The ultrasonic sensor was initially programmed to vibrate at 0.1 meters from an obstacle, but this caused constant vibrations. Therefore, the Raspberry Pi was reprogrammed to vibrate only when the dog was within 0.3 to 0.7 meters of the obstacle.



conclusion

WE BELIEVE OUR FINAL PROTOTYPE CAN SIGNIFICANTLY AID NAVIGATION FOR BLIND DOGS BASED ON MANUAL TESTING AND A MOCK TRIAL ON A STUFFED LIFE-SIZE DOG. WE HOPE TO GATHER MORE DATA ABOUT THE SYSTEM'S EFFICIENCY BY TESTING IT ON A REAL DOG.





Future Work

TEST WITH THE INTENDED USER - DOG

- Use positive reinforcement training techniques on blindfolded or blind dogs
- App for sensor range and vibration motor frequency customization

DESIGN EXTENSIONS

- Current prototype = 4m
- LIDAR sensors = 12m

Thank you for listening!

DON'T HESITATE TO ASK ANY QUESTIONS!

