



# The Sixth Sense

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## Goal

This project will use ultrasonic sensors to enhance a white cane, allowing it to inform the user of oncoming obstacles at a distance using a vibrating alert system handle. The goal is to give the user more time to react when encountering upcoming obstacle.

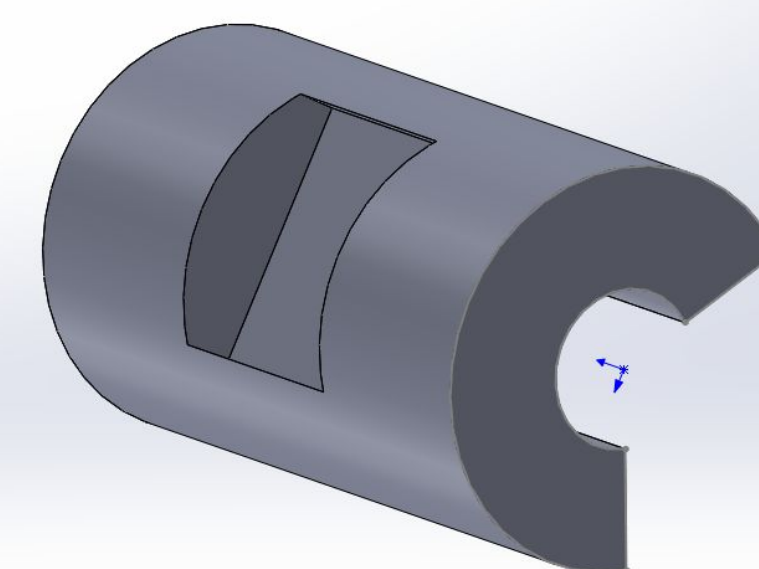
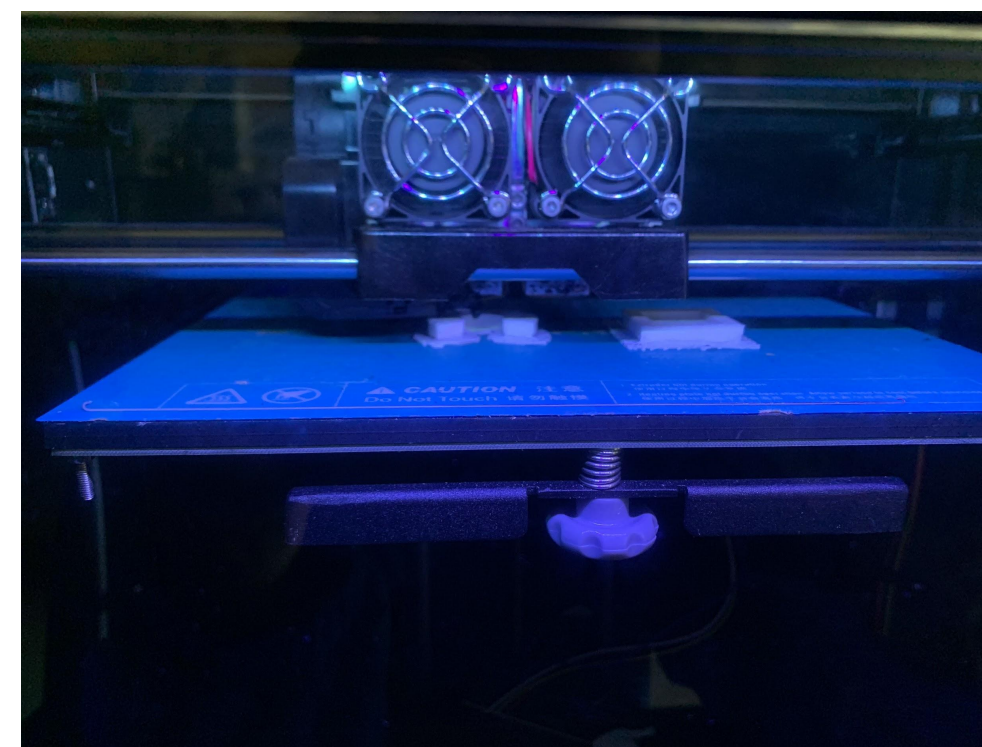
## Introduction

A 2015 study revealed that there is an estimated 7 million people who suffer from a visual disability in the US alone. Our project hopes to create an improved walking cane that can aid the millions of legally blind people to maneuver around their communities.

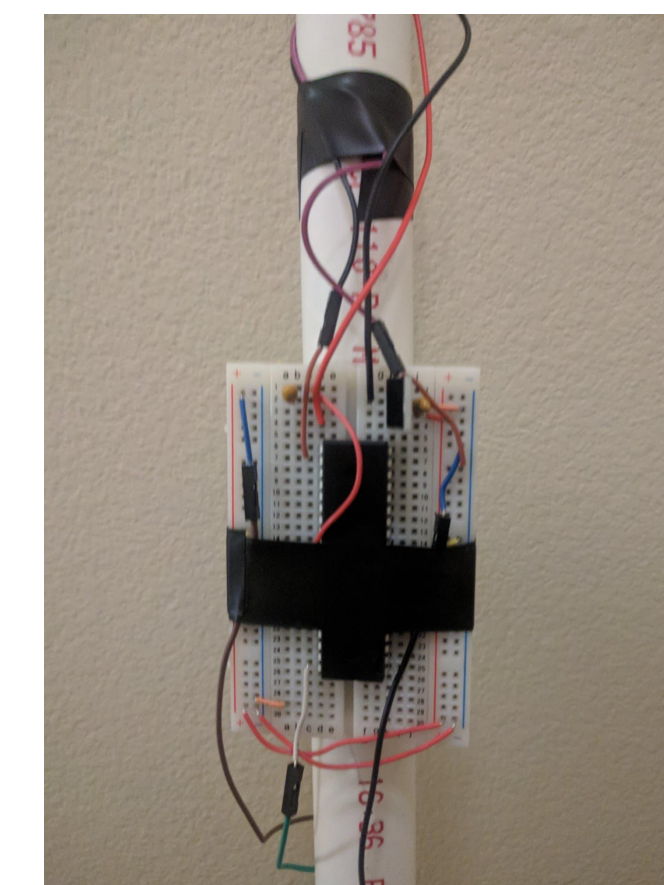
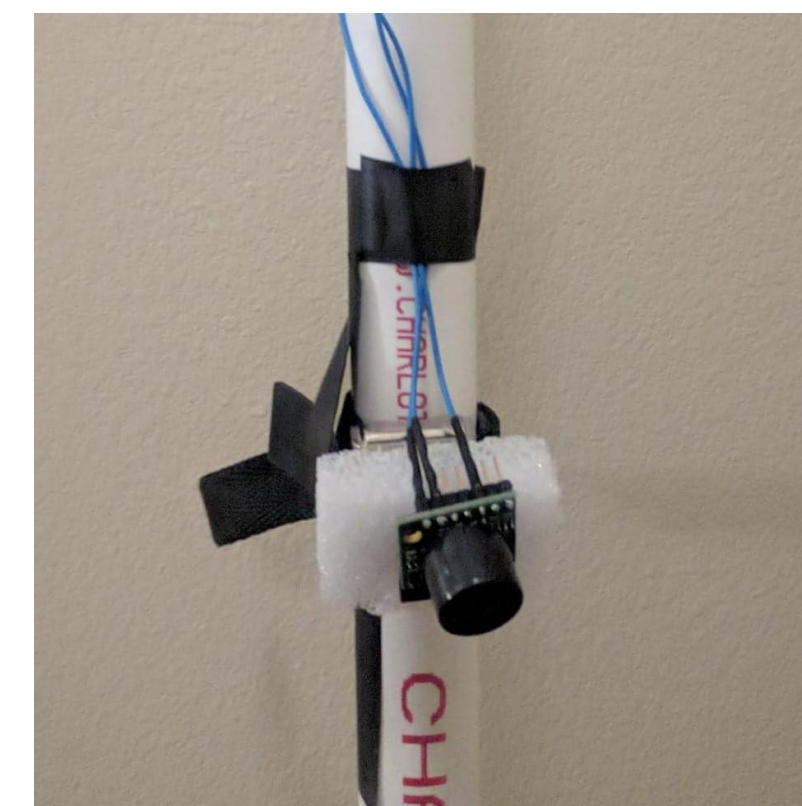
## Achievement

We have built the final project of the cane with ultrasonic sensors and 3D printed designs to hold our embedded system. It can now correctly detect the obstacles and send out warning in less than half second. Also, we have contacted the UCI disability center and have someone who is visually impaired that uses a white cane that can provide feedback when needed.

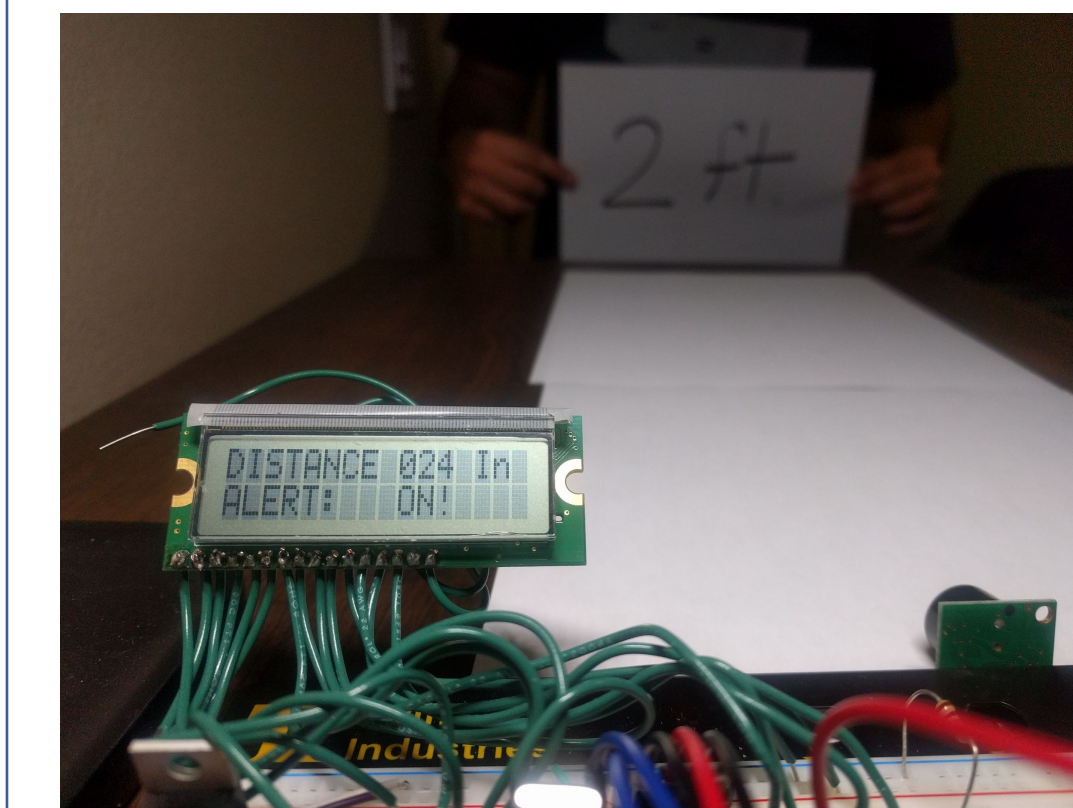
## 3D Printed Designs



## Design



## Prototype: Alert ON



Alert the user of an object that is less than 30 inches away from the sensor.

## Prototype: Alert OFF



Alert off when the object is more than 30 inches away.

## Senior Design II Final Thoughts

The project turn out to be a lot of fun to design. Initially we intended to have more sensors but 3d printing turn out to be more of a challenge than we anticipated. Regardless, the single sensor implementation achieves our initial goal of creating a white cane that alerts the user of upcoming obstacles.

## Contact

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## References

1. Winter, B. (2015, October 15). 10 fascinating facts about the white cane. Retrieved from <https://www.perkins.org/stories/10-fascinating-facts-about-the-white-cane>
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