Haptic Walking Remote

WAYNE STATE
College of Engineering

Aidan Demps, Geovanni Tinoco,
Masroor Muhib, and Zavaar Shah

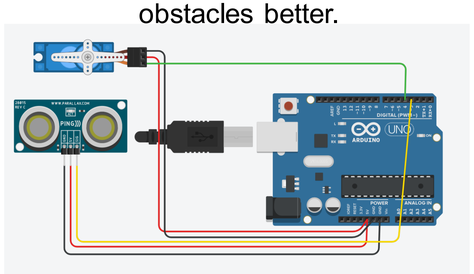
Lubna Alazzawi, Ph.D.
Department of Electrical and Computer Engineering

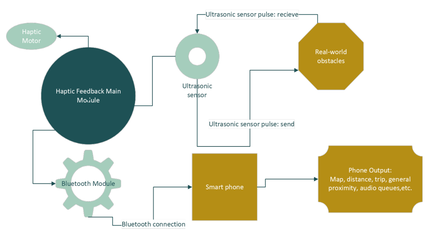
Opportunity and Significance

There are many people in the world who are visually impaired and a lack of devices they can use to help them get around. Our project will help visually impaired people know when they are too close to an object using haptic feedback.

Technical Objectives

Our objective is to provide visually impaired individuals an easier way to get around and avoid obstacles. With the option of using the mobile application, users can view where they have gone, for how long, and total distance. With these tools, users with a visual imparity can improve their means of travel and how to avoid obstacles better.



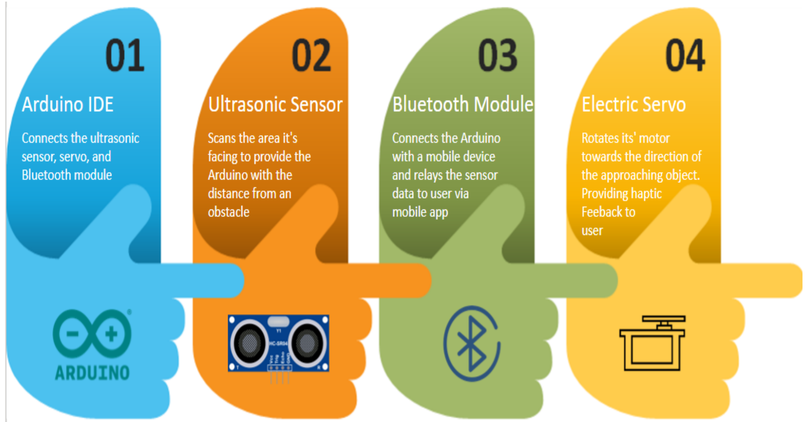


Related Work and State of Practice

There are various similar devices to assist the visually impaired with mobility, A similar example is Ray Electronics' mobility remote which gives audio que s from the remote to alert the user of o bstacles.

Technical Approach, Accomplishments and Results

To create our haptic feedback remote, our main servo and ultra-sonic sensor is housed inside a 3D printed chassis. When powered on, the sensor scans the area its faced. This information is sent back into the Arduino and instructs the servo to provide varying amounts of vibration depending on the relative distance between the user and the approaching obstacle.



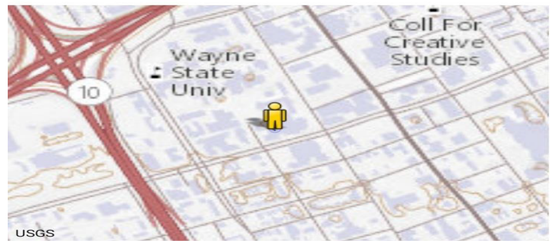
Next Steps for Development and Test

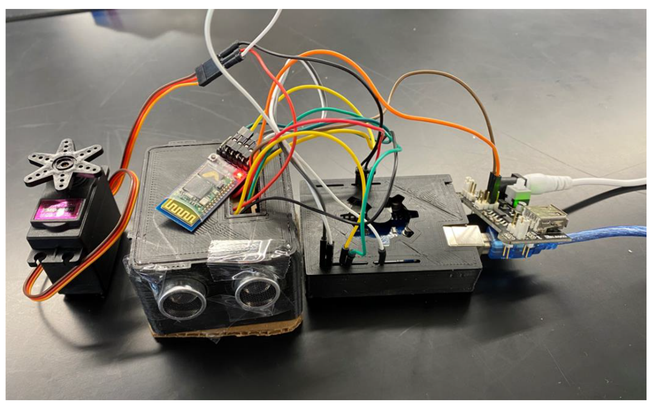
Our project requires sufficient research in order to prove its practicality for the masses. Clinical trials will compare the effectiveness of a haptic feedback walking stick compared to a traditional stick. These trials will evaluate the following: portability, ease of use, and range of detection. The goal for this research is to provide scientific backing for the implementation of our device.

Thank You, Dean Farshad Fotouhi and Professor Marcis Jansons

Commercialization Plan & Partners

Our team consisted of Aidan Demps, Geovanni Tinoco, Masroor Muhib, and Zavaar Shah
In order to spread our haptic feedback walking stick to its intended users, we must work with other companies that manufacture medical devices specifically for the visually impaired. This will allow early trials to begin and provide evidence of practicality. However, before we can even begin with our implementation, adequate funding is





References

"Ray Electronic Mobility Aid for the Blind." *MaxiAids.com*, https://www.maxiaids.com/ray-electronic-mobility-aid-for-the-blind.