



# MAKE AWARENESS A REALITY— VIRTUAL SIGHT FOR THE VISION IMPAIRED.

## RF COMMUNICATIONS DIVISION

### PROJECT NAME:

Haptic Device for the Visually Impaired

### HARRIS CONTACTS:

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### ENGINEERING DISCIPLINES:

CE, EE, CS

**Haptic technology** can be found in the form of game controllers such as the Wii remote or in cell phones like the LG Dare.



## SENIOR PROJECT OVERVIEW

Imagine the following scenario:

A visually impaired individual is in a new environment and finds the situation overwhelming and hard to navigate. With the use of haptic technology providing feedback of the surrounding environment (walls, tables, etc.) he/she can safely navigate the space.

Haptic technology interfaces to the user via the sense of touch using force, vibration, and/or motion. This mechanical stimulation may be used to assist in the creation of virtual objects (objects existing only in a computer simulation), for control of such virtual objects, and to enhance the remote control of machines and devices.

One common use of haptic technology is in the form of game controllers such as the Wii remote or in cell phones like the LG Dare that vibrate when individual letters are selected as part of a text message. Besides the presence in the gaming and telecommunications world, this technology can also be useful in the medical field or to help those with a disability.

## PROJECT OBJECTIVE

Implement a haptic device that will provide situational awareness to a visually impaired user. The device should be lightweight and wearable. The device should notify the user when he is close to an obstruction or object (e.g., a wall, table, etc.) so he may walk around and safely navigate a space. The device should communicate to the user if the obstruction is in front of him, behind him, or to his side.

## PROJECT DELIVERABLES

The project deliverables should include:

1. A description of how the device communicates to the user, where on the body the user should wear the device, and at what distance the user is notified of a present obstruction.
2. Detailed design documentation including a diagram of the hardware setup and functional components and depiction of the design of the wearable device.
3. Software code developed.
4. A prototype of the device and a demonstration of its functionality.