

## **Design and Fabrication of A Portable Obstruction Detection Device For Visually Impaired Persons**

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### **Abstract**

The cow-horned cased Obstruction Detection Device (ODD), powered by 9V battery, is designed for visually impaired persons. It is constructed using two HC-SR04 ultrasound sensors for front obstacle and depression detections. The device detects an obstacle by emitting ultrasonic sound that hits the interface and interprets the echo. The emission of this sound is triggered by the PIC16F877A microcontroller programmed to send out feedback to the user's earphone in form of a musical note peculiar to the range of distance of the obstacle. The device is integrated with Radio Frequency (RF) Module that locates the device when misplaced. This Module has LM555 timer that regulates the signal emitted by the misplaced device. The device is incorporated with a Light Dependent Resistor (LDR) that detects any change in illumination. This project designed and fabricated a cheap locally cased ODD with comparative advantages of informing the visually impaired of the range of distance and position of the obstacle and the location of a misplaced device.

**Key word:** *Visually Impaired, HC-SR04 ultrasound sensor, Obstruction detection*