

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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Project Report On

“AN ULTRASOUND BASED INTELLIGENT ELECTRONIC TRAVEL AID FOR THE BLIND USING VIRTUAL INSTRUMENTATION”

*Submitted in partial fulfillment of the requirements for the award of
degree of*

BACHELOR OF ENGINEERING IN MEDICAL ELECTRONICS

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ABSTRACT

This project presents an electronic travel aid for blind people to navigate safely and quickly. An obstacle detection system using ultrasonic sensors, wet sensor and face identification using web cam. Another important feature of our project is text to speech conversion.

Ultrasound sensor is used for distance detection of the obstacles and wet sensor is used to detect the presence of water in the path of the blind. Text to speech conversion is done by interfacing Microsoft speech SDK 5.1 with Lab VIEW. By this blind will be able to navigate easily both indoor and outdoor independently without depending on others. Other important feature of our project is to help blind in reading, i.e., Instead of following traditional method of reading he\she can read the text documents, newspaper, information available on internet easily.

The proposed system detects the obstacles up to 22 feet via sonar and sends feedback (Recorded voice) to inform the person about its location. In addition to this, an USB webcam is connected for locating a human being. Identification of human presence is based on face detection.

The major constraints for these algorithms to run on Embedded System are small image frame (320X240) having reduced faces, limited memory and very less processing time available to achieve real time image processing requirements. The algorithms are implemented in virtual instrumentation using Lab VIEW.