Personal Area Network (PAN) Smart Guide for the Blind (PSGB)

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Abstract. One of the biggest problems faced by the visually impaired is navigating from one place to another, be it indoors or outdoors. Furthermore, the adverse conditions of the roads make it even more difficult to walk outdoors. They have to be alert at all times to avoid consequences like colliding with stable or moving objects. In this project a simple but very efficient and affordable obstacle detection system was designed with the functions of detecting and informing the user about the obstacle detected and also instructs the blind to move to either right or left if obstacle is detected in the front direction. The ultrasonic sensor detects obstacle by sensing the surrounding objects. When the ultrasonic sensor detects obstacle, it sends signal to the Arduino Nano microcontroller for further processing. The microcontroller communicates the real-time data generated by the ultrasonic sensor to the buzzer and MicroSD Card adapter. The buzzer makes sound when an obstacle is detected within the safe zone that is already declared within the codes and also audio commands will notify the user of the obstacle detected and guide the user to the obstacle free path.

Keywords: Ultrasonic Sensor, Arduino Nano, Obstacle detection and MicroSD adapter.