ABSTRACT

In this Project/report, the limitations and challenges faced in using ultrasound to measure distance are investigated. The system implemented measures the time between a signal sent from a microcontroller which allows a 50kHz sinewave pulse to be transmitted by one transducer, and an input signal which is the received pulse after it has bounced off of the object whose distance it was measuring and has been rectified. The distance measured is then calculated by the equation *Distance = Speed* Time* with the speed equal to roughly 343m/s at room temperature. The ambient temperature is measured and the speed is changed accordingly to add greater precision. Among multiple challenges faced, foremost was setting a reasonable threshold limit to distinguish between noise and the start of the received pulse and a delay between the measured and theoretical time was subtracted from the calculation to give a more accurate measurement because of this.

KEYWORDS: ULTRASOUND, DISTANCE MEASUREMENT