

SCHOOL OF ENGINEERING
ENGINEERING PROJECT REPORT

DESIGN AND IMPLEMENT AN ULTRASONIC SPEED
CONTROLLER

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ABSTRACT

This project revolves around a direct current, D.C powered rotating wheels being controlled by a microcontroller. The input and output external modules being integrated and synthesized by a microcontroller unit, which will actually control the speed of motor. The focus here is on the mechanism of the controller, upon receiving ultrasonic signal(when detection) it will output the object distance(from module) and therefore exerting the right amount of controlling force, proportionally to the distance of the object to /from sensor. This is such that when a body approaches the sensor, it'll reduce the d.c. motor speed. Conversely when the body retreats away from the detector, the wheel will begin to rotate faster. The distance between object detected and detector will be displayed to inform user of an approaching or retreating object. The sensitivity of the object is paramount to system's reliability.

This final report has been written in a slightly different structure i.e. introduction to various parts for project will be sequentially(on the same chapter), followed by design methodology, calculations, analysis and finally by discussion. This has been done as to avoid tedious and countless flipping of pages, if they were separated, which might put readers off. Nevertheless this report presents work comprehensively performed to meet design specification, taking into account the complexity of the system, and being the first of its kind(as far as I know) to be attempted. Detailed account ranging from the introduction to results discussions, backed by appropriate theories are also included. Hopefully the reader finds this report informative and satisfactory and use this as reference guide to exploit the multitude of permutations use of ultrasonic technology in implementation and design.