

UNIVERSITY COLLEGE SEDAYA INTERNATIONAL  
SCHOOL OF ENGINEERING

PROXIMITY MOTION SENSING FOR CAR PARKING SENSOR  
FINAL REPORT

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## **Abstract**

Sensors and display can extend our normal ability to see in tight corners. It is when ultrasonic sensors create distance measurement and prompt the result via onboard Liquid Crystal Display (LCD). Ultrasonic sensor mounted on the back and front of a car can provide additional safety to both motorist and his surrounding against potential harm or accident.

In the today market, ultrasonic is commonly implemented in a reverse sensor device. The capability and price are varying between each model. The basic concept for such device is to calculate distance out of echo time, which produces audible beeping sound.

In this project, the same concept of distance measurement by using ultrasonic transducer is put into new perspective. Rather than to make linear measurement for each transducer, two dimensional measurement can be achieved by crossing between each transmitter and receiver. The relevance of making two dimensional (2-D) measurements is to increase its coverage.

The details related to the ultrasonic technology will be covered in this project. This will cover frequency generator for transmitter and filtered amplifier for the receiver. With the calculation of lap time of sound, the distance can be calculated. Microprocessor will be used for frequency generator and distance calculation. The resulted distance value will be display on LCD unit.

Electronic components and circuitry design will be extracted from various sources. Testing will be conducted for each module to validate the functionality. The overall integration is come by combination of each module into one unit. This paper will cover all aspect of theories, designs, fabrications and costing involved.