

University of Asia Pacific

Department of Computer Science and Engineering

**CSE 316: Microprocessors and Microcontrollers Lab**

**LAB REPORT**

**Experiment Number: 02**

# **Experiment Title: Distance Measurement Using Ultrasonic Sensor**

**Submitted by:**

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**Section : D2**

**Submitted to:**

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**Date of Submission: 19/9/25**

## 1. Experiment Name

**Mini Project 2: Distance Measurement using Ultrasonic Sensor**

## Objective

**To design a system that measures distance using an ultrasonic sensor and a microcontroller, based on the echo time of sound waves traveling to an object and reflecting back.**

## 3. Apparatus / Hardware & Software Requirements

- List all required tools and components:

**Hardware:**

* Microcontroller: Arduino Uno
* Sensors: Ultrasonic Sensor (HC-SR04)
* **Output Device:** 16x2 LCD Display
* Software (e.g., Arduino IDE, EMU8086)
* Breadboard, Jumper Wires, Power Source etc.

**Software:**

* Arduino IDE

## 4. Circuit Diagram / Schematic

- Insert a labeled circuit diagram (Can be drawn by hand or created using tools like Tinkercad)

- If you are submitting just code and outputs, this part can be excluded, or you can write ‘N/A’ in this part of the report

## 5. Code / Assembly Program

- Full source code used in the experiment with necessary comments

## 6. Output / Observations

- Describe the system’s behavior/output after execution

- Include photos, screenshots, or summary tables if necessary

## 7. Result

- Summarize the outcome of the experiment

- State if the objective was achieved

## 8. Conclusion

- Briefly summarize what you learned from this experiment/project