

TABLE OF CONTENT

C HAPTER 1

ULTRASONIC SENSORS AND THEIR WORKING PRINCIPLE

Learn about ultrasonic sensors and their applications in distance measurement. This chapter explains the working principles of ultrasonic sensors, how to interface them with Arduino, and how to write code to measure and display distances accurately.

C HAPTER 2

INTRODUCTION TO SERVO MOTOR

Learn the principles of servo motors and their applications in automation. This chapter guides you through building an automatic door system, providing practical insights into controlling servo motors using microcontrollers.

C HAPTER 3

CONCEPT OF STRING, ARRAYS, FUNCTIONS, AND LED MATRIX

Delve into Arduino programming with a focus on arrays and functions. This chapter covers how to program an LED matrix display, enabling you to create dynamic visual effects and interactive displays.

C HAPTER 4

EXPLORE THE SEVEN SEGMENT DISPLAY

Understand the workings of seven-segment displays and their use in digital counters. This chapter walks you through designing and programming automatic counters, useful in various electronic projects and applications.

C HAPTER 5

UNDERSTANDING RELAY AND ITS WORKING PRINCIPLE

Relays are essential components in many Arduino projects, allowing you to control high-power devices safely and efficiently. Understanding their working principles and how to integrate them into your projects can greatly enhance the functionality of your designs.

C HAPTER 6

ADVANCED 2D SKETCH TOOLS - PART I

Explore advanced 2D sketch tools in Fusion 360. This chapter focuses on creating conic curves and using point-making tools, enhancing your ability to develop intricate and detailed sketches.

C HAPTER 7

ADVANCED 2D SKETCH TOOLS - PART II

Learn how to dimension and pattern your sketches in Fusion 360. This chapter covers techniques for applying dimensions to sketch entities and creating rectangular and circular patterns, essential for accurate and efficient design.

C HAPTER 8

2D EDITING TOOLS - PART I

This chapter continues the exploration of Fusion 360's 2D sketch tools. It includes detailed instructions on using the Fillet and Chamfer commands to refine and perfect your 2D sketches, ensuring precise and high-quality designs.

TABLE OF CONTENT

MIT

CHAPTER 9

ESSENTIAL 2D EDITING TOOLS - PART II

This chapter continues the exploration of Fusion 360's 2D sketch tools. It includes detailed instructions on using the Trim, Extend, and Break commands to refine and perfect your 2D sketches, ensuring precise and high-quality designs.

CHAPTER 10

INTRODUCTION TO PYTHON

This chapter introduces the basics of Python programming, including its history, features, and advantages. It sets the foundation for understanding why Python is a powerful and versatile language used in various fields, from web development to data science.

CHAPTER 11

ALGORITHM AND FLOWCHART

This chapter provides an introduction to the basics of algorithms, which are step-by-step instructions for solving a problem, and flowcharts, which are visual representations of these algorithms. It explains the significance of both tools in programming and problem-solving.

CHAPTER 12

EXPLORE PYTHON BASICS

Dive into the fundamental building blocks of Python programming. This chapter covers essential topics such as Python syntax, how to use identifiers and keywords, variable declaration, the importance of indentation, writing comments, and working with strings.

CHAPTER 13

STRING FUNDAMENTALS AND OPERATIONS

Learn how to manipulate and concatenate strings in Python. This chapter explores various string operations and methods for altering string data to make your programs more efficient and powerful.

CHAPTER 14

UNDERSTAND DATA TYPES AND OPERATORS

Understand the different data types available in Python and how to use operators to perform calculations and manipulate data. This chapter covers arithmetic, comparison, logical, assignment, and bitwise operators.

CHAPTER 15

LEARN CONTROL STATEMENTS

Master the use of control statements to direct the flow of your Python programs. This chapter covers if-else statements, loops (for and while), and other decision-making constructs that allow you to create dynamic and responsive programs.

3D CAD