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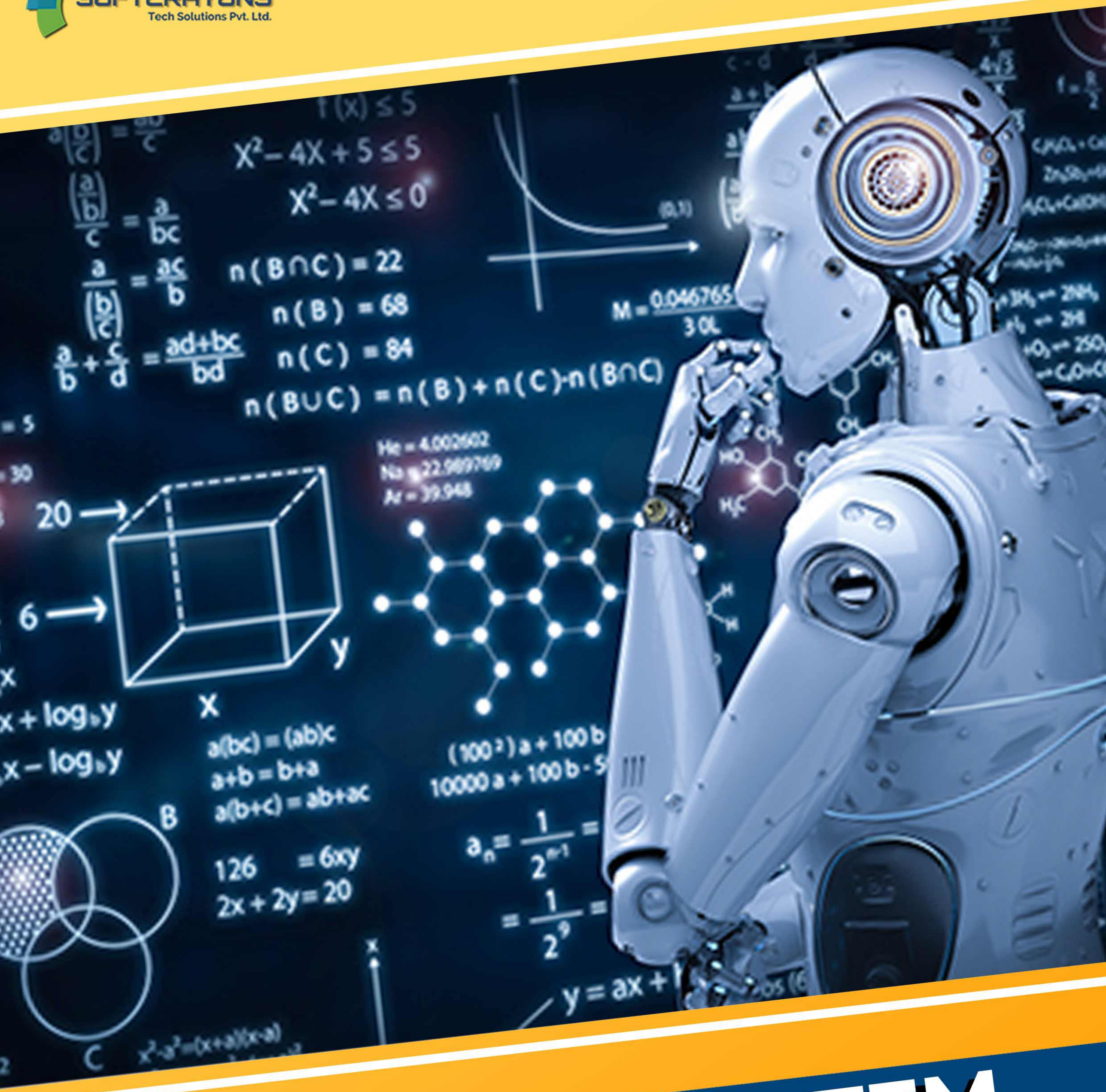

EMBEDDED SYSTEM & ROBOTICS

@softcrayons

About Course

An embedded system resides inside the robot tying together the different subsystems. Without an embedded system, robots would need to rely on external computing systems which can increase the safety risks due to delay and failure in the communication link between the robot and its external control system

EMBEDDED SYSTEM & ROBOTICS

CURRICULUM

1 Microprocessor & Microcontroller Classification

- Objectives
- Learning Outcomes

2 Registers & Memory of AT89C51

- Description of RAM
- Description of CPU Registers
- Functions of SFR

3 Introduction of EMBEDDED C

- Introduction to Embedded C
- Difference between C & Embedded C
- Programming style
- Basic structure of C program

4 Constants, Variables & Data Types

- Keywords & Identifiers

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Data type & its memory representation
Arrays and strings

5 Operators

Types of Operators
Bitwise Operators explained
CONTROL STRUCTURES & LOOPS
Decision-making with if statement
If....else statement
Switch statement, and GOTO statement
The While and Do – While statements
For statement

6 Functions

Why Functions
Types of Functions
A Multifunctional program
Return values & their types

7 Introduction To Softwares

Kiel Compiler
Proteus

8 Interfacing of LED

Introduction of LED's
Interfacing Circuit Description of LED's
Programming of LED's Interfacing

9 Interfacing of Seven Segment Display

Introduction to 7 Segment Display
Types of 7 Segment Display
Interfacing Circuit Description of 7 Segment Display
Programming of 7 Segment Display Interfacing

10 Interfacing of LCD

Introduction to 16 x 2 LCD
Commands of 16 x 2 LCD
Interfacing Circuit Description of 16 x 2 LCD
Programming of 16 x 2 LCD

11 Interfacing of Switches & Keyboard Matrix

Introduction to Switches & Keyboard Matrix
Interfacing Circuit of Switches & Keyboard Matrix
Programming of Keyboard Matrix & Switches
Controlling of LED's by using Switches
Key board Matrix & LCD Interfacing Program

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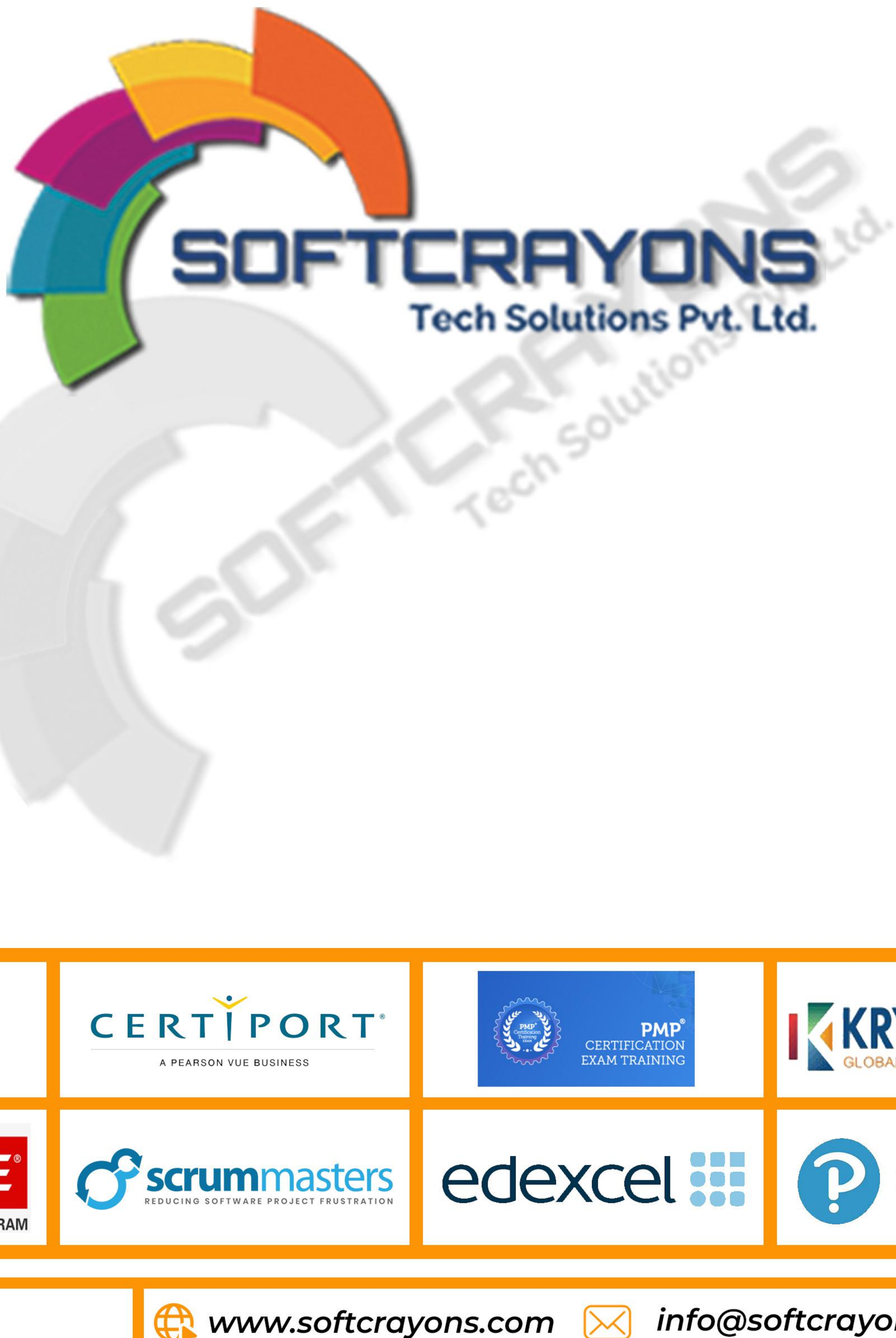
- Introduction to sensing devices
- Interfacing of IR Sensors
- Interfacing of Temperature Sensor

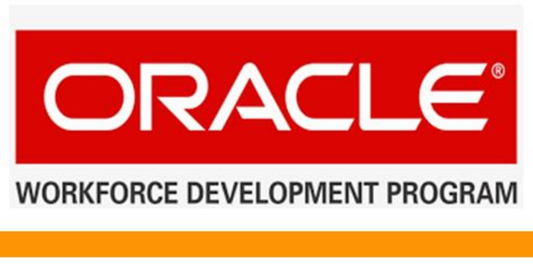
17 Embedded Networking

- I2C Bus Standard
- Bluetooth
- Zigbee
- USB
- UART

18 Linux Fundamentals & Device Driver Programming

- Linux Fundamentals
- Linux Commands
- VI Editors
- Introduction to Device Driver
- The Role of Device Driver
- Kernel Module Vs Application
- Types of Device Driver
- Character Driver
- Block Driver & Network Driver





www.softcrayons.com
info@softcrayons.com
(+91) 854 501 2345
693, Sector 14-A, Vasundhara,
Ghaziabad (U.P.), 201012
@softcrayons