



SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

19ITT204 – MICROCONTROLLER & EMBEDDED SYSTEMS

III YEAR - V SEM

UNIT 4 – Processes and Operating Systems

Topic- Operating System Basics



Operating System



- An embedded operating system is a specialized operating system (OS).
- Designed to perform a specific task for a device that is not a computer.
- The main job of an embedded OS is to run the code that allows the device to do its job.
- These operating systems are designed to be **small, resource-efficient, dependable**, and reduce many features that aren't required by specialized applications.



Embedded OS



- An embedded operating system is a combination of software and hardware.
- It produces an easily understandable result by humans in many formats such as **images, text, and voice**.
- Embedded operating systems are developed with programming code, which helps convert hardware languages into software languages like C and C++.

The embedded operating system improves overall efficiency.



Characteristics of Embedded OS



There are various characteristics of an embedded operating system. Some of them are as follows:

- It provides real-time operations.
- Direct use of interrupts
- Input/Output device flexibility
- Reactive operation
- Streamlined protection mechanisms
- Configurability



Embedded OS Uses



Car navigation system

The car navigation system is a small computer system with a touch screen that enables the driver to navigate numerous menus such as audio playback, radio, GPS and route mapping, fuel level, hands-free calls, and tire pressure monitoring systems

Parking Metering

Smart city parking meters use the embedded system to manage the user input and track time and costs. Depending on the design, these devices contain a variety of built-in functions.



Advantages of Embedded OS



There are various advantages of an embedded operating system. Some of them are as follows:

- It is small in size and faster to load.
- It is low cost.
- It is easy to manage.
- It provides better stability.
- It provides higher reliability.
- It provides some interconnections.
- It has low power consumption.
- It helps to increase the product quality.



Disadvantages of Embedded OS



There are various disadvantages of an embedded operating system. Some of them are as follows:

- It isn't easy to maintain.
- The troubleshooting is harder.
- It has limited resources for memory.
- It isn't easy to take a back of embedded files.
- You can't change, improve, or upgrade an embedded system once it's been developed.
- If any problem occurs, you need to reset the setting.
- Its hardware is limited.



References

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Thank You