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KINGS COLLEGE OF ENGINEERING

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Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

ACADEMIC YEAR 2021-22 EVEN

Internal Students Seminar – Report

Title of the seminar	: "Real Time Application for Embedded systyem"
Date	: 12.05.2022
Resource Person	: Mrs.C.Senthamilarasi, AP/EEE, KCE
Beneficiaries	: EEE Students - 52
Venue	: III –EEE – ICT Classroom – Hall No: 133

THE MAIN OBJECTIVE OF THE INTERNAL SEMINAR:

- The main objective of the internal seminar is to provide exposure to various research areas to our students.
- To provides a critical view into the behaviour of embedded System.
- To validate basic concepts of embedded systems, operating systems and specifically at Real Time Operating Systems in order to identify the features one has to look for in an RTOS before it is used in a real-time embedded application.

THE FOLLOWING POINTS WERE DISCUSSED DURING THE SESSION:

- An embedded system is generally a system within a larger system. Modern cars and trucks contain many embedded systems. One embedded system controls anti-lock brakes, another monitors and controls vehicle's emission and a third displays information on the dashboard.
- One major subclass of embedded systems is real-time embedded systems. A real time system is one that has timing constraints. Real-time system's performance is specified in terms of ability to make calculations or decisions in a timely manner.

STRUCTURE OF AN EMBEDDED SYSTEM

- Processing power: Selection of the processor is based on the amount of processing power to get the job done and also on the basis of register width required.
- Throughput: The system may need to handle a lot of data in a short period of time.
- Response: the system has to react to events quickly.
- Memory: Hardware designer must make his best estimate of the memory requirement and must make provision for expansion.
- Power consumption: Systems generally work on battery and design of both software and hardware must take care of power saving techniques.
- Number of units: the no. of units expected to be produced and sold will dictate the Trade-off between production cost and development cost.

- Expected lifetime: Design decisions like selection of components to system development cost will depend on how long the system is expected to run.
- Program Installation: Installation of the software on to the embedded system needs special tools.
- Testability & Debug ability: setting up test conditions and equipment will be difficult and finding out what is wrong with the software will become a difficult task without a keyboard and the usual display screen.
- Reliability: is critical if it is a space shuttle or a car but in case of a toy it doesn't always have to work right.

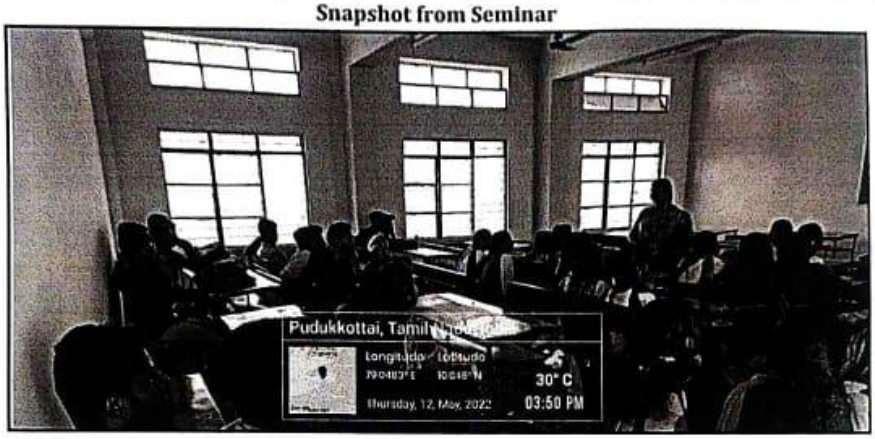
TYPES OF OPERATING SYSTEMS:

1. **Single-user, single task** - This operating system is designed to manage the computer so that one user can effectively do one thing at a time. The Palm OS for Palm hand-held computers is a good example.
2. **Single-user, multi-tasking** - This is the type of operating system most of us use on our desktop and laptop computers today. Windows 98 and the MacOS are examples of OS that let a single user have several programs in operation at the same time.
3. **Multi-user** - A multi-user operating system allows many different users to take advantage of the computer's resources simultaneously. The operating system must make sure that the requirements of the various users are balanced, and that each of the programs they are using has sufficient and separate resources so that a problem with one user doesn't affect the other users. UNIX is an example of multi-user operating system.
4. **Real-time operating system (RTOS)** – The main task of a RTOS is to manage the resources of the computer such that a particular operation executes in precisely the same amount of time every time it occur. "In a complex machine, having a part move more quickly just because system resources are available may be just as catastrophic as having it not to move at all because the system is busy

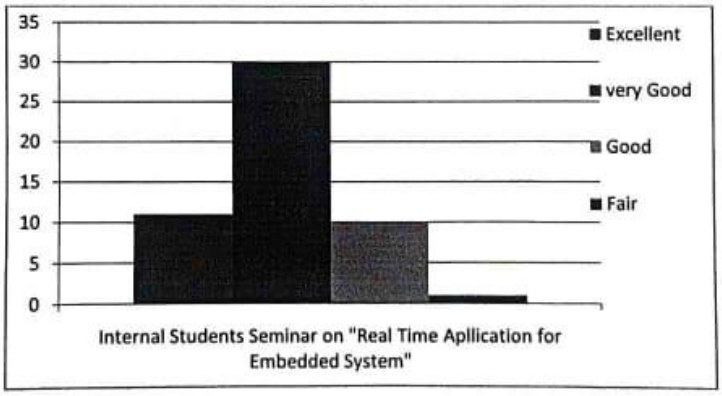
Outcome:

- Students will be able to highlight theoretical knowledge on embedded system.
- Students can be able to understand the different types of operating system.
- Students can be able to understand the structure of an embedded system.

Snapshot from Seminar



Feedback Analysis:



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