Analysis, Design and Modelling of Real-Time Systems

SENG408

Lecture 0

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The term “real time”

Commonly used in a variety of situations, both technical and non-technical.

“Elections and political movements played out in real time.”

Many individuals would likely interpret “in real time” as meaning “immediately”, “at once” or “instantly.”

Pedantic (Minor Details)

Issue of appropriate writing of the term

Various forms of the term, such as **real time**, **real-time**, and **realtime** may appear across literature.

For computer, software, and systems engineers the preferred form is **real-time**.

From the term ‘Real-time’

It is probably understood that those events demand timely or “real-time” processing.

What are Real-Time Systems?

In a real-time system, correctness not only depends on the logical results but also on the time at which results are produced.

Typical misconception:

- Real-time computing ≠ compute things as fast as possible
- Real-time computing = compute as fast as necessary, but not too fast

Structure of Course

What are Real-Time Systems?

How are they Programmed?

How to verify real-time constraints?

Topics

- Real-time Concepts
- Embedded real-time development methodologies
- Real-time operating systems
- Embedded real-time hardware fundamental
- Real-time analysis