2007 Paper 7 Question 16

Additional Topics

You are required to design a security system that uses location information about objects and people.

The application scenario is that of a warehouse containing many large boxes. The boxes can be anywhere in the warehouse and are also stacked vertically. Every part of the warehouse is under video surveillance using a very large number of cameras.

When a box goes missing there are two requirements. The first is to produce an audit trail of the movements and location of the box in the warehouse during the previous month. The second is to review quickly the vast amount of recorded video data and select only those scenes that contain the missing box.

(a) Describe the architecture of the overall system.   [4 marks]

(b) Outline the design of an indoor location system that might be used as part of the solution.   [6 marks]

(c) What are the performance bottlenecks and how does the design deal with scalability issues?   [4 marks]

(d) What other sensor information could be used to enhance the two application requirements?   [6 marks]