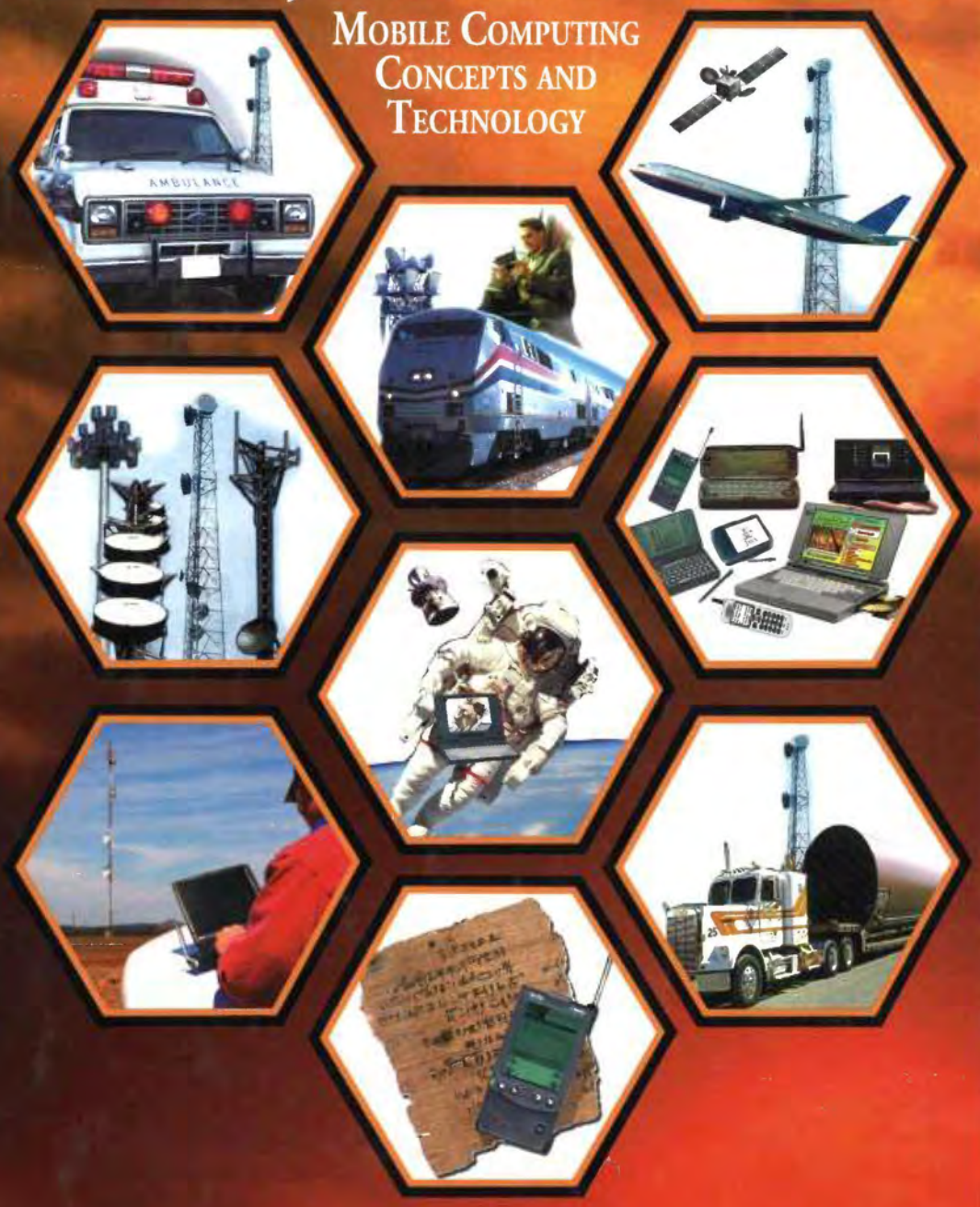
Any Time, Anywhere Computing

Mobile Computing Concepts and Technology



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The proliferation of wireless networks and small portable computing devices has led to the emergence of the mobile computing paradigm. Mobile and nomadic users carrying laptops or hand-held computers are able to connect to the Internet through publicly available wireline or wireless networks. In the near future, this trend can only grow as new exciting services and infrastructures delivering wireless voice and multimedia data are deployed.

ANY TIME, ANYWHERE COMPUTING: ***Mobile Computing Concepts and Technology*** is intended for technical and non-technical readers. It includes substantial coverage of the technologies that are shaping mobile computing. Current and future portables technology is covered and explained. Similarly, current and future wireless telecommunication networks technology is covered and reviewed. By presenting commercial solutions and middleware, this book will also help IT professionals who are looking for mobile solutions to their enterprise computing needs. Finally, this book surveys a vast body of recent research in the area of mobile computing. The research coverage is likely to benefit researchers and students from academia as well as industry.

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3

PORTABLE INFORMATION APPLIANCES

3.1 HISTORICAL EVOLUTION

The first portable information appliance was probably a piece of stone or clay with markings on it, used to record numeric information. This information was probably very important to the user of this appliance and in some way directly affected his livelihood. It may have actually provided the "function" of counting by allowing the user to create a mark corresponding to a piece of livestock. This would have been very useful to an individual whose society had not yet invented a system of numbers. Given the lifestyle of such an individual, ease of use, portability, durability, and reliability were all essential. Ease of use probably meant that the individual marks had to be deep enough in the appliance so as to be detectable by touching. This would have been necessitated by the need to count goats in a heads-up mode while incrementing through the marks with the thumb. Once utilized, this appliance would have to be stowed in an extremely portable fashion so that it did not interfere with other activities such as attempting to frighten away predators, throwing sharpened sticks at predators and most importantly, running away from predators. Durability would have been important since the user did not have the means to protect the device from temperature variations, moisture, abrasion, and shock. To the user, this device may have played a very important role in establishing his credibility, accountability, and responsibility with respect to the rest of his community.

As the technology of mathematics and writing developed, human civilization progressed onward to the papyrus scroll (Figure 3.1) and ink pen. This appliance was highly portable and could convey very complex information. The user interface took a while to learn (reading and writing), and until relatively

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