"Location-Based Services" by Jochen Schiller and Agnes Voisard

Wide Coverage of Various Issues

"Location-Based Services" is an excellent book composed of contributed papers by some computer experts and practitioners in the geospatial industry. This book introduces the emerging field of LBS by addressing many issues and challenges facing researchers and practitioners.

By Bin Jiang

Location-Based Services

Location-Based Services, or LBS in short, both as a concept and a technology, have emerged from the intersection of information and telecommunication technology, and geospatial technology. The market potential of LBS has been tremendous. One report estimates the worldwide market for LBS to reach $20 billion by 2006. The estimate sounds very exciting! Indeed, LBS have been penetrating into our daily lives for various interesting applications like friends finding, kids tracking, location-sensitive billing and many others.

Three Parts

One of the books on this subject is simply called "Location-Based Services". It is divided into three major parts: application, data management and services, and communication. Each of them consists of two or three chapters. The book sets out with a first chapter on general aspects of LBS, in which the author presents an overview of LBS focusing on both applications and markets. Various categories of LBS applications and required accuracy levels are reviewed, and another related and very concerned issue, namely privacy, is also briefly discussed. LBS markets and some challenges to operate LBS applications in markets are discussed. A second chapter presents an AT&T's Find Friend application. This application scenario is referred to in later chapters to illustrate and discuss various issues. The part ends with a third chapter that focuses on database perspectives on GPS-enabled navigation systems - a typical application of LBS. The third chapter also presents some service
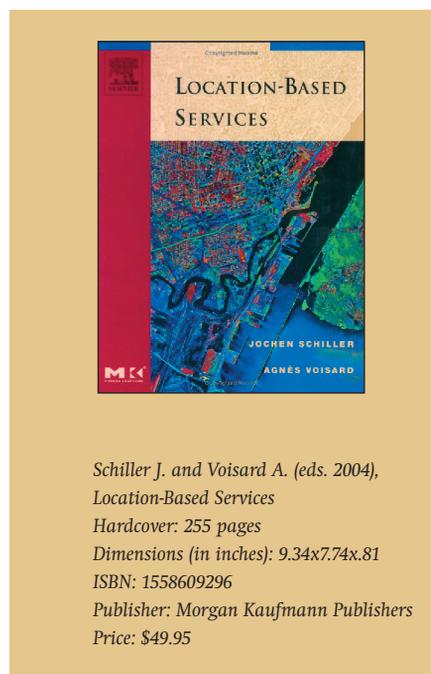
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functionalities and related algorithms for the navigation systems.

Midddleware Issues

The second part of the book is devoted to data management and services in LBS, and more specifically on middleware issues, database aspects and interoperability issues. Middleware is defined as a kind of intermediate services between positioning and application layers that facilitate the development and deployment of distributed LBS applications in heterogeneous environments. Chapter 4 sets out with an overview of LBS applications and characteristics, proceeds with the requirements imposed on middleware, and finally ends with some models as possible solutions.

Chapter 5 deals with various database aspects of LBS involving data modeling, updating, and storage using the case of transportation. Linear referencing as a key concept for maintaining transportation infrastructure is also discussed using various Oracle realizations. The rollout of LBS is likely based on very heterogeneous hardware and software environments, and data sources. Therefore, interoperability is inevitable. Currently there are many standards for the purpose of interoperability. Chapter 6 provides a comprehensive coverage of available standards, and illustrates the usefulness of the standards in dealing with interoperability issues using the Find Friend example that already occurred in the previous second chapter.

The third and last part consists of two chapters that focus respectively on data collection and data transmission with LBS. Chapter 7 discusses data collection with different types of positioning systems such as satellite positioning systems, indoor positioning systems and other systems that use existing network infrastructures. Finally chapter 8 deals with location data transmission with various wireless technologies and standards currently available and defined.

Conclusion

Overall this edited volume, written in an accessible fashion, provides a wide spectrum coverage of various issues and challenges with LBS. However, some issues, as admitted by the editors, are missing in the book; among them are security, privacy, data availability, and pricing. In addition, personalization and adaptation of services to the consistent changing location and context are not covered in any great detail. Nevertheless, this is an excellent book that can be used by both researchers and practitioners, and also comes at an affordable price. I highly recommend it.

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