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Wireless and Pervasive Healthcare: Applications, Requirements, and Research Problems

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ABSTRACT

With an increasingly mobile society and the worldwide deployment of mobile and wireless networks, the wireless infrastructure can support many current and emerging healthcare applications. In this tutorial, we present pervasive healthcare applications and requirements, and discuss how the current and emerging wireless and mobile technologies can be used to support these applications.

Keywords

Mobile and wireless networks, pervasive healthcare, applications, requirements.

INTRODUCTION

With an increasingly mobile society and the worldwide deployment of mobile and wireless networks, the wireless infrastructure can support many current and emerging healthcare applications. However, before a wide-scale use of wireless infrastructure, there are several challenges that must be overcome. These include how to best utilize the capabilities of diverse wireless technologies, how to ensure scalability and dependability, and how to effectively manage the complexity of wireless and mobile networks in healthcare applications. In this tutorial, we present pervasive healthcare applications and requirements, and discuss how the current and emerging wireless and mobile technologies can be used to support these applications. In particular, we discuss several wireless solutions for location management, intelligent emergency system, patient monitoring, and mobile telemedicine applications. For patient monitoring, we will discuss requirements, current usage and limitations, reliable and comprehensive patient monitoring, infrastructure-networks for patient monitoring, and ad hoc networks for patient monitoring. Additionally, some open issues and challenges are also discussed.

CONCLUSION

In this tutorial, several challenges are identified which must be overcome before wireless infrastructure can support the emerging pervasive healthcare applications. Also, several pervasive healthcare applications and requirements are presented along with emerging research problems.

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