Chapter 3.36
Mobile Handheld Devices for Mobile Commerce

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INTRODUCTION

With the introduction of the World Wide Web, electronic commerce has revolutionized traditional commerce and boosted sales and exchanges of merchandise and information. Recently, the emergence of wireless and mobile networks has made possible the extension of electronic commerce to a new application and research area: mobile commerce (MC), which is defined as the exchange or buying and selling of commodities, services, or information on the Internet through the use of mobile handheld devices. In just a few years, mobile commerce has emerged from nowhere to become the hottest new trend in business transactions. Despite a weak economy, the future of mobile commerce is bright according to the latest predictions (Juniper Research Ltd., 2004). Internet-enabled mobile handheld devices are one of the core components of a mobile commerce system, making it possible for mobile users to directly interact with mobile commerce applications. Much of a mobile user's first impression of the application will be formed by his or her interaction with the device, therefore the success of mobile commerce applications is greatly dependent on how easy they are to use. This article first explains the role of handheld devices in mobile commerce systems and then discusses the devices in detail. A mobile handheld device includes

six major components: (a) a mobile operating system (OS), (b) a mobile central processor unit (CPU), (c) a microbrowser, (d) input and output (I/O) devices, (e) memory, and (f) batteries. Each component is described, and technologies for the components are given.

BACKGROUND

Internet-enabled mobile handheld devices play a crucial role in mobile commerce as they are the devices with which mobile users interact directly with mobile commerce applications. This section first introduces a mobile commerce system and then illustrates how it is used to carry out a mobile transaction. A mobile commerce system is inherently interdisciplinary and could be implemented in various ways. Figure 1 shows the structure of a mobile commerce system and a typical example of such a system (Hu, Lee, & Yeh, 2004). The system structure includes six components: (a) mobile commerce applications, (b) mobile handheld devices, (c) mobile middleware, (d) wireless networks, (e) wired networks, and (f) host computers.

To explain how the mobile commerce components work together, Figure 2 shows a flowchart of how a user request is processed by the components in a mobile commerce system.

Figure 1. A mobile commerce system structure