Chapter II
Mobile Commerce Applications

INTRODUCTION

Commerce, the exchange or buying and selling of commodities on a large scale involving transportation of goods from place to place, benefits from the convenience and ubiquity conveyed by mobile commerce technology. There are many instances that illustrate how mobile handheld devices help commerce. Important considerations that must be taken into account when trying to categorize applications include the nature of the communicating parties (e.g. people, intelligent agents, databases, sensors), the types of handheld mobile devices involved (e.g., cell phones, smart phones, PDAs, tablets), the nature of the transaction (e.g., push or pull delivery systems), and the actual content of the communication (e.g., a bank transaction, weather alert, or digital image). Not all m-commerce consists of buying and selling; other types of transactions such as banking transactions (e.g. bill paying) or polling (on-line surveys) are also of interest. In fact, “mobile transactions” or “mobile services” are probably more general terms for the concepts that we will discuss here. Obviously, no transaction can take place without some means of communication, whether it be face-to-face speech, so-called “snail” mail, e-mail, telephone, inter-office memos, or other means. Thus, one way in which mobile commerce applications can be dif-
Differentiated is by their means of communication. For handheld mobile devices this will always involve some form of wireless technology, but the connection could transmit either voices or data.

Another way in which mobile commerce applications can be differentiated is by the nature of the entities originating the communications on either end of the transaction; participants in m-commerce might be humans, or they might be intelligent agents representing humans or business entities, and in either case may be either at a fixed location or mobile. A third way to differentiate mobile handheld applications is by the computing demands they place on the handheld device. Applications which can run on ordinary cell phones are suitable for a mass market, while those that require more powerful clients like laptops are more likely to be aimed at smaller groups of users. Mobile applications that are location-aware will require a client device to have GPS capabilities, so that the user’s physical location can be ascertained. Table 2.1 uses these taxonomy features to identify the fundamental nature of applications in each category.

The physical devices that support all of these various applications are evolving rapidly. At present there are a number of differently named devices competing in this application arena, including cell phones, “smart” phones, PDAs, tablet PCs and laptop computers. Future research is likely to focus on designing and producing a single device that will support all of these applications for most users. Although calling such a multi-purpose object a “phone” seems grossly inadequate, it will surely include that communication capability because cell phones are the most

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Types of Mobile Handheld Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voice, human-human, &amp; cell/smartphone/PDA/computer</td>
<td>Talking</td>
</tr>
<tr>
<td>Voice, human-agent, &amp; cell/smartphone/PDA/computer</td>
<td>Leaving messages and automated response systems</td>
</tr>
<tr>
<td>Voice, agent-agent, &amp; cell/smartphone/PDA/computer</td>
<td>None (agents don’t talk, though they can generate speech in order to communicate with humans)</td>
</tr>
<tr>
<td>Data, human-human, &amp; cell/smartphone/PDA/computer</td>
<td>Chat rooms</td>
</tr>
<tr>
<td>Data, human-agent, &amp; cell/smartphone/PDA/computer</td>
<td>Logging, journaling, editing, e-mail, web browsing, downloading, and on-line games</td>
</tr>
<tr>
<td>Data, agent-agent, &amp; cell/smartphone/PDA/computer</td>
<td>Automated fund transfers and automatic toll payment</td>
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