Chapter 14. Data Communication Interfaces

Call it the *Internet of Things*, or *distributed systems*, or whatever the term of the day happens to be, but it is a fact that for a gadget to be as useful as it possibly can be, it needs to be able to exchange data with other things. After all, a gadget sitting all by itself in the corner with nothing to talk to is a lonely gadget.

In the past, communication of data between various devices and systems was accomplished through slow RS-232 or 20 mA current loop serial links, or bulky portable media such as magnetic tapes, removable disk packs, and floppy disks. Early in the history of computing, punched paper cards and rolls of punched paper tape were initially used for this purpose.

Nowadays, we have USB flash drives, SD memory cards, portable hard drives, and Bluetooth, USB, WiFi, and Ethernet communications. But the end result is the same: data from one device or system is passed to another for processing, storage, or display (or all three), just a lot faster today than 10, 20, or 40 years ago. Sharing data in real time is now a commonplace feature of things like networked refrigerators, coffee pots, thermostats, and home entertainment systems. There has been talk of allowing automobiles to communicate with one another on the road to help avoid accidents, or between cars and roadside wireless