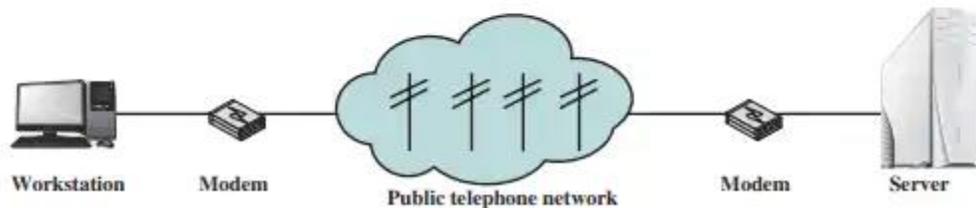# A Communications Model

The fundamental purpose of a communications system is the exchange of data between two parties.

Another example is the exchange of voice signals between two telephones over the same network. The following are key elements of the model:

- **Source:** This device generates the data to be transmitted; examples are tele- phones and personal computers.
- **Transmitter:** Usually, the data generated by a source system are not transmitted directly in the form in which they were generated. Rather, a transmitter transforms and encodes the information in such a way as to produce electromag-netic signals that can be transmitted across some sort of transmission system. For example, a modem takes a digital bit stream from an attached device such as a personal computer and transforms that bit stream into an analog signal that can be handled by the telephone network.
- **Transmission system:** This can be a single transmission line or a complex net-work connecting source and destination.
- **Receiver:** The receiver accepts the signal from the transmission system and converts it into a form that can be handled by the destination device. For example, a modem will accept an analog signal coming from a network or transmission line and convert it into a digital bit stream.
- **Destination:** Takes the incoming data from the receiver.
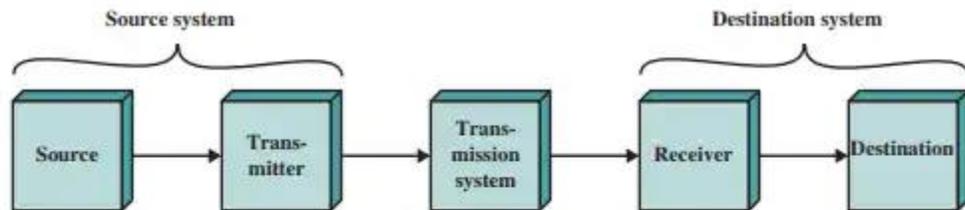
(a) General block diagram

(b) Example