

### Infinity Project Experiment: High-Tech Demos



Using block diagrams and modern technology, engineers can create prototypes of many different engineering designs quickly and easily. Some of these designs might include systems for creating sound or visual effects, for automatically counting the money in your pocket, or for tracking objects that are moving in space.

Explore these different designs, and ask yourself the following questions:

- What is the problem that they are each trying to solve?
- What are the constraints on the design?
- How effective are these prototypes in meeting the design objectives?
- How would you improve the design?
- How will Moore's law impact these designs in the future?

## From Design Concept to Prototype

One of the many remarkable advances in digital technology that will become increasingly important in coming years is the ability for engineering manufacturers to produce a **prototype**, or first working system design, directly from the block diagram. What does this mean? Engineers can rapidly produce a working design to test and evaluate directly from the block diagram. So, in the near future, the block diagram will become the actual design itself.

**Prototype:** An original model of a design. Engineers use prototypes of systems to prove that the systems work.

### EXERCISES 1.4

#### Try This

1. Construct a block-diagram description for the following activities:
  - a. Getting dressed in the morning
  - b. Cooking dinner at night
  - c. Preparing for an exam

#### Back of the Envelope

2. Let's analyze a simple system: a portable CD player. Draw a block diagram that describes the functionality of this system.
  - a. Describe the input and outputs of all the blocks.
  - b. Imagine that it is your job to improve this system. Draw a block diagram of your new design.
3. Create a block diagram for an automobile braking system.
4. Create a block diagram describing a typical medical checkup in a doctor's office.