HOW IT WORKS

The Magic 8 Ball, a novelty toy created in the 1950s, is made of a hollow sphere in which a 20-sided die floated in alcohol. When you ask the ball a question and shake it, one side of the die floats up and displays your answer in the ball's window.

For this project, you'll use a tilt ball switch, shown in Figure 14-1. The tilt ball switch is composed of a metal ball inside a metal casing that makes a connection when the switch is in an upright position. If you tilt the switch, the ball shifts and the connection is broken. There are lots of tilt switches available, and all do the same job. In this project, you'll ask a question and shake the switch. When the switch settles upright again, it connects to the Arduino, which then randomly selects a response from eight preset answers and displays it on the LCD screen.

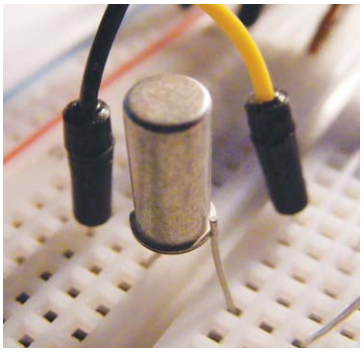

FIGURE 14-1:
Tilt ball switch inserted in the breadboard

The potentiometer controls the contrast of the LCD screen.

THE BUILD

1. Prepare the LCD screen as per the soldering instructions in "Preparing the LCD Screen" on page 104.
2. Place your LCD screen in the breadboard, inserting the header pins into the breadboard holes. Also place the potentiometer in the breadboard, and use the breadboard and jumper wires to connect your LCD screen, Arduino, and potentiometer.

LCD SCREEN	ARDUINO
1 VSS	GND
2 VDD	+5V
3 VO contrast	Potentiometer center pin