

## Project 12 - Magic 8 Ball Code

Copy and Paste the code below into the Arduino sketch window. Verify and upload the code to the board.

```
/* For the Lesson 12 - Tilt Ball Switch  
* Magic-8 ball using an LCD display  
* by Ricardo Moreno  
*  
—  
* Inspired by Arduino Video Tutorial-07 Crystal Ball Magic Ball - by Arduino  
* https://www.youtube.com/watch?v=kmlY1Y0Jwo8  
*  
—  
https://github.com/codebendercc/arduino-library-files/tree/master/libraries/Liquid  
Crystal  
*  
—  
*/  
#include <LiquidCrystal.h>  
  
//Initialize library with LCD screen  
//LiquidCrystal(rs, enable, d4, d5, d6, d7)  
// or  
//LiquidCrystal(rs, rw, enable, d4, d5, d6, d7)  
LiquidCrystal lcd(12, 11, 10, 5, 4, 3, 2); //instantiates the LiquidCrystal Object class to  
variable lcd  
  
//Global Constants  
const int tiltSensorPin = 6;  
//Global Variables  
bool currentSwitchState = LOW; //bool is the standard, and preferred type  
for boolean  
bool prevSwitchState = LOW;  
int reply;  
  
void setup(){  
  lcd.begin(16, 2); //16 characters and two lines  
  pinMode(tiltSensorPin, INPUT_PULLUP); //sets the pinmode for the tilt sensor  
  lcd.print("Ask the"); //prints the line of text  
  lcd.setCursor(0,1); //moves the cursor to the next line  
  lcd.print("Magic 8-Ball!"); //not sure if hyphen will work  
}  
  
void loop(){  
  currentSwitchState = debounce(prevSwitchState); //get the tilt sensor value  
HIGH or LOW
```

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if (currentSwitchState != prevSwitchState) { //looking for a change in the tilt
sensor
  if (currentSwitchState == LOW) { //tilt sensor has made a connection
    lcd.clear(); //clear the screen
    reply = random(8); //random select a number from 0-7
    lcd.setCursor(0, 0); //move cursor
    lcd.print("8-ball says:"); //print the line of text
    lcd.setCursor(0, 1); //move the cursor

    switch(reply){ //switch statement jumps to case with a reply
value (0-7)
      case 0:
        lcd.print("Yes");
        break;
      case 1:
        lcd.print("Most likely");
        break;
      case 2:
        lcd.print("Certainly");
        break;
      case 3:
        lcd.print("Outlook good");
        break;
      case 4:
        lcd.print("Unsure");
        break;
      case 5:
        lcd.print("Ask again");
        break;
      case 6:
        lcd.print("Doubtful");
        break;
      case 7:
        lcd.print("No");
        break;
    }
  }
  else { //Detected that the switch is HIGH or tilted down
    lcd.clear(); //clear the screen
    lcd.setCursor(0, 0); //move cursor
    lcd.print("8-ball says:"); //print the line of text
    lcd.setCursor(0, 1); //move the cursor
  }
}

```

```
    }  
    //Save the current state into previous state  
    prevSwitchState = currentSwitchState;  
}  
  
/* *****  
* Functions  
* ***** */  
  
//Debouncing function  
bool debounce(boolean last){  
    //Local Variable  
    bool current = digitalRead(tiltSensorPin);  
  
    if(last != current){  
        delay(100); //100 milliseconds  
        current = digitalRead(tiltSensorPin);  
    }  
    return current;  
}
```