

Building the Sound Jumper Device

The Sound Jumper is a modified version of the Laser PA System, from the Purdue Department of Physics "Teacher's Guide: Adaptations of Selected FunFest Demonstrations" (http://www.physics.purdue.edu/outreach/physics_on_the_road/manual3.shtml).

Parts List (item numbers for RadioShack):

- Mini Amplifier, 277-1008, \$14.99
- 10 mm Red LED, 276-086, \$2.79
- Infra-Red LED, 276-143, \$1.99
- 1/8" Mono Phone Plug (2-pack), 274-286, \$2.99
- 100 Ohm, 1W Resistor (2-pack), 271-152, \$1.49
- Audio Cable, 42-2420, \$3.99
- Silicon Solar Cell, 276-124, \$4.99 (these are fragile, you may want to buy 2)

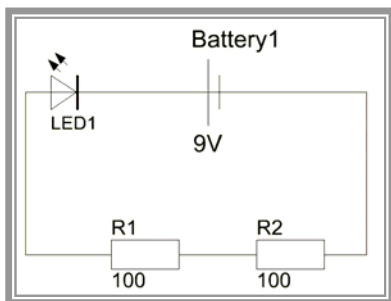
You may have the following:

- 6, 14" (alligator clips) (35.3cm) Insulated Test/Jumper Leads, 278-1156, \$7.69
- Fully Insulated 9V Battery Snap Connectors (5-pack), 270-325, \$1.99
- 2, 9V Battery, 23-875, \$0.99
- 75-Ft. 24-Gauge Clear 2-Conductor Speaker Wire, 278-1509, \$4.39

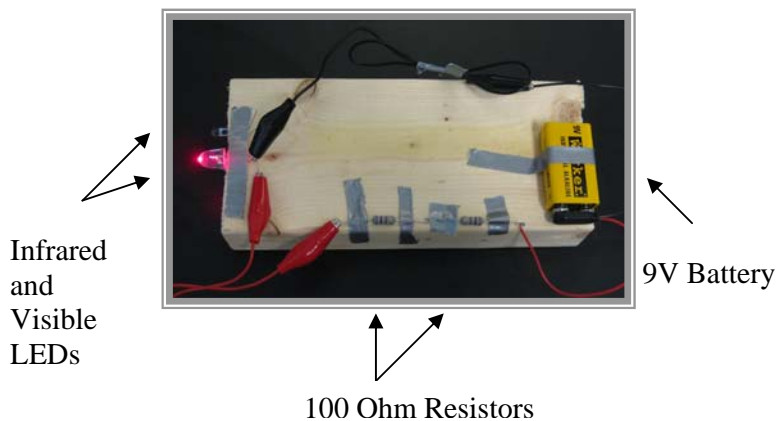
Construction

1. Power Supply/ LED Circuit

Build a series circuit that consists of a 9 volt battery, 2 - 100 ohm resistors, and an LED. The series circuit should be built so that the Red LED and the Infra-Red LED can be easily switched out by using alligator clips. The LED's are different than light bulbs; they have a positive end and a negative end.



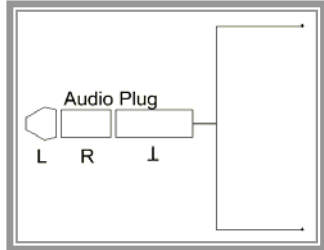
Circuit Diagram



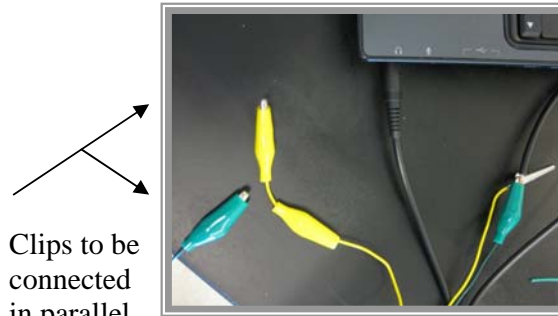
Picture

2. Audio Source Circuit

The audio source is connected to the Power Supply/LED circuit using an audio cable modified on one end with alligator clips. The circuit is attached in parallel to the Power Supply/LED circuit across one of the 100 ohm resistors.



Circuit Diagram



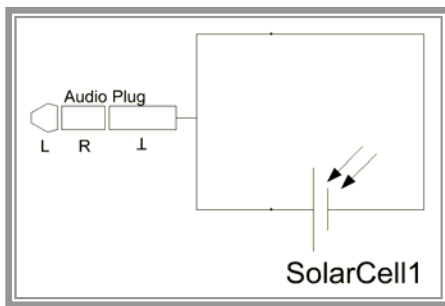
Clips to be connected in parallel to circuit

Picture

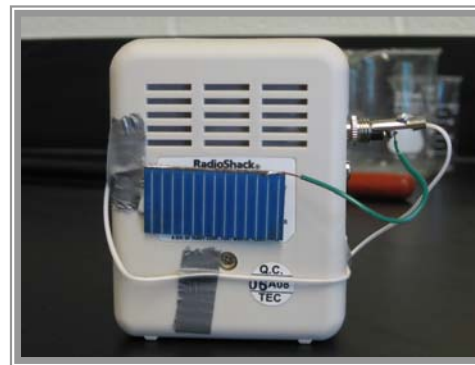
Audio Cable connected to alligator clips

3. Solar Cell/Speaker Circuit

The solar cell is connected in series with a speaker by using a 1/8" stereo jack. Wire is soldered to the positive and negative (front and back) side of the solar cell. Caution: Solar cells are very fragile. A spare cell is advised.



Circuit Diagram



Solar cell duct taped to back of speaker

Wires soldered to audio jack placed into input slot

Picture

When completed the Sound Jumper circuits will be assembled as shown below:

