Sending Sound (Information) with Laser Beam

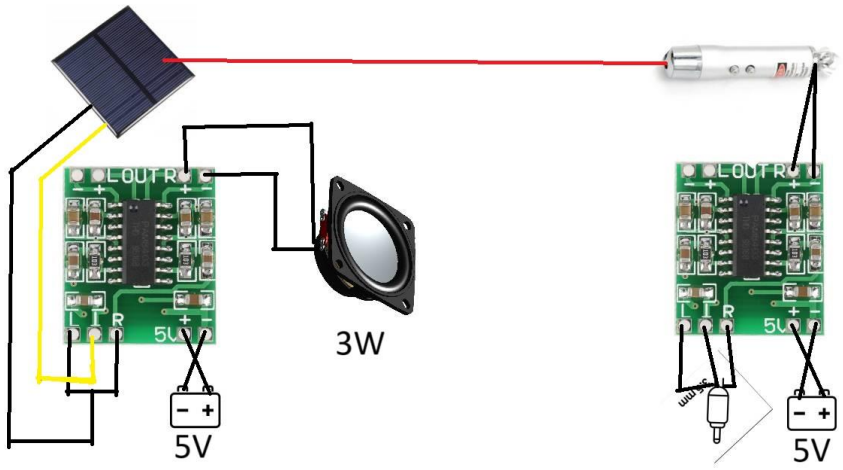
In this project, we are going to be using power of light to send information. This innovative application will help to illustrate the relationship between light and electricity.

The relationship between light and electricity is being used in numerous modern technologies, ranging from optical communication systems to solar energy conversion. In this project, we are going to be using this technology by employing a laser beam to activate a solar panel, starting an electrical current. This generated electrical energy is going to be used to power a speaker, offering a visualized example of how light waves can be used to control electrical systems.

List of components:

- 2 PAM8403 amplifiers.
- A laser pointer. (3-5V)
- 3.5mm jack cable (male).
- 2 5V of power supplies.
- 1.5-5V solar cells.
- 3W speaker.

Visualization of the circuit:



The circuit appears to use the laser beam as a control signal. When the laser beam activates the control circuit by solar panel, the audio signal from the audio source is allowed to pass through the amplifier and play through the speaker.

I chose PAM8403 for this project because small form factor of this amplifier allows efficient integration into our space-limited light-controlled sound system and as a Class D amplifier, the PAM8403 ensures high efficiency, vital for our solar-powered application without compromising on power consumption. Also it provides an affordable solution without sacrificing performance, meeting our project's budget considerations effectively.

Steps:

Prepare the Power Supply:

Connect the power supply to the PAM8403 module to provide a power source.

Connect the Audio Source:

Connect the left and right channels of the 3.5mm audio jack to the input of the PAM8403 module. This is where you can connect your audio source, such as your phone or an audio player.

Laser Pointer:

Use a laser pointer from any store.

Connect the Laser to PAM8403:

Connect the positive terminal (+) of the laser pointer to one of the output terminals of the PAM8403 module.

Connect the negative terminal (-) of the laser pointer to the other output terminal of the PAM8403 module.

Solar Panel Connection:

Connect the solar panel to the PAM8403 module. The solar panel will detect the laser beam when it's pointed at it.

Connect the Speaker:

Connect the 3W speaker to the output of the PAM8403 module.

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