Visible Light Communication

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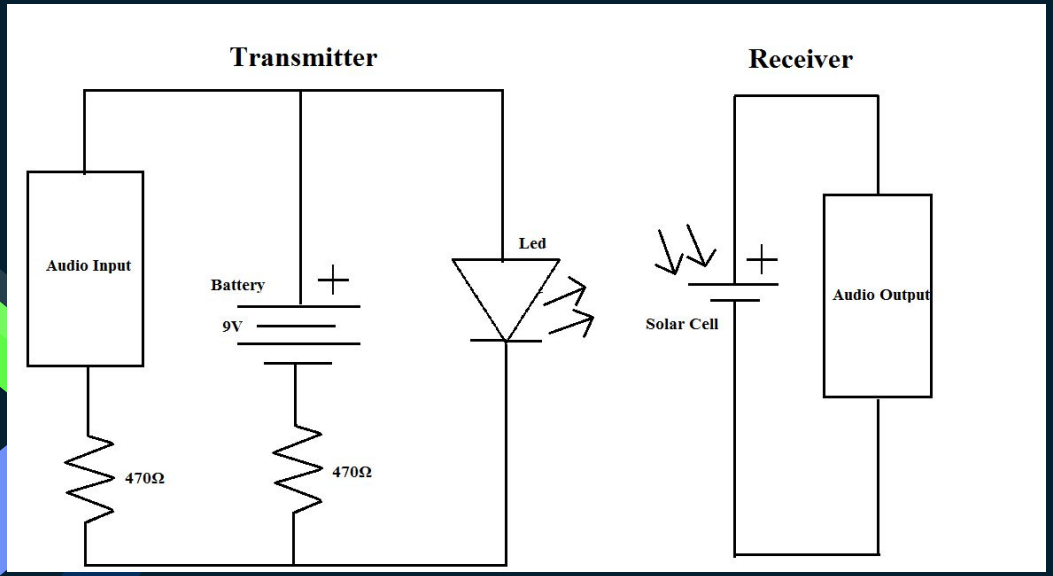
History

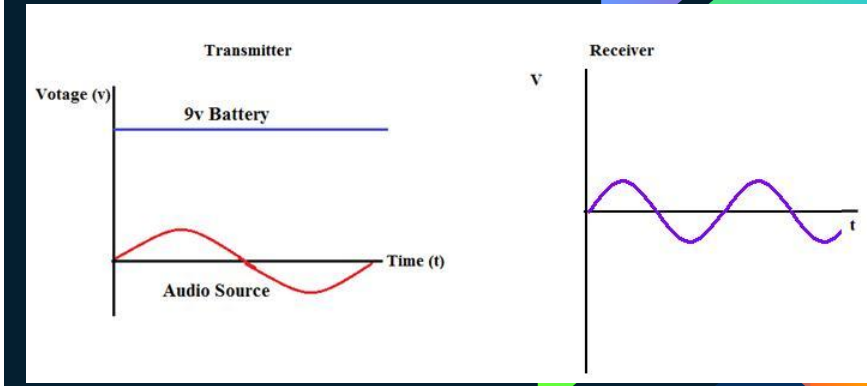
- Can be traced back as early as the late 1800s with Alexander Graham Bell's photophone
- Use of sunlight and natural light for communication and sending signals
- The first television remote, the "Flashmatic" created in 1955 used with photocells in the TV
- Divergence into Li-Fi and Fiber Optics in 1966
- Infrared technology emerges in the 1970-1990s

Significance

- Transmission of data without distortion
- High speed transmission
- High quality transmission with no need for data compression
- Can be used wirelessly or in a medium (fiber optics)
- Inexpensive, safe, and accessible data transmission

Diagram


Transmitter
Receiver
Audio Input
Battery
9V
Led
470Ω
470Ω
Solar Cell
Audio Output


Transmitter
Votage (v)
9v Battery
Time (t)
Audio Source
Receiver
V
t

Explanation

- Electricity from audio source creates a sinusoidal electromagnetic wave
- The audio source is not enough to power the laser so the battery provides constant light
- The electromagnetic wave from the audio source fluctuates the light
- The solar cell receives the fluctuating light that is mimicking the sound of the audio source
- The current is now sent to the amp and produces sound

Application

- Used for obiquitous computing and Li-Fi
- High bandwidth and immunity to interference of electromagnetic sources
- Less dangerous for high powered electronics
- Better than radio frequency communication

Jobs

- Radio Technicians- Radio/Broadcast/Sound techs use similar technology, be in with stronger equipment, to transmit information through radio waves
- Electrical Engineers- The growth of information age has come a demand for faster more efficient means of transferring data across vast distance, such as fiber optics
- Networking- People in networking are tasked with creating infrastructures capable of withstanding the demand of a company, often using fiber optics and other similar tools for fast communication

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