Laser Chat: A Secure Short-range Messenger

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The Internet is a centralized communication network. In rural areas, it can be expensive or slow. Another concern is attackers can see when data on the Internet are being transferred. Using lasers for communication can solve both of these problems. “Laser Chat” is a hardware/software system I designed that uses lasers as transmitters and pin diodes as receivers, allowing two people to quickly setup a communication link. The hardware aspect can transfer small amounts of any type of digital data, while the chat software gives two people an interface to send text messages. The messages are encrypted and their integrity is checked. In testing, Laser Chat transfers most short messages successfully. This demonstrates the practicality of laser communications and suggests they are robust enough to be used in other applications. Future studies could test different variables against error rates to reduce lost or corrupted data. Systems like Laser Chat could provide low-cost infrastructure for mesh networks that don't rely on commercial entities, and be used as an alternative to the Internet in the event it isn't available. In addition, laser communication could hide the fact that a conversation took place.

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