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LiFi Communications

NC STATE UNIVERSITY

Sponsor: **NC State University**
Mentor: **Dr. Robert Evans**
ECE 485, **Bobby Compton**

Problem Statement

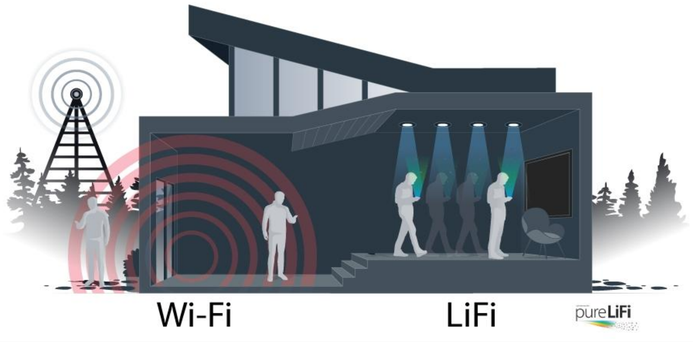
Design an optical light communication (LiFi) system to satisfy demand for faster connection speeds, broader bandwidths, and improved security.

Product Objectives

- Maximize range and speed.
- Develop an LED-specific communication scheme.
- Create an interface between LiFi device and client PC.

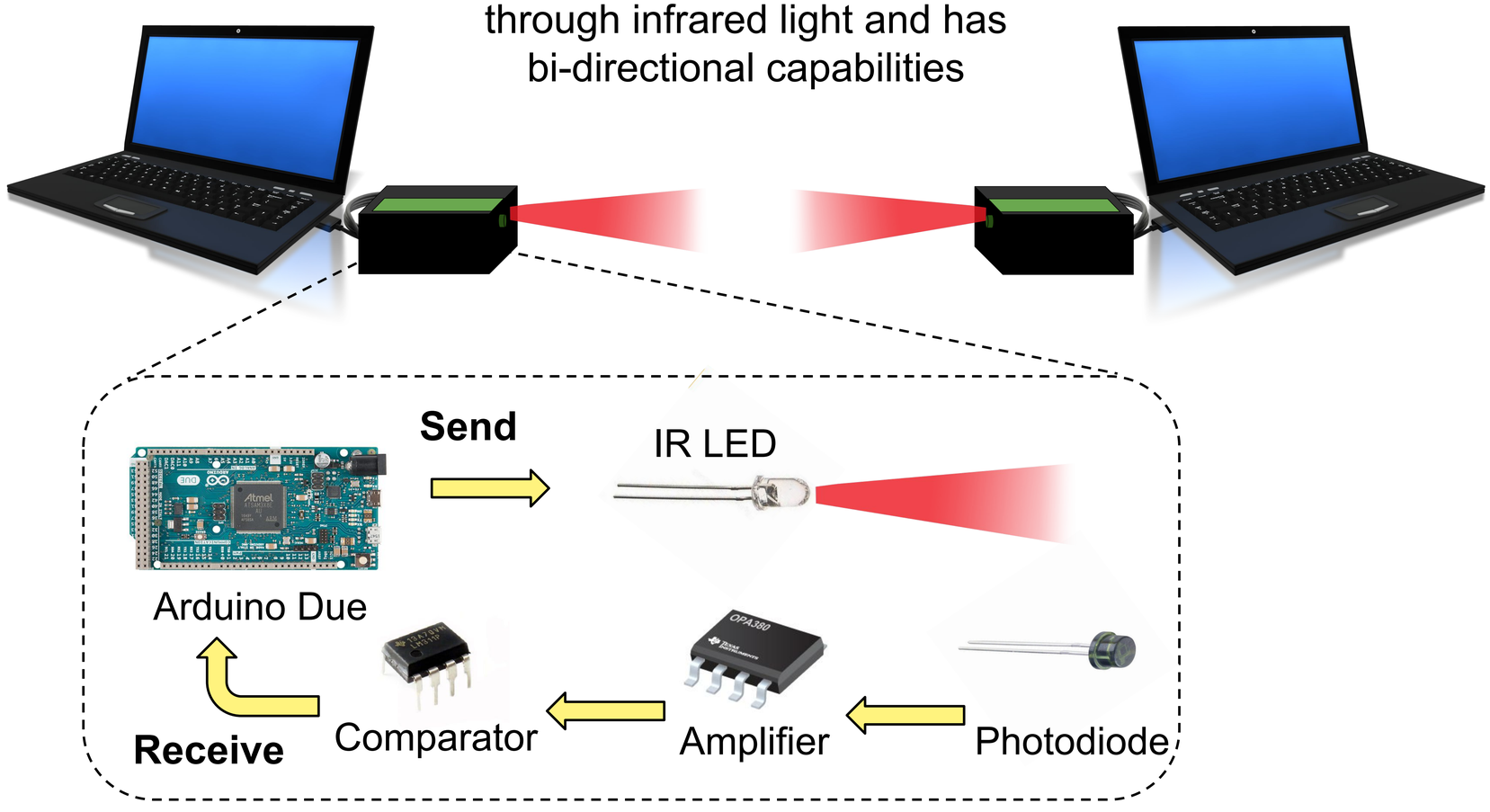
Applications

- Government facilities
- Hospitals
- Automobiles
- Home/Office



System Diagram

Data transmission is achieved through infrared light and has bi-directional capabilities



Software Features

- Arduinos serve as GPIO drivers for send and receive circuits.
- Python driver program breaks up files into packets and embeds error checking data.

Design Challenges

- On/Off-keying requires very high speed circuit components.
- Communication requires a very direct line-of-sight.