*OPTICAL COMMUNICATION*

*October’23*

Sending video streams using optical modems

* The modems seldom do not connect. One of the reasons mentioned in the documentation is if the distance between the modems is small, the receiving sensors might get saturated. Difficulties in establishing a link might also come from ambient lighting in the environment. It is hence recommended to use the modems in the dark or cover them with something opaque. Moreover, the modems should be aligned facing each other.
* I have noticed one thing. The modems were not connecting so I had them on for some time. During that time the temperature of the modems kept increasing little by little. I also observed the parameters. I had set the receiver gain to auto and observed an increase in gain over time with an increase in the receiver's sensitivity and the number of receivers active. This increase in sensitivity might cause the modems to draw more current increasing their temperature.
* Connecting 2 modems to a single system using a router causes modems to overflow and go crazy. I, however, have conducted tests using 2 modems connected to 2 different systems and it goes well. For the communication test, I used Wine to open a Windows exe file, the LUMA guys had given us. I use this test a lot (sometimes the modems are connecting and I am working and the connections get lost suddenly and I have to test for any physical damage in the modems.)
* Socket programming  
  <https://docs.python.org/3/howto/sockets.html>
* Beej’s guide to network programming(using internet sockets)  
  <https://beej.us/guide/bgnet/>
* <https://github.com/jeremyfix/udp_video_streaming/tree/master>

Using the above-mentioned git, I have tested the video stream server and client in a local network. I am however to test it using the modems. (The modems weren’t connecting, I wonder why). The issue could be in the ethernet cables or their length. Two of the cables are very long.

**I connected the modems and was able to get live video stream at 10%jpeg quality with an average frame rate of 7fps. The optical speed of the modems was set to 1Mhz with all 5 transmitters working. Encoding was also turned on. I will attach the video link below.**

[**https://youtube.com/shorts/EeQ8sUTWrf4?feature=share**](https://youtube.com/shorts/EeQ8sUTWrf4?feature=share)

Once I can get a live stream using the modems, I would test the modems underwater.