

# SYSTEM DESIGN FOR FSO BASED TRANSCEIVER

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**T**he demand for high speed data access is growing day by day; every digital infrastructure of our modern day society requires a very high speed data access. We have achieved very high data rates over fibre in our backbone networks and also within our local area network, the only bottleneck for high speed data access that remains is the interconnecting network that connects the local area network to the backbone network. The Free Space Optical (FSO) Communication {a.k.a. Terahertz Communication} provides us with the economical solution to this bottle neck problem. The beauty of this type of communication scheme is that it utilizes licence free spectrum band, does not require any installation or laying of fibre, and future expansion is limitless and fast. Along with the advantages that include very high data rate, no RF licensing requirement, high security, smaller form factor, smaller transceiver architecture and immunity from electromagnetic interference or jamming the FSO communication provides the most effective high speed data communication technology for the next generation of wireless communication. We in our work here at Electronics department of MNIT, Jaipur, plan to build a Full Duplex FSO transceiver system that can support data rates upto 5 Gbps (Gigabit per Second). This would be helpful as an alternative to current BTS-BSC structure as it would remove the data speed bottleneck problem. We would like to deploy various modulation schemes over our transceiver model to best tackle various atmospheric perturbations. Thus, our work focusses on designing transceiver system providing high speed point-to-point data link using 1550 nm spectrum.

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