

## ABSTRACT

Nowadays, communication in Indonesia has been grown so fast. Communication needs not only voice and data, but was developed into one package combining voice, data, and video communication. This one package service knows as Triple Play service. As an Indonesian biggest telecommunication operator, PT Telkom Tbk change its business portfolio into T.I.M.E (Telecommunication, Information, Media, Edutainment) and Triple Play service is one of services reflecting that portfolio changes.

Triple Play service needs transmission media that provide speed and big bandwidth. Communication using fiber optic media is right solution for that transmission needs. Using GPON technology (Gigabit-capable Passive Optical Networks), fiber optic communication can be more efficient because it is easy for installation and development process.

In this final project, done by scheme of optical network design using GPON technology in a geographic information system. Geographic information system used as a tool of designing optical network in determines position and quantity of optical RK & DP. Besides that, total loss calculation and analysis as condition that allowed in GPON technology as the subject of discussion in the design of this optical network.

Key words: Geographic Information System (GIS), Triple Play services, Optical Network, GPON