

## ABSTRAK

*Technological developments have shown a significant increase, especially for the communication sector. This is proven by the many communication media both wireless and wired. However, the use of radio frequency as a data transmission medium can have a negative impact on use in hospitals, especially in the baby's room, because the use of radio frequency can have a negative impact on the health of the baby. With the increasing use of radio frequencies in the community, it will certainly have an impact as above, because the higher the intensity of radio frequency usage, the higher the intensity of exposure to wave radiation received by the body. Visible Light Communication (VLC) is one alternative to wireless communication other than radio that can be used in the baby's room so that it doesn't suffer bad health in the baby's health.*

*This study aims to design a system that can help optimize the data that the Transmitter will send to be well received by the receiver and reduce external noise.*

*The test results obtained are the data sent can be received well by adding a reinforcement circuit also using optical lenses in the receiver on the VLC (Visible Light Communication) system with a distance of 2.5 meters and the success rate of the data reads 99%. Whereas infrared reception can filter unwanted frequency signals by overriding the band pass filter for the 23khz-38khz range.*

*Keywords: Visible Light Communication, Filter, Amplifier, Electromagnetic Radio*