

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1. Conclusion

In this project, two objectives have been successfully achieved. Firstly, the Visible Light Communication system for audio communication has been successfully designed. Secondly, the performance parameter of VLC such as voltage, current and power have been measured and analyzed.

Based on the result and analysis which has been presented in chapter 4, the implementation of the amplifier circuit at the transmitter and receiver helps to improve the signal quality of the audio signal in the VLC system. Based on the data that have been analyzed in chapter 4, the use of amplifier circuit in the transmitter and receiver amplify the audio signal and makes the voltage reading increased at the transmitter and receiver. However the amplifier can also increase the noise in this system.

Based on the experimental work that have been conducted on various distance, we can see that the distance between the transmitter and receiver can influence the system performance. The longer the distance means that the signal strength and voltage which has been received by receiver decreased and cause the optical power loss in the system. We can conclude that the maximum distance in this work can be achieved only at 20 cm. However in the real implementation of the VLC system we need to have a longer transmission, so that this system is reliable for the future technology. We need to identify more suitable LED and photodetector for the VLC system to ensure the transmission distance could be increased.

5.2. Recommendation

Based on analysis of the experiment result which has been discussed in chapter 4, there are two suggestions that can be considered for future research. Firstly, the receiver aperture diameter can be set bigger by adding the amount of photodiode in receiver system, so that the distance of transmission can be longer. Secondly, in order to get higher data rate of VLC system, other modulation formats can be implemented. Such as Quadrature Amplitude Modulation (QAM), Phase Shift Keying (PSK), and etc. We believe this VLC system can become wireless technology alternative which have benefit to communication system now and in the future.