

# INFRARED HEADPHONE

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## ABSTRACT

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Headphones can be defined as headsets or earphones. This device is actually a pair of loudspeakers used for audio purposes. Headphones are used in electronic devices such as computer, home theater, DVD players as well as portable devices such as mobile phone, MP3 player and laptop.

This project's main aim is to construct a low cost Infrared Headphone without using any wire connection between the headphones and electronics appliances (laptop, DVD player or audio electronic devices). This means the infrared headphones use invisible infrared light to transmit and receive audio signals from electronics devices.

IR headphone is built up of two main parts, which are the Infrared Transmitter as well as the Infrared Receiver. The integrated circuits that are applied in this project are Phase-locked loop (CD4046), IR remote control amplifier (AN5020) and audio power amplifier (TBA820). IR transmitter is used to transmit audio signal from the television or other audio electronic devices, whereas the IR receiver receives signals from the transmitter, hence produces audible signals to the headphones.

This IR headphone allows users to experience the freedom of movement by eliminating cumbersome wire while listening to their favorite audio source. Besides that, the usage of headphones allows other people to have a peace of mind, despite the volume and noises made when watching television or listening to songs. The creation of this easy-to-use function infrared headphone serves as a convenient device for both young and old user.

However, this infrared headphone has a distance limit of 6 to 7 meters with clear open line. Audio can still be heard clearly in the range of 5 meters in which noise is still negligible. Nevertheless, noise will be significant at the range of 5 to 7 meters. In spite of that, the noises created do not affect on the user's hearing.

For future enhancement, it is proposed that the infrared headphones can be used at longer distance and allow wider coverage. Additional features such as an attached audio microphone can be done in order to let users to hear and to speak at the same time. Beside that the system will shut down automatically if no signal is received and alert the user when the power is fully discharged.

Overall, all the project outcomes successfully fulfill the criteria of the aims and objectives