ESP1862

Text And Image Transmission System On Visible Light Communication

Light Emitting Diodes are set to penetrate many areas of everyday life. An interesting property of these devices in addition to their lightening capabilities, is that they can also be utilised for data transmissions as well. LED's require low power for their operation and have very high switching speeds. This dual purpose application can reduce our dependency on the densely used means of communication the Radio frequency communication. The project aims to build a system which carries out communication using visible light that are employed for indoor illuminations. The higher bandwidth of the visible light is exploited for high speed data transmissions. For the communication to be full duplex it requires a downlink and an uplink. The downlink is implemented using the visible light. Whereas the uplink is provided using Infrared LED's, as visible light would serve no purpose of illumination. Furthermore, the IR link also eliminates the chance of interference. When communication is carried out through visible light there are problems associated with it. The data transmission rates should be high enough so that flickering of the LED's should not be detected. Sometimes it is possible for complete fadeout of the signals. To protect the data integrity the data should be framed, so as to detect lost signals and to ensure correct transmission and reception of the data. Computer network protocols like stop and wait algorithms are employed to solve this problem. The data can be of any form such as text, an audio, image or the video. This project shows how visible light can be used to transfer text data from one computer to the other computer. The computers are used as the end device. The computers with the help of Python can be used to interface software to the hardware.

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