VIRTUAL LIGHT COMMUNICATION FOR APPLICATION IN AUTOMOTIVE INDUSTRY

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ABSTRACT

Starting from the first ever a car invented until now in the automotive industry, safety is the main issues highlighted especially involving consumer driving activities. Therefore, this study is an attempt in investigating and designing a new concept of technology for future car based on Virtual Light Communication (VLC) technology that involves the developing technology for driverless car. The objective for this project is to design and develop a new model in transmitting signal from a car to another car for inters vehicle communication using the approach of virtual light conception. Moreover, there are three stages available in carrying out the system elements; sensing, controlling and notifying stages. The receiver sensing elements will wait until the system receives the transmitting signal for the sensing stage. In the meantime, for the controlling part it will supervises the motor performance based on the transmitting and receiving signal. Hence, an indicator is used for the notification stage will notify the current condition of vehicle. At the end of this paper, the system is successfully being designed, developed and tested at the prototype level for the three stages of the system. More to the point, the system will starts to trigger the IR sensor whenever the digital input becoming HIGH which will respond to the mechanical output. Nevertheless, the IR transceiver required a 38 kHz modulated frequency to match the operating system of the transmitter and receiver.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF THE PROJECT

Visible light is the data communication of electromagnetic radiation that is visible to the human eyes with the electromagnetic wavelength within 400 THz to 800 THz [1]. Light has been used as a communication medium for many years, and hence it has continuously giving benefits to the humankind especially in the field of communication. For example, in a while fire has been used in making a smoke signal at the cloud. Then, in the 19th century electric light bulb is invented by Thomas Alva Edison [2]. Starting from this invention, the idea of using light as the medium of communication is put into operation by Alexander Graham Bell with his invention of using photo phone in transmitting voice signal through the beam of light [3].