WIRELESS LASER COMMUNICATION SYSTEM

Thesis is presented in partial fulfillment for the award of the
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ABSTRACT

This thesis focuses on the design and development of a wireless laser communication system. Helium Neon class II laser was used to show that the free space laser beam can be used as a medium to transmit voice signal.

The design, construction and test results obtained from each part of the system are adequately described. An overview of laser is also included. Suggestion on ways to improve the system for the actual implementation of a laser communication system are given at the end at the thesis.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The variety of laser application developed since 1960 is very wide. Until 1917, no one conceived that there was a basic process that allow light to be amplified as it is in laser. Albert Einstein showed that the process of stimulated emission must exist, and from that time the invention of laser was possible. Many materials were investigated as the active laser medium, including ımpure crystals, semiconductors, ionized gases, molecular gasses and dye solution. T.H. Maiman obtained the laser action obtained in a mixture of helium and neon gases. [1]

The laser sits near the top of any list of the greatest inventions of the last half of the twenty first centuries. Together with the satellite, the computer and the integrated circuit, it is a symbol of high technology. Like the other technologies, laser affects our lives in many ways and is growing steadily importance. Laser technology is both fascinating in itself and an important tool in fields from medicine to communication.[2]

1.2 Scope of the Thesis

Infrared technology is well suited to high data rates. Optical free-space laser communication systems are wireless connection through the atmosphere by using light. Advances in producing the process of high quality laser modules either in digital signal processing and in the study of light propagation through atmosphere has drastically improved the utilization of light as information medium.