Design and Prototyping of Autonomous Laser Cutting CNC Robot

Sekar Ravi

Student, Department of Mechanical Engineering, Rajalakshmi Engineering College
Thandalam, Chennai- 602 105, India

Corresponding Author's Mail ID: sekarlravi07@gmail.com

Abstract

Robotics potentially provides versatility combined with the technical competence of CNC machine could provide us with proficient autonomous CNC laser robot. This paper looks to utilize the versatility of robot in CNC laser cutting operation. Autonomous CNC laser machine has numerous advantages in comparison with traditional CNC machine. Traditional CNC machines are large, prodigious and stationary tools with physical limitations that hinder the creative capacity of users whose ideas are larger than the small workspace they are confined to. The purpose of this study is to overcome those obvious deficiency. Autonomous CNC laser cutting machine is portable, lightweight, autonomous and proprietary CNC technology that has a high machining accuracy. It is portable robot that cuts and engraves using various CAD file formats with boundless work area. A laser cutter is a cutting machine which has a laser source for cutting, permitting sensible motion control in various directions along complex contours. The machine includes rigid frame that supports laser cutting head and multi directional movement is achieved by traction wheels. Precise control of the cutting machine is achieved through numerical control. This system alternatively controls precise rotation of each wheel to have lesser tolerance values.

Keywords: Numerical controls, Laser cutting, Robot, Mecanum wheel.