PROTOTYPING OF AN AUTONOMOUS MAZE EXPLORATION AND OPTIMAL PATH PLANNING ROBOT

The field of autonomous mapping and path planning for robots has gained attention in recent years due to the increasing demand for efficient and reliable autonomous systems. This paper will explore the existing efforts made to address the challenges associated with autonomous mapping and path planning. It discusses the significance of this project regarding various industries and domains, such as disaster response, transportation, logistics, and robotics fields. The paper will also trace the historical development of autonomous mapping and path planning, highlighting the key milestones and technological advancements that have shaped the field. It also examines the factors contributing to the problem, including static/dynamic environments, limited sensor capabilities, and computational constraints. Furthermore, the paper identifies the necessary tools and technologies, such as advanced sensors, algorithms, machine learning, real-time data processing and software required to overcome these challenges. By addressing these challenges and advancing the capabilities of autonomous mapping and path planning, this project aims to unlock the full potential of autonomous systems to revolutionize various industries.