**Project Title-Public Transportation Analysis**

**Abstract:**

Public transportation systems play a pivotal role in addressing urban mobility challenges and fostering sustainable, accessible, and efficient transportation networks. This study offers a comprehensive analysis of public transportation, encompassing a wide range of aspects such as infrastructure, technology, sustainability, accessibility, and socio-economic impacts.The analysis begins by examining the challenges faced by public transportation systems worldwide, including congestion, environmental concerns, funding constraints, and the changing needs of urban populations. It delves into innovative solutions and strategies employed by various cities and regions to address these challenges. Emphasis is placed on emerging technologies, such as autonomous vehicles, smart transit systems, and electrification, and their potential to transform public transportation.Sustainability is a central theme throughout the analysis, with a focus on reducing greenhouse gas emissions, enhancing energy efficiency, and promoting eco-friendly transit options. Transit authorities have been searching for the indicators to measure transit service quality and the key factors to attract citizens who do not prefer public transport. The recent advent of data collection technologies such as AVL, APC, GPS and Smart Card (SC) promise opportunities for conducting comprehensive transit system performance measures, improving the quality of service while meeting passenger needs and reducing operation costs. The aim of this study is to propose metrics to improve transit service. The focus is on bus transportation since it is more flexible compared to rail transportation and widely preferred by the masses in cities. The primary data source of this study comes from the Department of Transportation for the City of Antalya. As an outcome of this research, the analysis may propose to modify or eliminate inefficient routes, suggest new lines, identify inefficient bus stops, and potentially modify path of a route. They also inform the general public about the complex and evolving nature of public transportation, highlighting the importance of continued investment and innovation in shaping the future of urban mobility.