

The RDS Ropeway Delivery System

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Abstract

The rope-way delivery system, changes the vision of traditional transportation systems and consumes less time with more connectivity. This system is more cost-effective than the traditional transportation system. The ropeway delivery system holds good opportunities to be used in big, developed factories. It is also designed to change the vision of transportation in the hilly areas. The introduction of this technology will trigger several advancements in transportation systems around the world. This system makes use of [ARTS] Aerial Rapid Transit System. This project would provide safe, carbon-neutral, environment-friendly, and high-capacity transportation connectivity in the project area that would reduce greenhouse gas emissions as a result of reduced vehicular overcrowding in and around cable cabinets and on neighborhood streets, arterial roadways, and freeways. Ropeways have emerged as a reliable, powerfully built, and secure mode of transportation during the past decade, making them an excellent choice for connecting last-mile or cross-modal routes, particularly in hilly or mountainous terrains. Although ropeways have traditionally been employed to connect high-altitude regions, they are increasingly gaining recognition as a viable solution for urban transportation challenges as well. Urban ropeways will be designed to ensure an infrequent 90% availability rate during operation, which makes them a highly authentic well-grounded, efficient mode of transport. operation, which makes them a highly reliable and efficient mode of transport. The urban ropeways will be designed to assure about 90% availability while operation will customarily be up to 18 to 20 hours a day and three hundred and sixty-five days a year.

1. INTRODUCTION

Ropeway transportation systems have obtained concordance throughout the world over the last few years. Many cities have already accomplished these systems, while many others are considering amalgamating ropeways into their public transportation groundwork. Ropeway transportation is an ancient transit method that has been developed and gone through substantial evolution and upheavals over the last century, preceding to the expansion of advanced and acknowledged cable transport technologies. The ropeway delivery system comprises the use of non-motorized cabin towers that are thrust by a cable to transport goods and even people. The ropeway delivery system operates on the principle of simultaneous motion and has made an appearance as a highly methodical and well-founded conveyance technology.

Intrinsically, it is a closed system that does not need energy to move its poundage. Ropeways only need the energy to overcome the mechanical force and friction and to relocate unequal container loads on the downhill or uphill sides. Aerial ropeway systems are one of the world's safest and fastest forms of transit systems. Gondolas and cable cars are quite safer than all the other formats of ropeway transportation

systems. Modern cable transit systems are now developed with considerable superabundance and multiple supplementary systems allowing all forms of evacuations within a provided station. As mentioned above, the ropeway delivery system project is built in a rectilinear path over a mountainous terrain, which also sequels to lower land accession prices. Therefore, despite having an elevated cost of construction per kilometer than roadways, the ropeway project's construction cost may happen to be less than roadways. The Ropeway system has numerous cabin cars projected by a single tower and driving mechanism. This lowers both construction and maintenance costs. On uniform-level ground, the cost of ropeways is competitive with broad-gauge railways. However, in hilly areas, ropeways are far insolent.

In this research paper, we will describe the functioning of the ropeway delivery system and discuss its opportunities and obstacles, components, services, characteristics, available technologies, and applications, and future scope in our country. We will also provide a fair evaluation of the existing Aerial Rapid Transit technologies and ropeway delivery system to help customers get a better understanding of this prospective mode of transportation. We will also provide a fair evaluation of the existing Aerial Rapid Transit technologies and ropeway delivery system to help customers get a better understanding of this prospective mode of transportation. Another significant fact to note is that the use of aerial transportation in urban areas was once considered impossible, but it has now gained more recognition worldwide and is being used as a public transportation system in several urban areas.

2. LITERATURE SURVEY

The Rope-way Delivery System is an innovative and advanced mode of transportation that has the potential to revolutionize traditional transportation systems. It is a cost-effective and highly efficient system that can provide safe, reliable, and environment-friendly transportation connectivity in both urban and hilly areas. The system makes use of the Aerial Rapid Transit System (ARTS) and is designed to ensure an infrequent 90% availability rate during operation, making it a highly authentic, well-grounded, and efficient mode of transport. The system has emerged as a reliable, powerfully built, and secure mode of transportation during the past decade, making it an excellent choice for connecting last-mile or cross-modal routes, particularly in hilly or mountainous terrains.

In this research paper, we aim to describe the functioning of the Rope-way Delivery System, its components, services, characteristics, available technologies, and applications. We will also provide a fair evaluation of the existing Aerial Rapid Transit technologies and the Rope-way Delivery System to help customers get a better understanding of this prospective mode of transportation.

The Rope-way Delivery System provides numerous advantages over traditional transportation systems, including reduced greenhouse gas emissions, lower land accession prices, and lower construction and maintenance costs. Additionally, it is a highly secure and safe mode of transportation, and its use of non-motorized cabin towers that are thrust by a cable to transport goods and people makes it a highly efficient and reliable system.

Many cities across the world have already implemented the Rope-way Delivery System, and many others are considering integrating it into their public transportation system. It is a highly effective and persuasive system that has the potential to change the transportation landscape around the world. transportation system which may be airways, or waterways, and adherence to standards and well techniques and practices are important for operating aerial ropeways.

It's important to follow maintenance schedules to prevent wear and tear and keep things running smoothly. When installing ropeways, it's crucial to consider factors like weather conditions, such as wind, snow, and

temperature variations. Conducting environmental impact assessments before installation can help ensure that everything is set up correctly. Emergency response plans should be in place, and regular drills and exercises can help ensure that everyone is prepared. Remember, safety is the top priority in any transportation system, and following standards and best practices is necessary for the safe operation of aerial ropeways.

Operational Efficiency:

The following text has been proofread and revised for clarity:

The rope-way delivery system project is highly efficient in various aspects. It offers faster delivery times by utilizing unobstructed aerial routes, surpassing traditional ground-based methods in terms of speed and reliability. It is also resource-efficient, with reduced energy consumption, contributing to cost savings and environmental sustainability. It aligns well with green transportation initiatives by emitting lower carbon and minimizing ecological footprint. The cost efficiency of the system extends beyond operational savings to encompass reduced maintenance expenses and long-term affordability. The time efficiency of the system ensures consistent and punctual deliveries, enhancing overall service quality. By efficiently utilizing vertical space, particularly in densely populated urban areas, it optimizes spatial resources. Safety and security are paramount, with reduced risks of accidents, theft, and vandalism compared to conventional transportation. Its scalability and flexibility enable easy adaptation to fluctuating demand patterns and diverse urban landscapes. Ultimately, the system enhances customer satisfaction through improved delivery accuracy, convenience, and responsiveness, thereby revolutionizing last-mile logistics and contributing to broader goals of sustainability and innovation in transportation.

Functionality:

1. Base surfaces for transportation: For our prototype, we used wooden cardboard and wooden poles for the established network. Using pulleys and metal wires, we have set up the networking.
2. Delivery by prototype: We have integrated a single RS-775 motor with the system of gearbox/ratio and a 12v battery joined with the mechanism of pulleys and metal wire to achieve delivery.
3. Time efficiency: In our prototype, we have added high torque and rpm motors so that our prototype can achieve delivery in a time-efficient manner.
4. Control and Communication: The pulleys and motor used in it will handle communication for checkpoints and also control delivery. Speed is handled by a motor connected with a metal wire.

Fig. 1. System aerial delivery system in terms of motion dynamics (1d and 2d).

Future Scope:

The transportation system has seen significant improvement with the introduction of modern technology. One of the most significant benefits of the new system is the amount of time saved during transportation. Additionally, the traditional system has been replaced, resulting in cost savings. The new system has the potential to revolutionize transportation in hilly areas as it can change the vision of transportation in such regions. Furthermore, the system has great potential for use in large, developed factories, making it an ideal choice for transportation within factory premises. All in all, the new transportation system has brought about numerous benefits, including time and cost savings, improved efficiency, and greater potential for use in various industries.

Conclusion:

The fundamental principle of this research paper is to provide an inclusive understanding of the prospects of such projects in constructing an adequate and resilient, socially inclusive, and secure system of transportation. The study concludes with a thorough and impartial assessment of the available Aerial Rapid Transit technologies. One of the most ecologically sound methods of transportation is the Ropeway delivery system. The research paper suggests that ropeway delivery systems are a highly cost-effective mode of transportation of goods and other required products for urban and suburban metropolitan areas.

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