

Low-altitude base station energy management system planning



Overview

This letter studies the CKM-enabled joint air corridor planning and BS deployment problem for low-altitude ISAC networks at the planning stage, providing a stable upper-layer infrastructure and corridor layout that can be further adapted in operation to dynamic urban environments. based on the Proximal Policy Optimization (PPO) algorithm. Our approach involves calculating the low-altitude coverage capabilities o meet the high traffic demands of future wireless networks. In the considered system, unmanned aerial vehicles (UAVs) operate within a structured air corridor composed of connected. The embodiments of the present disclosure provide a low-altitude base station and ground base station collaborative management method, an electronic apparatus, and a medium. The method is applied to a low-altitude base station and comprises: receiving a cell change request initiated by a flight. Specifically, we focus on rotary-wing drones (RWDs), fixed-wing drones (FWDs), and high-altitude platforms (HAPs), analyzing their energy consumption models and key performance metrics such as power consumption, energy harvested-to-consumption ratio, and service time with varying wingspans, battery. The low-altitude economy (LAE) is rapidly advancing toward intelligence, connectivity, and coordination, bringing new challenges in dynamic airspace management, unmanned aerial vehicle (UAV) operation, and security management. Existing systems remain fragmented and lack effective coordination.

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Low-Altitude Supervision System: The system links military and civil aviation regulatory agencies with government management platforms, which focus on airspace policy formulation, regulatory ...

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Energy efficient deployment of aerial base stations for mobile users in

Recently, the concept of base stations on low altitude platforms (LAPs) attracted researchers' attention for emergency communication and the digital divide in under-developed areas.



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Energy-efficient large-scale low-altitude delivery: Integrating

By combining charging station planning with adaptive routing, this study provides a scalable solution to improve the efficiency and sustainability of UAV-driven urban food delivery systems.

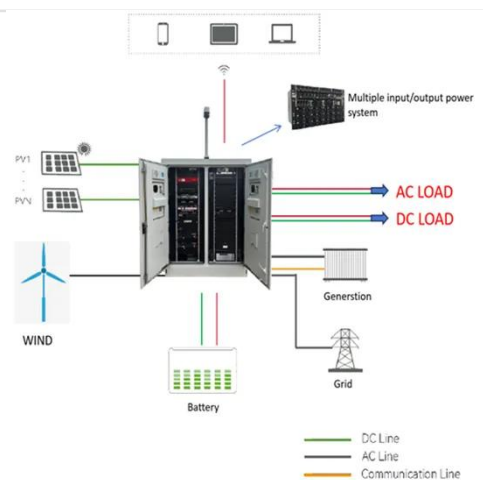
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Toward Low-Altitude Airspace

Management and UAV Operations

We demonstrate UTICN's feasibility through two use cases, i.e., a city-level LAE management platform and a multi-frequency collaborative ISAC system. This work provides a ...

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Low-altitude base station and ground base station collaborative

According to an embodiment of the present disclosure, a method for collaborative management of a low-altitude base station and a ground base station is provided, which is applied to a

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Aerial Base Stations: Practical Considerations for Power

Additionally, we investigate the case study of RWD-BS deployment, assessing aerial network dimensioning aspects such as ABS coverage radius based on altitude, environment, and frequency ...

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Base Station Deployment Scheme for Low-Altitude

This paper proposes a base station (BS) deployment scheme for low-altitude ISAC networks based on both theoretical derivations and measurement results,

which can provide guidance for future practical ...

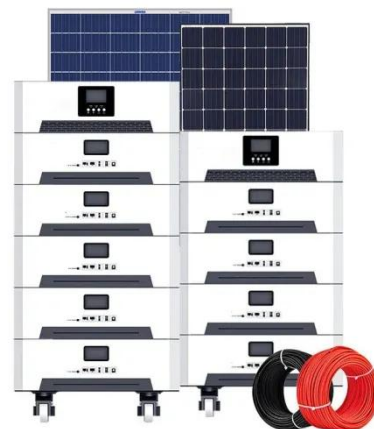
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Channel Knowledge Map Enabled Low-Altitude ISAC Networks: ...

This letter studies the CKM-enabled joint air corridor planning and BS deployment problem for low-altitude ISAC networks at the planning stage, providing a stable upper-layer infrastructure and ...

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Energy-Efficient Resource Allocation in Aerial Base ...

In this study, we proposed a 3D positioning strategy for UAV-BSs that serves the maximum number of users with the smallest number of UAV-BSs.

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A Low-Altitude Network Base Station Planning Model Based on PPO

To address these challenges, we propose a novel low-altitude network base station planning model based on the Proximal

Policy Optimization (PPO) algorithm. Our approach involves calculating the ...

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