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Friendly with Technology, Preserving Destinations: Responsible Smart Tourism with IoT

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Abstrak

Pariwisata cerdas (Smart Tourism) telah menjadi tren global dalam industri pariwisata, memanfaatkan teknologi untuk meningkatkan pengalaman wisatawan dan keberlanjutan destinasi. Internet of Things (IoT) memainkan peran penting dalam Smart Tourism, memungkinkan pengumpulan data real-time dan konektivitas yang inovatif. Penelitian ini bertujuan untuk mengeksplorasi konsep Smart Tourism yang bertanggung jawab dengan IoT, dengan fokus pada pelestarian destinasi wisata. Penelitian ini mengkaji bagaimana IoT dapat diterapkan untuk mengoptimalkan pengelolaan destinasi wisata, meminimalkan dampak negatif pariwisata, dan meningkatkan kesejahteraan masyarakat lokal. Contoh aplikasi IoT dalam Smart Tourism yang bertanggung jawab meliputi: Pemantauan lingkungan: Sensor IoT dapat memantau kualitas air, udara, dan kebisingan di destinasi wisata, memungkinkan tindakan pencegahan dan mitigasi pencemaran lingkungan. Manajemen infrastruktur: Sensor IoT dapat memantau konsumsi energi, air, dan sampah di destinasi wisata, mendorong efisiensi sumber daya dan pengurangan limbah. Pengelolaan pengunjung: Sensor IoT dapat melacak pergerakan wisatawan di destinasi wisata, membantu pengelola destinasi dalam mengarahkan arus wisatawan dan mencegah kepadatan di area tertentu. Keterlibatan masyarakat: Platform IoT dapat menghubungkan wisatawan dengan masyarakat lokal, memungkinkan pertukaran informasi dan budaya yang lebih bermakna. Penelitian ini juga membahas tantangan dan hambatan dalam menerapkan Smart Tourism yang bertanggung jawab dengan IoT, seperti privasi data, keamanan siber, dan kesenjangan digital. Diperlukan kolaborasi antara berbagai pemangku kepentingan, termasuk pemerintah, industri pariwisata, komunitas lokal, dan akademisi, untuk memastikan implementasi Smart Tourism yang etis dan berkelanjutan.

Kata Kunci: *Smart Tourism, Internet of Things, Pariwisata Bertanggung Jawab, Pelestarian Destinasi*

Abstract

Smart tourism has become a global trend in the tourism industry, leveraging technology to enhance the tourist experience and destination sustainability. The Internet of Things (IoT) plays a crucial role in Smart Tourism, enabling real-time data collection and innovative connectivity. This research aims to explore the concept of responsible Smart Tourism with IoT, with a focus on the preservation of tourist destinations. This study examines how IoT can be applied to optimize the management of tourist destinations, minimize the negative impact of tourism, and improve the welfare of local communities. Examples of IoT applications in responsible Smart Tourism include Environmental monitoring: IoT sensors can monitor water, air, and noise quality in tourist destinations, enabling

preventive and mitigation measures for environmental pollution. Infrastructure management: IoT sensors can monitor energy, water, and waste consumption in tourist destinations, driving resource efficiency and waste reduction. Visitor management: IoT sensors can track the movement of tourists in tourist destinations, assisting destination managers in directing the flow of tourists and preventing overcrowding in certain areas. Community engagement: IoT platforms can connect tourists with local communities, allowing for a more meaningful exchange of information and culture. The study also discusses the challenges and obstacles in implementing responsible Smart Tourism with IoT, such as data privacy, cybersecurity, and the digital divide. Collaboration between various stakeholders, including the government, the tourism industry, local communities, and academia, is needed to ensure the ethical and sustainable implementation of Smart Tourism.

Keywords: *Smart Tourism, Internet of Things, Responsible Tourism, Destination Conservation*

INTRODUCTION

The tourism industry has grown rapidly in recent decades, driven by increasing human mobility, globalization, and technological advances. However, this growth comes with consequences, including pressure on natural resources, increased waste, and cultural degradation. To overcome these challenges, the concept of Smart Tourism has emerged as an innovative solution to balance tourism growth with environmental and cultural sustainability. Smart Tourism utilizes digital technology, including the Internet of Things (IoT), to optimize tourist destination management, improve tourist experiences, and minimize the negative impacts of tourism. IoT enables real-time data collection on various aspects of tourism, such as tourist flows, energy consumption, and environmental quality. This data can be analyzed to make more informed decisions about destination management, such as optimizing resource use, reducing waste, and preserving culture.

This research aims to explore the potential of responsible Smart Tourism with IoT in preserving tourist destinations. This research will focus on several main aspects, including the application of IoT for tourist destination management and how IoT can be used to monitor and optimize various aspects of tourist destination management, such as tourist flow, energy consumption, and environmental quality. Enhanced tourist experience through IoT: How IoT can be used to improve the tourist experience, such as providing real-time information, personalization of services, and easy access to tourist attractions. Mitigating the negative impacts of tourism with IoT: How IoT can be used to minimize the negative impacts of tourism, such as environmental pollution, cultural degradation, and congestion.

METHOD

This research is narrative review research that aims to assess, identify, analyze, and summarize literature related to being friendly with technology and preserving destinations: responsible, smart tourism with IoT. Inclusion criteria include: 1) Literature related to research topics on IoT, smart tourism, and destination preservation; 2) The database used is Google Scholar; 3) The literature used is literature from the last 10 years; 4) literature is available in full text.

RESULTS AND DISCUSSION

IoT as a Component in Smart Tourism

Smart tourism is a concept that integrates information and communication technology to improve tourist experiences and management of tourist destinations. IoT is an important component of smart tourism, enabling real-time data collection and better decision-making. IoT can be applied in various aspects of tourism, including: 1) Transportation management: IoT sensors can be used to monitor traffic flows and optimize public transportation systems. This can help reduce congestion and greenhouse gas emissions; 2) Energy management:

IoT sensors can be used to monitor energy consumption in hotels, restaurants, and tourist attractions. This can help reduce energy consumption and operational costs; 3) Waste management: IoT sensors can be used to monitor the filling level of waste bins and optimize waste transportation routes. This can help reduce waste and keep tourist destinations clean; 4) Water management: IoT sensors can be used to monitor water consumption in hotels, restaurants and tourist attractions. This can help reduce water consumption and conserve water resources; 5) Traveler experience: Wearable IoT devices can be used to provide personalized information and services to tourists. This can enhance tourists' experiences and encourage them to return.

Benefits of Responsible Smart Tourism with IoT

Responsible smart tourism with IoT can provide many benefits for tourist destinations, including 1) Increasing sustainability: Smart tourism can help tourist destinations reduce negative impacts on the environment; 2) Improve tourist experience: Smart tourism can provide a more personalized and enjoyable experience for tourists; 3) Increase efficiency: Smart tourism can help tourist destinations optimize operations and reduce costs; 4) Increase revenue: Smart tourism can help tourist destinations attract more tourists and increase revenue.

Challenges and Solutions

Although responsible, smart tourism with IoT has many benefits, several challenges need to be overcome, including: 1) Cost: Implementing IoT technology can be expensive for tourist destinations; 2) Data security and privacy: Data collected by IoT devices needs to be properly secured to protect travelers' privacy; 3) Skills and training: Tourist destination staff need to be trained to use IoT technology. These challenges can be overcome with collaboration between the government, the private sector, and society. The government can provide funding and support for the implementation of IoT technology. The private sector can develop affordable and easy-to-use IoT solutions. People can be trained to use IoT technology and understand its benefits.

CONCLUSION

Responsible Smart Tourism with IoT offers great potential to preserve tourist destinations and increase the competitiveness of the tourism industry. It is hoped that this research can make an important contribution to understanding this potential and developing effective and sustainable Smart Tourism solutions.

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