

"IoT-Based Weather Monitoring System for Smart Cities"

IEEE Xplore, 2022

This paper examines the integration of Internet of Things (IoT) technologies in weather monitoring systems within smart cities. It discusses various sensors and communication protocols used to collect and transmit environmental data. The study highlights the benefits of real-time data acquisition for urban planning and disaster management. However, it notes challenges such as data security and the need for standardized protocols. The paper also outlines the potential for combining weather monitoring data with machine learning algorithms to enhance predictive capabilities. It suggests future research should focus on leveraging IoT-enabled systems for climate modeling and early warning systems, which would significantly improve resilience in urban environments.

"Efficient IoT-Based Weather Station"

IEEE Xplore, 2020

This research presents a practical approach to developing a smart weather station using IoT. The system measures atmospheric parameters like temperature and humidity, transmitting data for analysis. The authors talk about the importance of environmental monitoring due to unpredictable weather changes. They also discuss the system's efficiency and potential applications in various sectors. The authors delve into energy efficiency and power optimization strategies for IoT weather stations, proposing the use of solar panels to make the system self-sustaining. Additionally, they identify the scalability of these systems for large-scale environmental monitoring as an area for future exploration.

"IoT-Based Smart Weather Monitoring System"

IEEE Xplore, 2022

This paper looks at environmental issues arising from rapid industrialization. It proposes an IoT-based system to monitor climate change and pollution. It outlines the system's architecture, including sensors for temperature, humidity, and air quality, and discusses its role in lessening environmental challenges. The paper explores the integration of big data analytics into IoT systems, noting the value of aggregated weather data for long-term trend analysis. It also highlights the potential for real-time alerts to enhance disaster preparedness in vulnerable regions, showing the practical implications of such technology.

"Weather Monitoring System Using Internet of Things"

IEEE Xplore, 2020

This study proposes a solution for monitoring weather conditions at specific locations using IoT. It details the use of sensors to detect environmental changes and transmit data for statistical analysis. The paper highlights IoT's efficiency in connecting devices worldwide, facilitating real-time weather monitoring. The study identifies gaps in data accuracy caused by sensor calibration issues and proposes the development of self-correcting algorithms. It also

discusses the importance of open-source platforms to make such systems accessible to researchers and educators globally.

"Local Weather Station Design and Development for Cost-Effective Environmental Monitoring and Real-Time Data Sharing"

MDPI Sensors, 2023

This paper addresses the high costs and complexity of current weather monitoring systems, and it introduces a cost-effective, user-friendly local weather station. Using low-cost sensors, the system aims to make environmental monitoring more accessible, particularly for small-scale users and local communities. The paper emphasizes the significance of modular designs that allow users to customize their weather stations based on specific needs. It also proposes community-driven networks of these stations to create a decentralized approach to environmental monitoring, improving data coverage and accuracy.

Identified Research Gap: While these studies explore various aspects of IoT-based weather monitoring systems, there is a lack of focus on integrating predictive analytics and machine learning algorithms to forecast weather conditions based on collected data. A design could address this gap by not only monitoring current weather parameters but also providing short-term forecasts, improving the system for proactive decision-making in areas like agriculture and disaster management.