

Designing of Integration System for IOT Urban Farming: Mobile and Web Application

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Abstract:

In the trobackdrop of rapidly evolving technology and the global impact of Industry 4.0, many aspects of our lives are transforming into digital realms, including urban agriculture (urban farming). This research employed a combination of interviews and observations to gather data. The analysis and design of the system were conducted using the Unified Modeling Language (UML) approach, leading to the proposal of a system architecture. Subsequently, user interfaces were created, and a prototype was developed to establish a system that seamlessly integrates both mobile and web applications. The study's outcomes comprise the system architecture, web application, and mobile application, all of which facilitate user-friendly plant monitoring. This investigation places particular emphasis on designing cloud databases and establishing connections among microcontrollers, databases, websites, and mobile applications with the primary objective of real-time plant monitoring. In conclusion, this study underscores the feasibility of implementing an Internet of Things (IoT) Urban Farming system that can harmoniously integrate both mobile and web applications, leveraging the support of cloud databases.

Introduction:

Technology is rapidly advancing, driven by globalization and Industry 4.0, characterized by automation and data exchange. Key technologies include IoT, AI, and cloud computing. The internet has become integral to daily life. In Indonesia, 400 million sensors are deployed across sectors, including manufacturing, healthcare, and finance. IoT is also applicable to urban farming, addressing food needs in densely populated areas. Urban farming differs in its location and approach, offering localized food production. One challenge of urban farming is the need for continuous monitoring. IoT-based urban farming uses sensors to gather data on factors like light, soil quality, temperature, and humidity. This data is sent to the cloud for real-time monitoring and efficient plant management, potentially improving agricultural production.

References:

<https://ieeexplore-ieee-org.umasslowell.idm.oclc.org/document/9915158>