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# Chili Pepper Pests and Disease Detection System for the Greenhouse Environment

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## Abstract

The cultivation of chili peppers in greenhouse environments faces significant challenges due to pest infestations and diseases, leading to economic losses and diminished crop yields. To address these challenges, this research focuses on the proposed Chili Pepper Pests and Disease Detection System tailored for greenhouse settings. The system integrates advanced sensor networks, machine learning algorithms, and image recognition technology to monitor environmental conditions, detect pests, and identify diseases affecting chili pepper plants. Data is gathered directly from individuals engaged in greenhouse operations, including employees and experts, through semi-structured interviews to understand their perspectives, experiences, and insights regarding pest detection challenges and preferences within greenhouse environments. These insights will guide the conceptualization and formulation of requirements for the proposed system. The research outcomes highlight the understanding of challenges, stakeholder needs, potential technological solutions based on literature findings, and a roadmap for subsequent development phases of the proposed system. Ultimately, this study contributes to advancing sustainable cultivation practices and optimizing chili pepper production in greenhouse environments.

**Keywords**: *Pest infestations, Machine learning algorithms, Image recognition technology, Conceptualization, Cultivation of chili peppers*