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Bhargav Rajkhowa was born and raised in India. He received his B.S. in Mechanical Engineering from The University of Mumbai. He first worked as a Management Trainee for an EPC Contractor in Mumbai, India. Later, he worked as an Assistant Manager for The Goodricke Group Ltd. at a tea farm in Assam, India. In August 2014, he started a Master's program at Purdue University where he is focusing on Ecological Sciences and Engineering Technology. At Purdue, he also worked as a Teaching and Research Assistant in the Mechanical Engineering Technology Department.



ESTABLISHING AND ADVANCING CONTROL STRATEGIES THAT SUSTAIN PLANT HEALTH IN A BOTANICAL BIO-FILTER

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This research is a study of the effectiveness of the mechanical, hydroponic and software components of a plant growing device called the Biowall. This device, will improve indoor air quality through plant assisted phytoremediation. The research investigates the ability of the device to sustain plant health in a controlled environment over an extended period. After studying the horticultural and mechanical aspects needed to operate the Biowall, appropriate control programs were developed. These programs, controlled the Biowall's lights, irrigation and fan. They also automated its operation through a Building Automation System (BAS). The programs, operated the three components of the Biowall based on the status and values of the inputs sent to them. In an experiment testing the effectiveness of the Biowall, data on plants with and without airflow through their root zone, were collected. The plants with air flowing through them were called experimental plants, while the ones without the airflow, but receiving comparable light, fertilizer and adequate water, were termed control plants. Both sets of plants, grown in the same hydroponic substrate, were placed in an environmental chamber where the simulated conditions mimicked the ones expected in a house. The data and subsequent analyses, helped quantify and compare the experimental and control plants. This laid the foundation for recommendations that would improve future Biowalls.