ST. JOSEPH'S COLLEGE

OF ENGINEERING AND TECHNOLOGY

RUN BY DMI SISTERS

APPROVED BY AICTE, NEWDELHI, AFFILIATED TO ANNA UNIVERSITY, CHENNAI

PROCEEDINGS ON

3rd

INTERNATIONAL CONFERENCE ON

INTELLECTUAL RESEARCH IN SCIENCE, ENGINEERING AND MANAGEMENT

ICIRSEM 2023

21.04.2023

Dr.M.JEYAKUMAR, M.E.,Ph.D.
PRINCIPAL
CHRIST THE KING ENGINEERING COLLEGE,
Chikkarampalayam Village,
Karumathampatti Post,
Coimbatore - 641 104.

ISSN (Print): 2663-2381, ISSN (Online): 2663-4007

International Journal of Multidisciplinary Research Transactions 2023

This Proceeding imprint is published in International Journal of Multidisciplinary Research Transactions. (IJMRT) is an Open Access, International, Monthly, Peer-Reviewed journal.

www.ijmrt.in

CHRIST THE KING ENGINEERING COLLEGE * KARAMADAI COIMBATORE 641 104

Dr. M. JEYAKUMAR, M.E., Ph.D.
PRINCIPAL
CHRIST THE KING ENGINEERING COLLEGE,
Chikkarampalayam Village,
Karamadai, Mettupalayam Taluk,
Coimbatore - 641 104.

ICIRSEM-2023_paper_81

INTELLIGENT HVAC SYSTEMS: ENHANCING PERFORMANCE THROUGH AI

S. Prabhu[1*], M. Jeyakumar[1], T. B. Dharmaraj[2]

[1,*]Department of Mechanical Engineering, Christ the King Engineering College, Karamadai, Coimbatore – 641 104

[2]Department of Computer Science and Engineering, Christ the King Engineering College, Karamadai, Coimbatore – 641 104

Abstract

The use of Artificial Intelligence (AI) in Heating, Ventilation, and Air Conditioning (HVAC) systems is rapidly gaining traction in the industry. This work delves deeper into the key applications of AI in HVAC, including energy optimization, predictive maintenance, and the development of intelligent HVAC controllers. AI algorithms can help improve HVAC systems' energy efficiency by analyzing data from various sensors and adjusting the HVAC systems' operations accordingly. Predictive maintenance can be enhanced by using machine learning algorithms to detect and predict system faults before they occur, leading to reduced downtime and improved reliability. Additionally, AI-powered HVAC controllers can learn and adapt to building occupants' preferences and usage patterns, leading to improved indoor air quality and occupant comfort. The potential percentage of performance augmentation that can be achieved through the use of AI in HVAC systems can vary depending on various factors, such as the specific AI algorithms and techniques employed, the complexity of the HVAC system, and the type of building or application. However, this work has shown us that AI can lead to significant improvements in HVAC system performance, with potential energy savings ranging from 10% to 25%.

International Journal of Multidisciplinary Research Transactions
ISSN (Print):2663-2381, ISSN (Online):2663-4007
www.ijmrt.in