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sree raghu vardhan vangipuram <vardhanvsr2004@gmail.com>

5th International Conference on Intelligent Vision and Computing : Submission (885) has been created.

1 message

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Hello,

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Track Name: ICIVC2025

Paper ID: 885

Paper Title: Predictive Ventilation Management: Edge-Based CO2 and Occupancy Estimation
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Abstract:
Indoor air quality plays a critical role in the health, comfort, and cognitive performance of
students in educational environments. This study presents an edge-based smart ventilation system
that predicts and maintains optimal classroom conditions by monitoring $CO_2$ concentration,
temperature, humidity, occupancy, and a Key Performance Indicator (KPI) value. Data collected
from sensors deployed in two classrooms are processed through an LSTM-based machine learning
model running on a Raspberry Pi. The model predicts the best-ventilated classroom every 3-5
minutes, and based on these predictions, actuators such as fans and buzzers are automatically
triggered. A dual communication system between Arduino Uno and Raspberry Pi ensures efficient
data acquisition and system response. The real-time data is also continuously logged to the
ThingSpeak cloud platform for transparency and historical analysis. Additionally, automated
certificate generation is implemented to recognize rooms that consistently maintain healthy
ventilation standards. This intelligent system demonstrates the potential of edge computing and
IoT integration in creating sustainable, automated indoor air management solutions for academic
institutions.
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Authors:
        -  Bhavithachinthalagari@gmail.com
        -  eramya2@gmail.com (Primary)
        -  vardhanvsr2004@gmail.com
        -  harshagoruganti@gmail.com

Primary Subject Area: Intelligent Data Analytics and Computing

Secondary Subject Areas:
        Intelligent Vision and Applications

Submission Files:
        review_paper_reference_add (5).pdf (1 Mb, Sat, 12 Apr 2025 02:17:52 GMT)

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6. Authors Contributions
> System design and architecture: Ramalakshmi, Raghu Vardhan

Hardware setup and sensor integration: Bhavitha
Data collection and preprocessing: Harsha
Model building and prediction framework: Raghu Vardhan, Bhavitha
Data handling, cloud integration, and certificate generation: Raghu Vardhan
Analysis and interpretation of results: Harsha, Raghu Vardhan, Bhavitha
Manuscript drafting and revisions: , Bhavitha

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