

AN APPROACH TOWARDS DEVELOPMENT OF PMV BASED THERMAL COMFORT SMART SENSOR

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Abstract

ASHRAE 55-2004 and ISO 7730 standards failed to predict actual comfort level and lead to oversize design of HVAC system. So proper thermal environment monitoring is an important subject to have right size of HVAC systems. A prototype thermal EM system has been developed. Thermal environment parameters such as: temperature, relative humidity, CO and CO₂ are measured by using the developed system. These data are used to calculate the thermal comfort index. The subjective judgments and the calculated PMV are compared with the results. The results showed the possibility of using PMV based thermal comfort smart sensor.

Index terms: Predicted mean vote (PMV), Environment monitoring system (EMS), Indoor environment quality, Thermal comfort index.