

# An IoT Based Smart Watt Metering for Energy Management System

**Prof. Bhangare Swati Nivrutti<sup>1</sup>, Prof. Jadhav Vrushali Kailas<sup>2</sup> and Prof. Barahate Shital Atul<sup>3</sup>**  
Assistant Professor, E & TC Department<sup>1,2,3</sup>

Pune Vidyarthi Griha's College of Engineering & Shrikrushna S. Dhamankar Institute of Management, Nashik

**Abstract:** *This paper presents the analysis of IoT based Smart Watt Metering for Energy Management System. The proposed system, "An IoT Based Smart Watt Metering for Energy Management System," introduces a cost-effective and energy-efficient solution for monitoring and managing power consumption of electrical appliances. Utilizing non-intrusive current and voltage sensors, the system measures key electrical parameters such as current, voltage, and power factor in real-time. The ESP32 microcontroller, known for its low power consumption, processes and transmits this data via Wi-Fi to a central server or cloud platform, enabling remote access through a user-friendly web or mobile application. The interface allows users to visualize power usage trends, set consumption thresholds, and receive alerts for abnormal usage. Additionally, the system incorporates data logging capabilities, storing historical consumption data for long-term analysis and energy-saving decision-making. This innovative approach provides a detailed and accessible means for users to optimize energy usage and reduce costs, contributing to more efficient energy management amidst the global energy crisis.*

**Keywords:** Energy Management, Internet of Things (IoT), Smart Watt Meter.