RAJALAKSHMI
ENGINEERING COLLEGE
An AUTONOMOUS Institution
Affiliated to ANNA UNIVERSITY, Chennai

ELECTRICITY MANAGEMENT SYSTEM

A MINI PROJECT REPORT

SUBMITTED BY

KISHANTHRAJA M	**231501077**
MANI SHANKAR RAJU R	**231501094**
LITHESH M	**231501084**

In partial fulfillment for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

RAJALAKSHMI ENGINEERING COLLEGE (AUTONOMOUS)

THANDALAM

CHENNAI-602105

RAJALAKSHMI
ENGINEERING COLLEGE

2024-2025

BONAFIDE CERTIFICATE

CERTIFIED THAT THIS PROJECT REPORT "**ELECTRICITY MANAGEMENT SYSTEM**" IS THE BONAFIDE WORK OF **"KISHANTHRAJA M [231501077],MANI SHANKAR RAJU R [231501094] AND LITHESH M [231501084]"** WHO CARRIED OUT THE PROJECT WORK UNDER MY SUPERVISION.

Submitted for the Practical Examination held on _____

SIGNATURE

Mr. U. Kumaran,
Assistant Professor (SS)
AIML,
Rajalakshmi Engineering College,
(autonomous)
Thandalam, Chennai - 602 105

INTERNAL EXAMINER **EXTERNAL EXAMINER**

ABSTRACT

The increasing complexity of managing electricity consumption and billing data has driven the development of robust **Electricity Management Systems** designed to handle vast amounts of consumer and operational data efficiently. This paper examines the design and implementation of an electricity management system, encompassing data collection, aggregation, and storage of essential metrics such as consumption patterns, billing details, meter readings, and payment statuses.

The system employs advanced technologies, including automated data integration from digital meters, APIs for real-time updates, and analytical algorithms to ensure the relevance and accuracy of data. Once collected, the data is processed and stored in a structured database optimized for scalability, quick retrieval, and efficient performance. The database management system integrates sophisticated indexing and query optimization techniques, enabling utility providers, administrators, and consumers to derive actionable insights into electricity usage trends, payment behaviors, and operational efficiency.

The paper also addresses challenges associated with managing large-scale utility data, such as redundancy, latency, and ensuring consumer data privacy, and presents effective solutions to mitigate these issues. This integrated system allows utility companies to monitor and optimize energy distribution, streamline billing processes, and enhance customer engagement through personalized recommendations and timely notifications.

By leveraging this electricity management system, organizations can improve resource management, reduce operational inefficiencies, and support data-driven decision-making, contributing to a more sustainable and efficient energy ecosystem.