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Review Paper on Energy Management for Home Automation Using AI

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Abstract: ***The smart energy management system was developed with the ability to record, store, and process power consumption data for all major home and industrial devices. Artificial intelligence technologies such as decision making and XG Boost have made advances in power electronics and energy engineering. These technologies provide powerful tools for designing, simulating, controlling, estimating, and fault diagnostic control of modern smart grids and renewable energy systems. AI technology has evolved rapidly over the past few decades, and its applications in modern industrial systems are growing rapidly. Power consumption data can be accessed from the web portal and handheld devices. Homeowners and industry companies can track power consumption by appliance, device, facility, or device. This allows you to better adjust your power consumption. Using the weather forecast, the system decides to switch between photovoltaics or grids using a machine learning concept-based deterministic algorithm.***

Keywords: Control of smart grid, Energy management system, Artificial Intelligence, Machine Learning, Decision making

I. INTRODUCTION

Artificial intelligence technologies such as artificial neural networks and decision making have brought advances in power electronics and energy engineering. These technologies provide powerful tools for designing, simulating, controlling, estimating, and fault diagnostic control of modern smart grids and renewable energy systems. AI technology has evolved rapidly over the past few decades, and its applications in modern industrial systems are growing rapidly. Smart energy management systems have been developed with the ability to record, store, and process power consumption data for all critical devices in the home and industry. Power consumption data can be accessed from the web portal and handheld devices. Homeowners and industry companies can track power consumption by appliance, device, facility, or device. This allows you to better adjust your power consumption. Using the weather forecast, the system decides to switch between photovoltaics or grids using a machine learning concept-based deterministic algorithm.

II. LITERATURE SURVEY

A. Prabhash Nanda, C.K. Panigrahi and Abhijit Dasgupta "Smart Grid Energy Management System" This treatise focuses on reviewing the work of various research treatises and provides information on energy production and consumption. This focuses on achieving energy efficiency, maximizing profits, and reducing costs. This paper represents the integration of homes, energy management systems (HEMS, BEMS), photovoltaic technology, and energy storage and microgrids. The energy consumed by the load is monitored on the web portal and handheld devices. This helps track the energy consumption of the device.

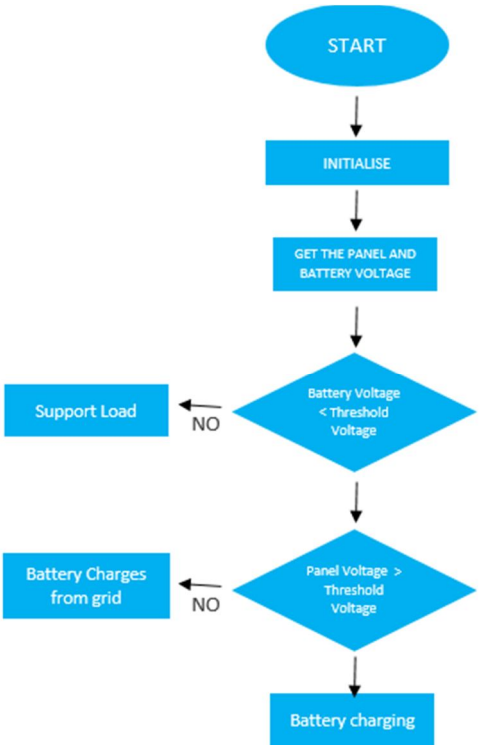
B. Hussain Shareef, Maytham S. AhMed "Correspondence, Intelligent Technology, Home Energy Management System Review Considering Intelligent Controller" In this contribution, Home Energy Management System (SEM) is important for concerns about global warming and energy shortages. Sales should not only be considered as a way to reduce greenhouse gas emissions, but also to enable automatic management of power in the house. HEMS can support power supply to monitor power consumption to reduce power consumption by planning power supply through home appliances and service programs and planning the use of home appliances. This system can also optimize the home appliance operation timetable, and at the same time manage distributed energy sources and storage sources simultaneously. In this paper, we provide a comprehensive review of previous research related to SEMS, taking into account various DR. Programs, smart technology, and loading control. Artificial neural networks, fuzzy logic, and adaptive neuron fuzzy inference systems, such as artificial intelligence, such as system, etc. are also checked. Heuristic optimization techniques widely used for optimal scheduling of various electrical devices in smart homes

C. Jian Jiao “Application and prospect of artificial intelligence in smart grid” This paper mainly focus on the problems of the traditional power system such as low energy efficiency, poor interaction, and difficult security and stability analysis. Using Artificial Intelligence in Smart Grid provides powerful technical support for digital power network .This include power supply, power system optimization, power user behaviour analysis, fault diagnosis, etc.

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D. Renato Jorge Caleira Nunes "Home Automation - A Step Towards Better Energy Management" This paper signifies the use of home automation as an effective way to cut-down the unwanted consumption of energy. This paper suggests several ways to illustrate how home automation can impact cost reduction. It also describes and compares the main characteristics of home automation techniques. This paper emphasizes how this market fragment is affecting home automation industry. This paper explains a Device Abstraction Layer that gives access to various devices in uniform manner. They tackled the problem by giving a agent-based system. This paper offers various features, allowing a hard-coded rule system for system's behaviour.

III. ALGORITHM

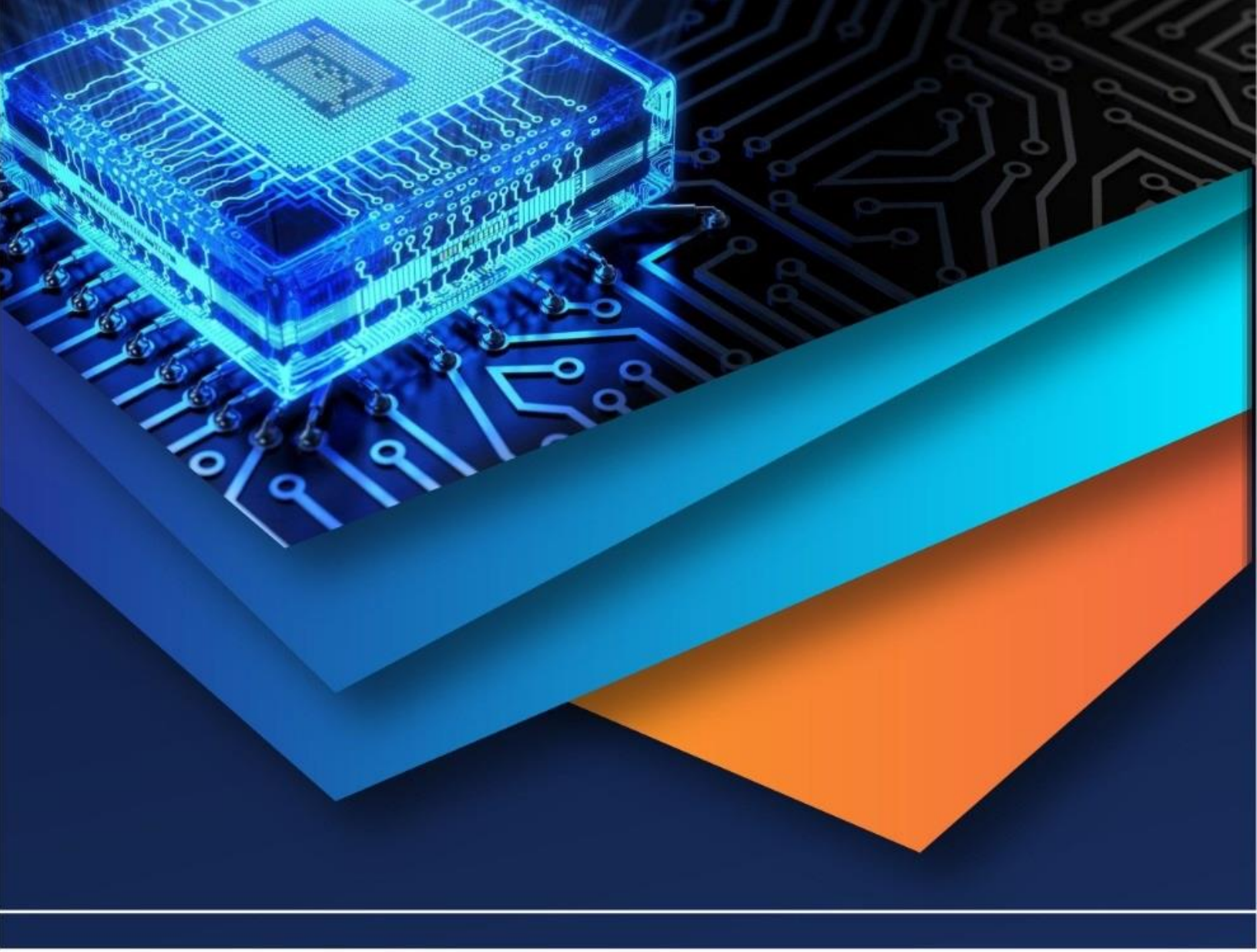


IV. CONCLUSIONS

A. Optimization of renewable energy is high and the energy generated by solar will used efficiently.
B. Dash board will have the complete information of the energy consumed by the devices and the power utilized from solar and grid.
C. With this concept the user can reduce the power consumption from the grid.
D. It reduces the unnecessary wastage of power consumption from the grid.
E. By using AI(Web scraping), system will control and optimize the power usage based on the future weather condition.

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