

**DESIGN AND IMPLEMENTATION OF AN ENERGY LOAD
MANAGEMENT USING ARTIFICIAL NEURAL NETWORK: A REVIEW****Varsha L. Makhija¹, Dinkar L. Bhombe² and Dr. Devesh D. Nawgaje³**¹*P.G. Scholar, Department of E and TC, SSGMCE, Shegaon, Maharashtra, India*^{2,3}*Asso. Professor, Department of E and TC, SSGMCE, Shegaon, Maharashtra, India*

Abstract—Change is the need of time and automation in the system are the change which are the needs of this of this 21st century. There may be load surges or popping out some times in the industries. In this paper we suggest the priority driven the load management using automation techniques. According to the tendencies, parameters and significance, loads are prioritized. We use this priority for supplying power to the maximum demanding load. This automation purpose is satisfied by and for setting priority we have one relay driving circuit connected with controller. We predefine the priority of the system and according to that priority we assign the energy to the load. This paper proposes the plan of a self-ruling control system utilizing Artificial Neural Network (ANN). The ANN is utilized to produce the energy effective load designs. The control system interfaces sensors and control loads with controller. The server can control every one of the loads rely on upon the continuous information from the applicable sensors which are associated with controller. The information of the procedure is sent to the client through IOT. To avoid the shortage of power on the required load the ANN Algorithm is executed in this system.

Keywords—Electricity, Energy management, Real time monitoring, ANN, IOT.

I. INTRODUCTION

Load management is the way toward adjusting the supply of power on the system with the electrical load by changing or controlling the load instead of the power station output. Load management permits utilities to decrease interest for power during peak usage which can, in turn, reduce the cost by dispensing with the requirement for peaking power plants. Load management can likewise reduce harmful emissions. Since power plants or reinforcement generators are regularly less proficient than base load control plant. New load management innovations are always a work in progress both by private industry and public areas. One of the innovation being created is need load administration.

A priority load management system has been developed in order to gain an optimal energy management over system load and battery storage, and therefore provides a better management efficiency and guarantee the energy supply for critical load. In industries there is importance of energy management. Due to poor energy management in system there is tremendous energy loss occurred. So for improving the stability of the system and improving the load management the latest technology of energy management is introduced in this paper.

In this paper we suggest the priority driven the load management using automation techniques. There may be load surges or popping out some times in the industries. We can assign the priority to the load according to its natures, parameters and importance. We use this priority for selecting and load which is to be used for automation. This automation purpose is satisfied by and for setting priority we have one relay driving circuit connected with controller. We pre define the priority of the system and according to that priority we assign the energy to the load and for the priority purpose.

Feedback is taken from each section so that automatic priority at the time of low power supply can assumed. Hence whenever there is improper power supply, depending upon the feedback from each section, sections which is necessary at that time will be switched on automatically and other sections will be switched off.

II. LITERATURE REVIEW

Presently a day, there is an expansion in the interest for power. The unit duty and online dispatch are the monetarily planning issues. The proposed work clarified the ideal calculation for load shedding. The strategy gives a quick calculation to load shedding. In load shedding process isolate the minimum conceivable burdens from system and it diminish the manual exertion [1]. Every load sort has distinctive qualities between climate conditions and electric burdens. Every load sort likewise has distinctive attributes amongst weekdays and alternate days. This paper proposes an electric load determining strategy by an ANN considering different load sorts. The proposed strategy uses different load sorts information put away in branch workplaces. An estimating model for every load sort relating to the every characteristic is developed in the proposed technique [2]. In ANN the most extreme load to every area and the extra load required to any region are the sources of info and power produced and control misfortunes are the outputs. Back propagation Neural (BPN) Network calculation is proposed for the scheduling distinctive thermal power plants. This paper proposes that ANN is prepared with various load request . When it has been prepared it secures the capacity to give stack planning design for any esteem for load demand. In this scheduling the aggregate load is shared to hydro and warm power stations as indicated by the cost of era [3]. The electrical energy request in any nation relies on upon the quantity of parameters, for example, temperature, time, stack, populace, and so forth. To prepare a system utilizing this number of parameters would be troublesome. So we select an ideal number mutually independent of data sources. There is no compelling reason to roll out any improvement in the output produced by the power plants. In the event that any region requires extra energy to meet the load requirement, framework checks the regions with their most extreme load. This comparison helps us to locate the base load required units and schedule this load to the required region. Primary point of the proposed work is to decrease the power era cost and make the accessibility of power on request with no distortion. The inputs for the neural systems are the power interest for every region, extra power required to every district because of extra load and power loss. The output is add up to control required for whole area[4]. The ANN is utilized to create the energy productive load designs. The proposed system defines the home energy management system will screen, oversee and control the utilization of home machines. This project exhibits the outline of an autonomous household control system utilizing Artificial Neural Network (ANN). The family unit control framework interfaces sensors and control loads with PIC controller. The server can control each load rely on upon the constant information from the significant sensors which are associated with controller. To avoid the lack of force the ANN Algorithm is actualized in this framework [5].

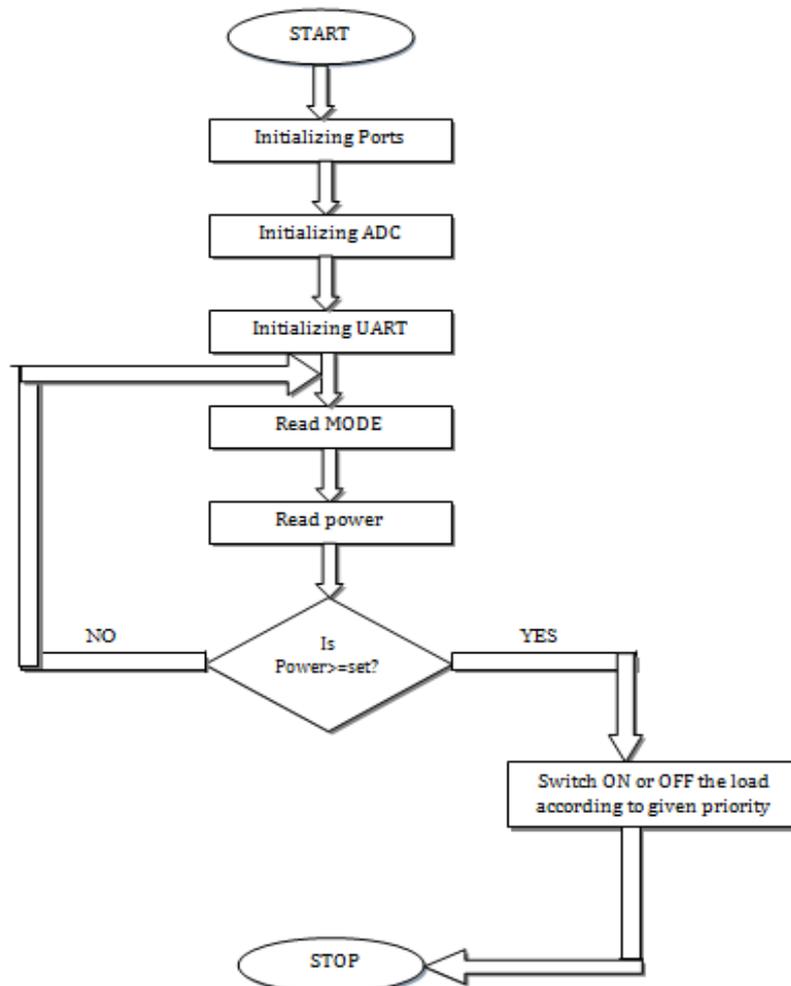
Even though real time evaluating has a few potential points of interest, its advantages are as of now limited because of absence of effective building mechanization frameworks and additionally clients' trouble in physically reacting to time-changing costs. In this manner, this paper proposes an ideal and programmed private energy utilization planning structure which means to accomplish an exchange off between minimizing the installment and minimizing the waiting time for the operation of every family appliances in light of the requirements proclaimed by clients [6]. The design and advancement of the wireless power management system is proposed in this paper . The framework actualizes the load prioritization and encourages the continuous observing of the associated loads in view of the predefined most extreme load esteem. Usage in programmed and also manual mode utilizing visual basic (V.B.) programming renders the framework easy to understand, adaptable in operation and conveys the continuous load observing. The framework will give hardware's effectiveness change and decreases the cost of utilization[7]. This paper discussed about the real time smart monitoring and controlling framework for family unit machines. The zigbee based framework diminishes the standby power. The sensors monitors the electrical parameters, for example, voltage, current the incorporated sensor yield is then sent to the zigbee module. The information is remotely sent to the host PC and put away in the database. The ongoing data is given to the client by method of the central hub server and the client can screen and control the machines [8].

The home energy management systems the client will screen ,oversee and control every one of the machines and lessening the month to month power charge. Therefore utilized the WEEMAN design used to detect the load current and ascertain the power in every machines . In that the each switch board is associated with smart meter. The keen meter settles on the choice to control the load by utilizing the design. Here, the calculation is utilized accessibility based administration calculation. It finds out about the past utilization machines and gather constant power utilization. On the off chance that, the smart meter fails, the whole framework fails [9]. The main objective of this proposed paper was principally to deliver output at the laod. In order to meet this target, the information is put away in the Raspbian OS of the equipment pack Raspberry which is executed with the important information put away. The information put away in this project is to keep up the synchronization between the co-plan of hardware and software. This is executed in the project which can be utilized as a part of wide variety of real time applications [10].

III. PROPOSED MODEL

Aim of the proposed paper is to plan and supply the electric energy on demanding load with minimum input supply in future. Loads are prioritized according to their importance. The state of load is controlled by microcontroller which relies on upon real monitoring information through PC with the use of RF transceiver .Then according to the assigned by ANN ,load get ON/OFF according to the power requirement . The IOT technology is utilized which forwards the prepared information to the user. This permit the user to keep up the total records of the loads and their daily power usage. Because of the straightforwardness of this proposed paper, ANNs find wide affirmation in various application areas.

IV. FLOWCHART



V. CONCLUSION

The implementation of prototype hardware/software design for Energy Load Management Using Artificial Neural Network .The main aim of the paper was chiefly to manufacture a load power at the output .In order to meet this requirement ,data is stored in ANN which generates the energy efficient load patterns. The real-time data received from the sensors put away in this system is to keep up the synchronization between the co-outline of hardware and software. This implementation in the project can be used for various real time applications.

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