

Review on Industrial Energy and Static Analysis System

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Abstract Now a days it's a challenge to aspect of saving energy and it's continuous modification in communication technology in order to satisfy all customers demand. Today customers are demanding for accurate energy measurement, timely data and for good customer services. The best solution is smart grid system with various communication technologies which can be cost effective and electrical section to have a bidirectional communication in which information about electrical energy consumption is shared between consumers as well as by utility for remote checking. It describes the monitoring of energy consumption with Arduino Uno board and Ethernet using IoT (Internet of Things) concept.

Keyword- Internet Of Things (IoT); ArduinoBoard; GSM Modem

I. INTRODUCTION

As the energy audit is need of industries in order to save unnecessary energy consumption and to know the exact requirement of industry, hence the proposed system is taking this development at next level by enhancing the term IoT (internet of things) for industrial remote energy parameter monitoring system. This system will not only benefit the end consumer but also the energy provider. Generally the Consumer demands 'a little more' from its average amount of energy it needs, since the consumer never has the idea about the exact amount it needs. But this 'little more' usually gets wasted on both ends. Not only it causes wastage of money and energy for consumer but also it effects the energy provider. Because the tools (like Electrical Wires) or instruments involved due to continuous supply of energy may get damaged. Remote monitoring of different industries sensors, machineries, energy or the power panels are the most demanding products and many organizations are working on it. Up till now we have seen only computers, mobiles and very few devices are connected to internet directly. Still many embedded system or the devices needs to redesign so that they can communicate with other world through internet. In simple world we called it as a IoT. Conservation of energy is one of the most important need of the day. Energy audit is needed of industries in order to save unnecessary energy consumption and to know the exact requirement of industry. The main objective of energy audit is to identify the tentative consumption of energy in industry, and this feasibility study leading to implementation of an energy management

program. The concept of energy efficient device has come up in various arenas such as lighting, air conditioning and so on.

For it not only serves to identify energy use among the different services and to clarify opportunities for energy conservation, "Butte Salsa Crucial" first step in establishing an energy management program. The plan of audit will produce the data on which such a program is based. The study should known to the owner, manager, or management team of the industry the options available or reducing energy waste, the product costs, and the benefits achieve from implementing those energy-conserving opportunities (ECOs). The energy management programmed disc systematic going through strategy for controlling a building's energy consumption scenario. It is to minimize waste of energy, power and money to the minimum permitted by the climate the industry is located, its functions, occupancy timing, and other factors.

Monitoring of electrical parameters is a main element in any Energy approach. Implementation of monitoring equipment is the first step of this kind of approach, as it make a conclusion of the actual situation possible, before determination no them foist relevant solutions. Due to monitoring it is possible to quantify the Energy Efficiency improvement actions.

II. LITERATURE REVIEW

Gilberto P. Azevedo et al explains in the software development area, as in most fields of the computer industry, new technologies are trumpeted as revolutionary solutions almost daily, just to disappear silently some time later. This was not the case with open-architecture energy management systems (EMS). About 10 years after their conception, they have proven to be a successful technological approach. But this does not mean that all problems have been solved; in fact, this is a dynamic research area, in continuous evolution and still raising challenges for the near future.

D.Sivasankari, K.Ramamoorthy proposed a system for Residential power this system uses WSN – Wireless Sensor Network, these sensors easily detect and calculate the energy usage. The main advantage is that this system does not touch the existing connection, i.e., this is a plug and play system. But on the other hand this system did not have a proper user interface therefore making it difficult to understand.

N.K.Suryaveda and S.C.Mukhopadhyay reported the design and development of smart monitoring and controlling system for household electrical appliances in real time [3], in

which it emphasizes the realization of monitoring and controlling of electrical appliances in many ways. They determined the areas of daily peak hours of electricity usage levels and come with a solution by which we can lower the consumption and enhance better utilization of already limited resources during peak hours. This system lacked the ability to calculate the cost of usage but nonetheless this was a great system to monitor usage.

Suh and Ko proposed an intelligent home control system based on a wireless sensor/actuator network with a link quality indicator based routing protocol to enhance network reliability. It can integrate diversified physical sensing information and control various consumer home devices, with the support of active sensor networks having both sensor and actuator components. Since the system used a number of sensor this system was automatically very expensive and was not received very well by the public

I. Kunold, M.Kuller, J.Bauer, and N.Karaoglan describe a system concept of energy information system in flats using wireless technologies and smart metering devices. Smart meters offer a lot of new features, for example handling of different dynamic tariffs and in addition to their carrier interface a data access capability for in-house applications. Using these capabilities an embedded in-house energy information system with a smart energy controller (SEC) will be proposed, which allows displaying real-time data information and analysis of power consumption. This paper was a huge success but the system was never implemented in real time.

K.Gill, S.H.Yan, F.Yao presented a ZigBee-based home automation system in which less importance is given to the home automation. Because however the adoption of home automation system has been slow so that this paper identifies the reason behind slow adoption and also evaluates the potential of zig-bee for addressing these problems with the help of design and implementation of flexible home automation architecture. This system was very expensive and complicated.

Dae-Man Han and Jae-Hyun Lim Member contributed their work towards the development of ubiquitous home networks, energy savings and user happiness are two major design considerations for modern lighting systems. This paper introduces smart home interfaces and device definitions to allow interoperability among Zig-bee devices produced by various manufacturers of electrical equipment, meters, and smart energy enabling products. They introduced the proposed home energy control systems design that provides intelligent services for users and also demonstrate its implementation using real test bed. This system was never implemented in real time.

Suh and Ko proposed an intelligent home control system based on a wireless sensor/actuator network with a link quality indicator based routing protocol to enhance

network reliability. It can integrate diversified physical sensing information and control various consumer home devices, with the support of active sensor networks having both sensor and actuator components. This system attempts to manage all the appliances hence making the system harder to implement and expensive.

Nguyen et al. have proposed building a smart home system with WSN and service robot. In which they have presented the design of optical linear encoder(OLE) based system for function of capturing human arm motion and arm function evaluation for home based monitoring and this system would also find wide range application in field of rehabilitation. This system is highly sophisticated because it uses motion control to manage appliances, example, the user can use arm motion to control their appliance. But the disadvantage is that it is harder to implement in houses that are already constructed. This system needs to be implemented in the construction stages of the building.

III. CONCLUSION

The system provides a platform to access the notification and announcement. It will also provide an efficient to analyse the statistics of energy for both domestic and industrial purposes. The proposed system should also eliminate any kind of unnecessary manual work required for the energy auditing.

IV. REFERENCES

- [1]. A. A. Khan and H. T. Mouftah, (2011) —Web services for indoor energy management in a smart grid environment, in *Proc. IEEE 22nd Int. Symp. Pers. Indoor Mobile Radio Commun. (PIMRC)*, pp. 1036–1040.
- [2]. Adnan Rashdi, Rafia Malik, Islamabad, Pakistan, " Remote Energy Monitoring, Profiling and Control Through GSM Network", International Conference on Innovations in Information Technology (IIT)2012.
- [3]. AmitBhimte, RohitK.Mathew, Kumaravel S, "Development of smart energy meter in labview for power distribution systems", "IEEE INDICON 2015 1570186881", 2015.
- [4]. Anbarasu.M1, Rajendhiran.V2, " Online and Remote Motor Energy Monitoring and Fault Diagnostics Using Wireless Sensor Networks", International Journal of Innovative Research in Computer and Communication Engineering (An ISO 3297: 2007 Certified Organization) Vol.2, Special Issue 1, March 2014.
- [5]. Cheng Pang, ValierryVyatkin, Yinbai Deng, MajidiSorouri, "Virtual smart metering in automation and simulation of energy efficient lightning system" IEEE 2013.
- [6]. H. Arasteh, V. Hosseinneshad, V.Loia, A.Tommasetti, O.Troisi, M.Shafie Khan, P.Siano, "IoT Based Smart Cities: A survey" IEEE 978-1-5090-2320-2/1631.00, 2016.
- [7]. Himshekhhar Das, L.C.Saikia, "GSM Enabled Smart Energy Meter and Automation of Home Appliances", PP-978-1-4678-6503-1, 2015 IEEE.
- [8]. Hong-Chan Chang and Cheng-ChienKuo, " Wireless Energy Management System for Residential Area", International

Journal of Environmental Science and Development, Vol. 4, No. 5, October 2013.

- [9]. K. Samarakoon, J. Ekanayake, and N. Jenkins,(Dec. 2013) —Reporting available demand response,| *IEEE Trans. Smart Grid*, vol. 4, no. 4, pp. 1842–1851.
- [10].P.Thamarai ,R.Amudhevali ” Energy Monitoring System USING PLC & SCADAS”, International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering Vol. 3, Issue 2, Febuary 2014.
- [11].R. Ma, H. H. Chen, Y. Huang, and W. Meng,(Mar. 2013) —Smart grid communication: Its challenges and opportunities,| *IEEE Trans. Smart Grid*, vol. 4, no. 1, pp. 36–46.
- [12].Y. Yang, Z. Wei, D. Jia, Y. Cong, and R. Shan,(2010) —A cloud architecture based on smart home,| in *Proc. 2nd Int. Workshop Educ. Technol. Sci. (ETCS)*, vol. 2. Wuhan, China.