

DEVELOPMENT OF A POWER LINE COMMUNICATION AND GSM BASED ELECTRICAL DEMAND MANAGEMENT SYSTEM FOR AFRICA COUNTRIES

Ganiyu Adedayo Ajenikoko¹ & Samuel Olukunle Okeniyi²

¹Research Scholar, Department of Electronic and Electrical Engineering, Ladoko Akintola University of Technology, Ogbomosh, Nigeria

²Research Scholar, Department of Technical Education, The College of Education, Lanlate, Oyo State, Nigeria

Received: 06 Nov 2019

Accepted: 16 Nov 2019

Published: 30 Nov 2019

ABSTRACT

Electric power is energy generated through the conversion of other forms of energy, it is easier to convey, distribute and represents the most efficient way of consuming energy. However, the high demand of electrical power in African countries have put the continent into electrical global crisis in which open data website internet availability is limited in most of the African countries. Most of the African country relies on load shedding where electricity is supplied to certain area at a particular time interval to reduce the power demand in the area. Therefore, there is the need to implement a Power Line Communication (PLC) that can transfer data and voice signals from one communication system to another via electric power network and Global System for Mobile (GSM) that will improve electric power sector reform in the continent. This work describes a demand management system based on PLC and GSM technologies which can be used by the electricity utilities to improve electric power supply in African countries. In this research, automated metering system was used which measures the electricity consumption by consumer at different time interval. The meter imposes power load allocation by the electricity supply authority on domestic, commercial and industrial consumers and regulates power-over consumption. The result shows that the method is efficient in monitoring, managing and controlling of electrical demand management system.

KEYWORDS: *Electric Power, Power Line Communication, Global System for Communication, Electrical Demand Management, Automated Metering System, Internet*