

A Framework for a Smart Campus: A Case of Covenant University

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Abstract—Energy conservation encourages economic growth by redirecting wasteful spending to more productive activities. Energy savings can be used to increase consumption in the broader economy. A more efficient use of energy resources not only conserves this vital resource towards future consumption but also inhibits the excessive exploitation of non-renewable energy resources. The objective of this paper is to develop a suitable framework for an IoT-enabled energy conservation system for an emerging smart community such as Covenant University. A strategic interconnection of sensor networks and energy management systems integrated with the campus IT infrastructure was considered. This energy conservation cyber- physical system is expected to significantly improve energy efficiency in the University and increase energy savings. The scalability of this model will improve energy management in larger communities and cities in Nigeria, a country currently swamped with energy challenges.

Index Terms—Energy Conservation, Energy management, Smart Communities, Smart Campus, Internet of Things, Smart meters.