Training Need Analysis & Methodology for Meter Data Collection Device Envisages: A Review

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Abstract: **The acquisition of metered data is critical to the determination of consumption and base data. However, as the meters can be distributed geographically over a wide area, the communication network of meters is a central part of this overall program. CMS provides MDAS with a robust collaboration network for multimeter data acquisition. The network service solutions include GPRS, CDMA, or PSTN. CMS provides the entire product suite (modems, gateways, data concentrators, front-end processors, etc.) for data acquisition from different metres. MDAS acquires meter data from meters within the distribution system and consumer meters for: monitoring of system performance and supporting decision making. Network research and the design of structures. Monitoring and collection of consumer energy usage data, billing, CRM, manipulation, detection and notification of an outage. Monitoring of energy flows within the energy supply chain to provide energy auditing information.**

Introduction

The collection of meter data is important for evaluating usage and baseline data. However, the metres, and the meter communication infrastructure, are geographically dispersed. For the collection of data from different single- and three-stage products, Inesh provides MDAS with a comprehensive contact network. Throughout his work with Boeing in Huntsville, Alabama, Theodore George "Ted" Paraskevakos built in 1972 a sensor control device that used digital transmission for the health, fire and medical warning systems, and testing readability for all utility applications. This technology was a spin-off of the automatic caller ID system. Caller ID is now known.

This invention was granted Mr Paraskevakos a U.S. patent in 1974. In 1977 Metretek, Inc. was launched to build and manufacture the first completely automatic controlled reading and load control device that is currently accessible. Metretek used the IBM Series 1 mini machine, as this device was built before the Internet. Mr. Paraskevakos and Metretek obtained many patents for this method. [1]

The main reason for automating meter readings is to obtain hard-to-reduce data rather than to decrease labour costs. Most water meters, for example, are placed in areas that allow a service company to make an appointment with the user to reach the meter. In multiple regions, customers have demanded their monthly water payment to be focused on a true reading, rather than on the average annual consumption of only one meter per 12 months. The early AMR networks also composed of AMR for residential consumers and AMRs for industrial and business consumers on the mobile. When a monthly data requirement was needed, did the meters need regular and even hourly reading? As a result, drive-by and AMR revenues have dropped in the US, while fixed network revenues have risen. The 2005 U.S. Power Policy Act encourages policymakers to look at funding for a "time dependent rate structure that helps electric customers to control electricity use and expense through innovative calculation and communications technology"[7].

The trend is to take advanced meters as part of an infrastructure into consideration. Remote meter reading and loading control system, which is first commercially usable-Metretek, Inc.

(2007). (1978). In late 1999, the University of Alabama at Auburn started a project named Vehicles, Auburn University's School of Electrical and Computer Engineering. Twenty seniors finished this experiment in March 2000, completing an electrical engineering tutorial. The system is therefore able to read seventeen analog differences and transmit the converted data in digital format to a PC for monitoring purposes via wireless communication in a minimum of 800 m. This project uses a 16-channel analog or digital converter ADC116 and a microcontroller MC68HC11 to monitor the switching between sensors and also to coordinate data before it is sent as an analog or digital converter in hardware configuration to a wireless modem. Use the 7473 Flip Chip the microcontroller produces 2MHz to halve the ADC0816's processing capacity. Terms of Reference

Greg Mason of the Institute of Mechanical Engineering (IEEE) issued a paper called "Portable Data Acquisition Methods for Use in University Data Acquisition Courses" (SDAC) on October 8th 2001. The project is done to solve the problem if students just require a programming programs and build or evaluate basic device circuits for different data acquisition and control activities on accessible PCs, fitted with data acquisition cards at Seattle University. The Pocket Laptop machine and the low cost serial DAQ card are the foundation for the device. Briefly. The DAQ framework operates on an optimized real-time operating system named Microsoft Windows CE. DAQ apps support a free software environment and custom applications that enable virtual I / O testing before being loaded to DAQ apps.

Overview of Meter Data Acquisition System:-

MDAS will collect data from deployed 'DCUs' in real time and organize the data into a common data format in the database. Active tracking, description and diagrams should be done by MDAS. On-line warnings, complex composition in usual situations for observer classes with suspicious meters or only zones, areas, user indexes etc.

The data collection meter network, the equipment, software and connectivity networks required for central data meter storage supplies to the substations, DTs and chooses customers in the cities. For this reason. The computer data logger substation receives the data from the meter feeders and transmits it to the subdivision office server via GSM / GPRS / EDGE / CDMA / PSTN / LPR modems, while the subdivision data acquisition server acquires the data directly from all distribution switches and specified HT / LT users through the GSM / GPRS / EDGE modems / CDMA / LPR. In all departmental parts, data collection servers would need to move complete meter data over a normal backlog period to the data center via MPLS / VPN WAN to capture, analyze and report data as requested by public service companies [2]. Data acquisition servers shall be transferred to the central data center.

Automatic measuring calculation (AMR) is one of the new technologies for Machine to Machine (M2 M) that provide a significant contribution to the M2 M dream. AMR is an automatic data processing system from metering systems for use, evaluation and condition data and the conversion of this data for the payment, troubleshooting and review to a central database. There are many advantages to this remote reading. The burden of regular visits to geographic sites with a meter is spared with service providers. Instead of projections focused on recent or expected usage levels, billing will be centered on close real time output. It also has fewer adverse elements in contact. This timely information, combined with an appropriate prediction analysis, can assist suppliers and customers in controlling the use and generation of electricity, gas and water consumption. For this article, AMR systems and instruments are used mainly for electrical usage calculations. [13] The first of these [13]

The WBSEDCL project was launched under the power reforms in India under the name R-APDRP Meter Data Acquisition. The goal was to enhance customer satisfaction by offering reliable details on energy usage and outages, mostly downstream 11 KV, and also tracking.
Distribution Network Level. The benchmark statistics, payment, network monitoring and energy accounting is another essential goal.

During this new century, researchers and scientists globally create modern innovations using the newest technologies and innovation. This is possible simply when searching at some of the Internet's development fields and over a hundred findings would be shown. This is also prudent to research and appreciate these previous plays about the future innovations or developments in order to obtain insight regarding the method as a whole. Not only undergraduates but even design engineers in leading organizations have been trained in the Wireless Data Acquisition.

Computer Aided Racing Data

In late 1999, the University of Alabama at Auburn started a project named Vehicles, Auburn University's School of Electrical and Computer Engineering.

Twenty elderly people completed this project from their electrical engineering course in March 2000. The project aims at designing, developing and implementing a wireless data acquisition system that can operate for example in a race car or heavy machining in a hostile environment. The system is therefore able to read seventeen analog differences and transmit the converted data in digital format to a PC for monitoring purposes via wireless communication in a minimum of 800 m. This project uses a 16-channel analog or digital converter ADC116 and a microcontroller MC68HC11 to monitor the switching between sensors and also to coordinate data before it is sent as an analog or digital converter in hardware configuration to a wireless modem. Use the 7473 Flip Chip the microcontroller produces 2MHz to halve the ADC0816's processing capacity. (7) (Seventh)

The serial data collected from the vehicle's wireless modem is transmitted in real time. Examples of this information involve the engine temperature, acceleration and endurance test results. Wireless data transmission format was developed, each sensor transferring a 16-bit file packet (1HHHDD1 0DDDDD0) to some sample. H (sensor address) is the bit for the header and D is the bit for data. Thanks to its potential to identify errors, the format was selected (i.e. if a byte is detected that begins with 1 and finishes with 0 and then the daemon detects an error). Based on design criteria, the wireless network modem implementing the RF data link is chosen in this project:

a) Variety of interfaces, physical characteristics and power consumption.

b) Working size, specifications of antenna

c) User's Port

d) Baud rate / link performance, liaison strength and price

Conclusion and Future Scope

Meter Data Collection Device envisages automated data readings of various energy meter points mounted. This module gathers data from the metering system network mounted in sub-station on input and output feeders. The system NG-9601 is a stable and

consistent solution to process data through Modbus communication protocols from the metering unit. It can operate various interfaces on a single FPGA chip which allows real-time data processing.

• Control and judgment help for device success

• Evaluation and program preparation of the network

• Tracking and compilation of customer energy demand statistics, accounting, CRM, exploitation, identification and notification of loss

• Track energy movements across the power supply chain and provide energy audit information.

Advanced measurement and EIS equipment is well known, and new technologies can be used for simple and benchmarking output tracking. The ultimate aim of the system is to provide stakeholders, program supporters and policy makers more open and practical input on building energy efficiency. The following actions may increase the likelihood of achieving this goal in light of the above discussion of drivers and obstacles:

• Statistical evaluation solutions can be viewed as optimization systems that offer more and more timely input on system performance, while at the same time allowing participants more input. Advanced metering costs and EIS systems can decrease by raising quantities, so a reduction in cost may be rendered by general specifications or bulk sales for a commonly utilized product. The USGBC has confirmed that it plans to focus on LEED-NC buildings efficiency data following 2010. Specific standards may offer similar benefits to competency systems or certain state and local codes.

• A nationwide cost standardization program will simplify the costs of upgrading service meters to the pulses and enable owners to calculate local fuel frequency without allowing the operators to hold meters or to collect data from a safe database.

• To enable small building owners in particular to benefit from input from advanced measurement and EIS, a clear and efficient software platform for data collection and administration is required.

• The EIS equipment may carry out several analyses within an application and would foster energy separation to enable more types of energy research, such as energy management processing and benchmarking at a device stage. EPA might want to create software to promote building qualification based on these enhanced methods.

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