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Block Chain Scada Quality Control for in Industrial Automation

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Abstract: ***Scada systems are highly distributed systems used to control geographically dispersed assets, often scattered over thousands of square kilometers, where centralized data acquisition and control are critical to system operation. They are used in distribution systems such as water distribution and waste water collection systems, oil and gas pipelines, electrical power grids, and railway transportation systems. A scada control center performs centralized monitoring and control for field sites over long-distance communications networks, including monitoring alarms and processing status data. Based on information received from remote stations, automated or opera tor-driven supervisory commands can be pushed to remote station control devices, which are often referred to as field devices . Field devices control local operations such as opening and closing valves and breakers, collecting data from sensor systems, and monitoring the local environment for alarm conditions. In general, the error rate of 1-1.5 percent found in manual working can be brought down to 0.00001 percent with automation. as stakeholders have begun to increasingly demand certain quality standards, automation has also become a key part of today's manufacturing setup." automation is the key in all types of manufacturing, especially in the face of an emerging global economy. From being used to increase productivity and reduce cost, automation has now become vital to increasing product quality. Further, in certain fields like semiconductor chip manufacturing where miniaturization is the key, machines are capable of achieving greater precision and speed than humans-after all.***

Keywords: ***Scada systems, supervisory, automated, communications networks, productivity.***

I. INTRODUCTION

Automation is an ancient Greek word that means "self-dictated". In modern day terminology, it means quite the same, and in the context of industries, it refers to a complex set up of machines, motors and drives, information, computers and software that are capable of functioning autonomously, without human intervention, under normal circumstances. What is important to note is that the aim of automation is not to eliminate workers on the shop floor-every automation scientist worth her salt will admit that no machine can ever beat a human's senses and institution's why automate? The primary motive of automation is to tap the predictability and dependability of machine to do something and it will do it in exactly the same way even after the millionth iteration. Therefore the basic goals of automation are to achieve precision and uniformity, eliminate errors and improve the whole process. In general, the error rate of 1-1.5 percent found in manual working can be brought down to 0.00001 percent with automation. as stakeholders have begun to increasingly demand certain quality standards, automation has also become a key part of today's manufacturing setup." automation is the key in all types of manufacturing, especially in the face of an emerging global economy. From being used to increase productivity and reduce cost, automation has now become vital to increasing product quality. Further, in certain fields like semiconductor chip manufacturing where miniaturization is the key, machines are capable of achieving greater precision and speed than humans-after all, We cannot expect men with magnifying glasses to sit and assemble the integrated circuit in innumerable chips manufactured every day. Automation is indispensable in such cases. It is also vital to recognize the influence of the increasingly dynamic nature of supply chains today, on automation. The manufacturing process has to flex in an ad hoc fashion depending on various fashion depending on various factors ranging from fluctuations in the market demand to customized bulk orders from clients. Supply chain management software, enterprise resource management software and so on automatically sync with the control mechanism, to tweak the manufacturing process as required right from the quantity of production to the configuration of parts. Sometimes, the production line itself is changed as required. It is as easy as few button taps today. In a do-or-die market, such flexibility is crucial, and has been one of the key reasons boosting the role of industrial automation. Automation is also believed to be energy-efficient, as the operation of machine is optimized. Apart from the smooth rhythm, which in itself conserves power, automation also provides the control needed to put machine on or off in a just-in-time fashion, as required, so there is no redundancy.

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Automation is also crucial in hazardous areas that humans would not dare to such as oil refineries, manufacturing of certain hazardous chemicals, metal working and welding, and nuclear reactors. Automation machines, controlled through wireless networks, are more effective in such area than a scared human worker. More so, in the US and other developed countries, some companies, though not motivated by any of the preceding reasons, have also been forced to go in for automation-for want of semi-skilled worker As the technology advances there is an increasing need for improvement in the existing technology. So as we found out there are some areas where we can provide a single unit control which will be most beneficial for providing an efficient working in the industry.

As the industry performing the manual work function so we are trying to provide a single unit control to drive the multiple application under the regulated control format so a single person can handle many *applications at a t me with more easy and comfortably. With the advent of modern technology, the human brain is working day by day to develop complex and more technology specific products which have multifarious applications in the different aspects of work field..

II. LITERATURE SURVEY

A Model Driven Approach for Requirements Engineering of Industrial Automation Systems. Model driven requirements engineering (MDRE) is proposed to deal with he ver-increasing complexity of technical systems in the sense of providing requirement pecificationsas formal models that are correct, complete, consistent, unambiguous and asy o read and easy to maintain. Acritical issue in this area is the lack of a universal and tandardized modeling language which covers the whole requirements engineering process rom requirement specification, allocation to verification. Sys ML is being proposed to meet these requirements Bringing Industrial Automation Environment into Classroom: A Didactic Three-Tank and Heat Exchanger Module. The present work is concerned with a more realistic industrial process control and automation course for engineering. It comprises a heat exchanger coupled to a three tank system, with several possibilities of control and interaction among the loops. The planned goal is to bring to the classroom problems and difficulties usually found only in practical industry, as well as techniques and solution to those problem, generally not accessible to engineering students. The plant is designed in such a way that allows several combinations in the loops topology, as well in the control solutions. The process variables include temperature, level and flow, monitored by industrial sensors; the actuators are motors-driven pumps coupled to stand-alone inverters while the controllers are industrial PLCs and PID, the last with auto-tune capability.

Dealing with industrial parameters, what motivates the students, but keeping the necessary security and didactic focus, it has revealed itself a powerful tool for apprenticeship of industrial process control and automation. : Evaluation of Integration Approaches in common COTS Hypervisors for Use in Industrial Automation Controllers. Multicore CPUs offer plenty of new opportunities in the domain of industrial utomation. Besides others, those comprisethe integration of heterogeneous subsystems ormerlyrunning on dedicated hardware devices, in order to savecosts. Indeed, one recondition to this scenario is the use ofan appropriate commercial off-the-shelf (COTS) ntegrationsolution.

We first define the specific demands such a solutionhas to meet in the omain of industrial automation beforewe evaluate two different integration approaches sing theexample of two common COTS hypervisors. Distributed Control Architecture for Wireless Sensor Networks Using IEC 61499 Function Blocks for Industrial Automation. Wireless Sensor Networks (WSN) technology is rapidly becoming a feasible olution for monitoring and control at the lowest level of manufacturing automation ystems. This paper presents a distributed approach for modeling WSN for applications of ntelligent manufacturing automation and control. The proposed approach uses IEC 61499 unction blocks, which is a new industry standard in the context of manufacturing utomation. The distributed modeling of WSN through the function blocks provides lexibility and scalability to the low-level monitoring and control of the manufacturing ystems, which are two important challenges in today's conventional manufacturing ontrol stems. The proposed model is a replacement of the conventional centralized control rchitecture, where local processing is performed rather than having a central control unit.

Use of the ICT in vocational training in the area of industrial robotics and automation. As nowadays many Small and Medium Enterprises (SMEs) need to increase their production quality and efficiency, they have to integrate the existing facilities (purchased from many vendors) with new, innovative Automation and Robotics solutions. To this end, they need proper training on how to select, integrate and operate the A&R systems in order to achieve the highest efficiency and the shortest Return On Investment period. The main problem regarding the successful application of automation in enterprises is the lack of qualified personnel (from less qualified workers to manager level), and in SMEs this problem is particularly evident.

This paper postulates how to combine traditional vocational education with modern multimedia materials (photos, movies, animations, simulations –with distance access) and e-Learning modules. X-ray diffraction (XRD) as a fast industrial analysis method for heavy mineral sands in process control and automation Rietveld refinement and data clustering.

Amounts of XRD measurement data are generated during the process control and material evaluation. New ways of handling such vast amounts of data are required to produce meaningful information for the end users.

Cluster analysis greatly simplifies the analysis of a large amount of data from different processes or different raw materials, and automatically sorts.

Design and implementation of wireless automatic meter reading system. Automatic Meter Reading (AMR) whose goal is to help collect the meter measurement automatically and possibly send commands to the meters. Automation ranges from Connecting to a meter through an RS-232 interface for transmitting the meter measurements all the way from the meter to the utility company via GSM network.

III. RESEARCH METHODOLOGY

Automation is additionally believed to be energy-efficient, because the operation of machine is optimized. aside from the smooth rhythm, which in itself conserves power, automation also provides the control needed to place machine on or off in a just-in-time fashion, as required, so there's no redundancy. Automation is additionally crucial in hazardous areas that humans would not dare to such as oil refineries, manufacturing of certain hazardous chemicals, metal working and welding, and nuclear reactors. Automation machines, controlled through wireless networks, are simpler in such area than a scared human worker. More so, within the US and other developed countries, some companies, though not motivated by any of the preceding reasons, have also been forced to travel in for automation-for want of semi-skilled worker. The necessity for existing technology to be improved is growing as technology develops.

So as we discovered there are some areas where we can provide a single unit control which will be most beneficial for providing an efficient working in the industry. We are trying to give a single unit control to drive many applications under the regulated control format since the industry performs manual job functions so a single person can handle many *applications at a t me with more easy and comfortably With the advent of modern technology, the human brain is functioning day by dayto create increasingly sophisticated, technologically focused products with a good range of applications in the various fields of employment.

The goal of this project is to make a product that can be used in a variety of professional and commercial settings. ”Designing of a controlled system“ using a PC might be used as an introduction to the current project. The PC controlled system gives us the power to control big organization’s electrical system under a single administrator which saves the valuable electrical power and provides us to have the control of any electrical devices It consists of a panel which is attached to various electrical devices from which a single person can handle all systems from one position.

These operations are controlled by interfacing it using buses with a private computer. All operations are controlled through keyboard inputs of a PC. of these executions are made possible with the help of a most powerful programming language the ‘ language. The software is comprised of language programs when executed give the specified physical results hence all operations can be easily managed with the PC.

IV. PROPOSED SYSTEM

A food conveyer belt is a moving strip of material that transports food form one location to another; these are frequently found in food processing facilities. Pre-processed food is transported by industrial conveyer belt systems to processing and sanitation facilities, and post-processed food is transported to packing stations. Since this belt transports food, most nations and regions have cleanliness laws in situ to protect consumers’ safety and prevent food from spoiling while being transported. Food products are typically considerably smaller than other things conveyed by a conveyer belt , hence the belt itself is usually not as wide as other conveyor belts.

A food conveyer belt is employed even tough processing plants normally use this one. A food conveyer belt is frequently utilized in Japanese restaurants to spin sushi plates to every table even though it is generally used in processing industries. the foremost typical location for a conveyor belt for food is inside a food processing facility, where products like meat and vegetables are processed before being sold to consumers. the method of loading food products begins with loading them onto a conveyor belt, which usually features little bays to help hold the items. for instance , a conveyer belt transports food to sanitation facilities for cleaning before transferring it to processing facilities for cooking, flavoring, cutting, etc.

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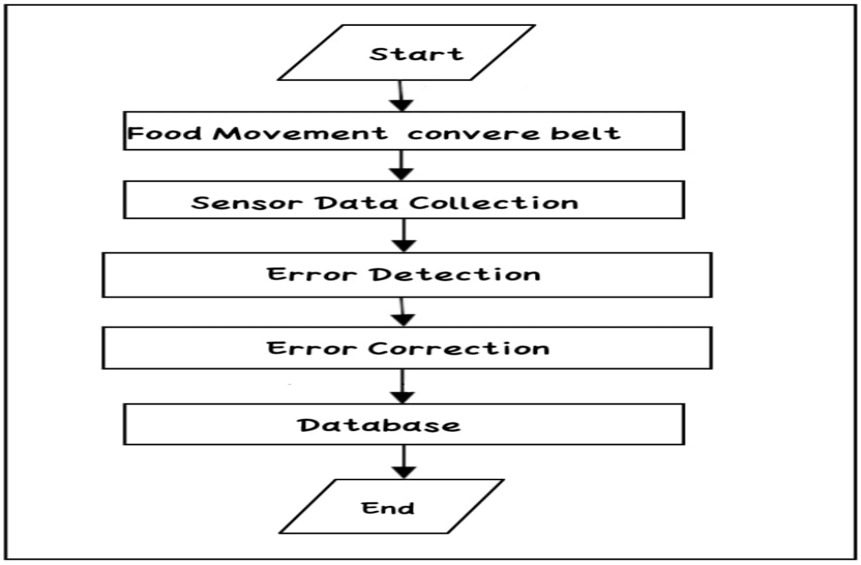


Fig. 1 Example of an image with acceptable resolution

The conveyer belt is used to transport the commodities to packing stations or personnel once processing is finished so that they can be packaged and delivered to shops. The use of sensors technology improves food quality, safety, production, and profitability in food processing sectors by assisting in the detection and identification of pollutants during the manufacturing processes. The proposed model is a replacement of the conventional centralized control architecture, where local processing is performed rather than having a central control unit.

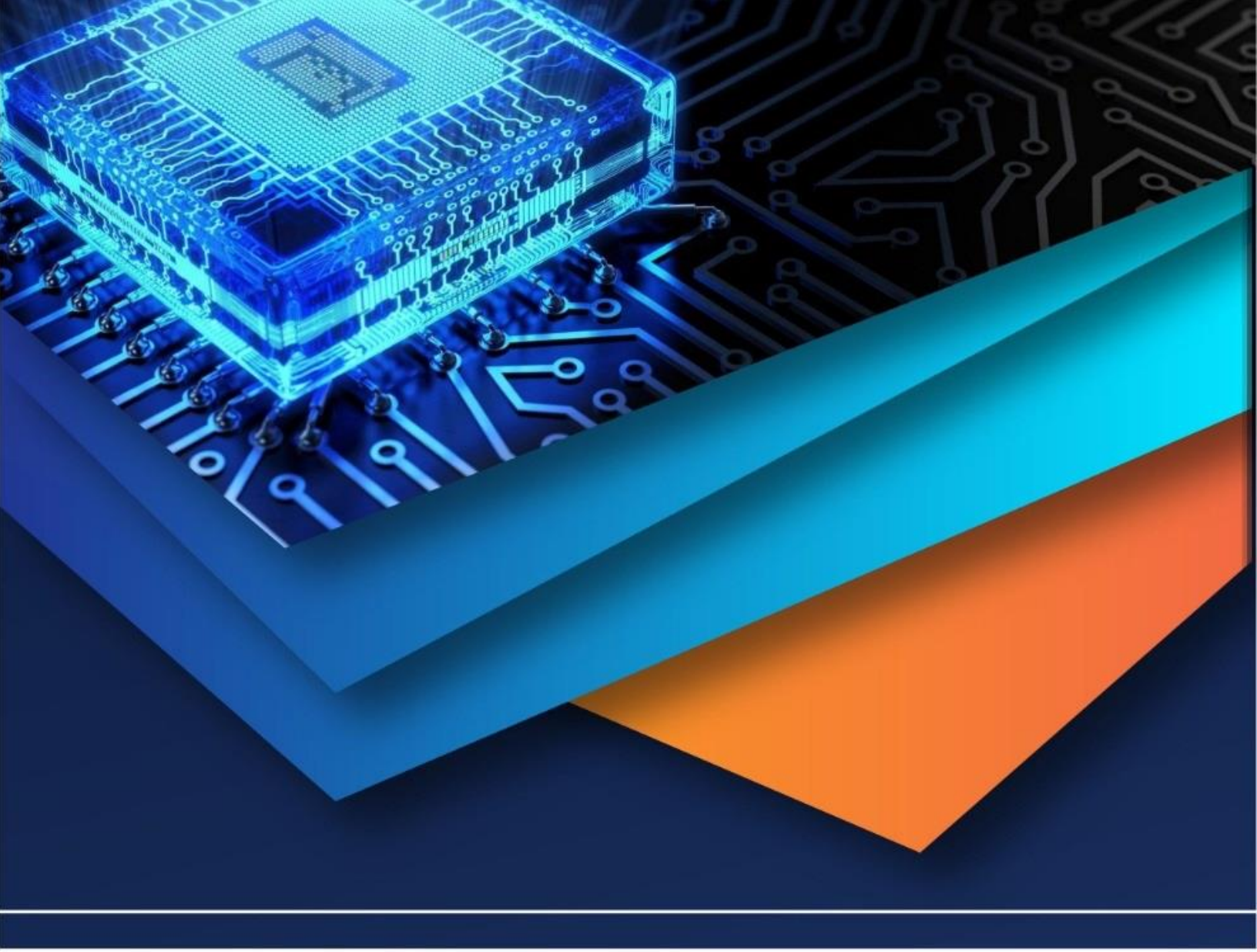
V. CONCLUSIONS

Alarms play a big role in the majority of SCADA deployments. A digital status point with the values NORMAL or ALARM is an alarm. it's possible to design alarms so that they will go off when certain conditions are satisfied. The "fuel tank empty" light on an automobile is an illustration of an alarm. The alarm alerts the SCADA operator to the system component that needs care. When an alarm is activated, emails and text messages are frequently sent also , alerting management also as the SCADA operator.

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