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Automatic Lubrication System in Heavy Vehicles

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Abstract: *Automated chain lubrication systems provide an exact metered quantity of lubricant andapply it reliably to the chain where it is required. Despite new types of material and advanced technology, many chains still require lubrication. Optimum lubrication reduces friction and subsequent wear on chains. The largest relative movement of all chains occurs between the link plate and the chain stud, and it is here where considerable forces are present. Insufficient lubrication of this area will result in premature wear and chain failure. The consequence is expensive production downtime. Precise and efficient lubrication is a prerequisite for trouble-free operation andlong life of the chain. Modern automated chain lubrication systems apply precisely metered quantities of lubricant to the chain, exactly where it is needed-while the chain is in operation. Proper metering keeps the lubricant quantity to a minimum, yet ensures sufficient amounts, thus reducing the impact on your budget and, of course, the environment! minimizes chain wear and noise levels. The life span of chains can often beincreased by ten times and more.*

Keyword: *Auto tube system, Chain mechanism, D.C motor, Digital time microcontroller,Solenoid valve.*

I. INTRODUCTION

"Automation" or "Automatic "is the use of various control systems for operating equipment such as machinery, processes in factories, boilers and heat-treating ovens, switching on telephone networks, steering and stabilization of ships, processeshave been completely automated.

The biggest benefit of automation is that it saves labour; however, it is also used to save energy and materials and to improve quality, accuracy and precision.

The term "Automation", inspired by the earlier word automatic (coming from "Automation"), was not widely used before 1947, when Ford established an automation department. It was during this time that industry was rapidly adopting feedback controllers, which were introduced in the 1930s.

Automation has been achieved by various means including mechanical, hydraulic, pneumatic, electrical, electronic devices and computers, usually in combination. Complicated systems, such as modern factories, airplanes and ships typically use all these combined techniques.

II. NEED FOR THE SYSTEM

Before the days of the PLC the only way to control machinery was through the use of relays. Relays work by utilizing a coil that, when energized, creates magnetic force to effectively pull a switch to the ON or OFF position. When the relay is de-energized, the switch releases and returns the device to its standard ON or OFF position. so, for example, ifI wanted to control whether a motor was ON or OFF, I could attach a relay between the power source and the motor. ThenI could control when the motor is getting power by either energizing or de-energizing the relay. Without power, of course,the motor would not run, thus I am controlling the motor. This type of relay is known as a relay. There could be several motors in one factory that need to be controlled, so what do you do? You add lost of power relays. So, factories started to amass electrical cabinet full of power relays. But wait, what switches the coils in the power relays ON and OFF before thepower relay turns the the motors ON, and what if I want to control that? What do you do? More relays are known as controlrelays because they control the relays that control the switch that turns the motor ON and OFF. I could keep going, but I think you get the picture of how machines were controlled pre-PLC, and more importantly, I think start to see some of theproblems with this system of electromechanical control via relays.

Hardware Requirements:

- M-Motor
- P-Pump
- R-Reservoir Cou-Change over unit
- D-Distributor
- P-Pressure unit

Software Requirements:

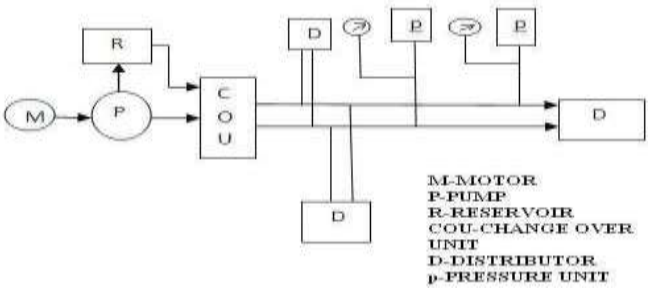
1. Rockwell Automations
2. Modicon Schneider Electric
3. Astra
4. Wincc
5. Wonderware in-touch
6. Fanuc
7. I-Fix HMI/SCADA Software

III. BENEFITS OF AUTOMATED LUBRICATION SYSTEM

- All critical components are lubricated
- Lubrication occurs while the machinery is in operation causing the lubricant to be distributed.
- Proper lubrication of critical components ensures safe operation of the machinery.
- Less wear on the components means extended component life, fewer breakdowns.
- Measured lubrication amounts means no wasted lubricant.
- Safety-no climbing around machinery or inaccessible areas (gases, exhaust, confined spaces)
- Lower energy consumption due to less friction.

Increased overall productivity resulting from in machine availability.

IV.BASIC ARCHITECTURE



Configuration:

V. CONCLUSION

Hereby we conclude that, the most important of automation in today's world where critical processes from nuclear to aerospaceare handled tirelessly with the help of control system requiring minimal human intervention. To have proper knowledge of automation one should have deep insight in its different components. Here in this project we tried to throw light on basic

architecture with the help of PLC, SCADA, HMI and Implementing the design in software simulation Environment showing how a food processing plant Can be made. Supervisory Control and Data Acquisition is real time industrial process control System used to centrally monitor and control remote Or local industrial equipment such as motors, valves Pumps, relays, etc

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