

Organized by

Department of ECE, Adhiyamaan College of Engineering, Hosur, Tamilnadu, India

Development of Canon Pinion Oiling Machine Using PLC

M.Venkatesan¹, K.Gowthami², B.S.Jayasri³, S.Mala⁴

Assistant Professor, Department of ECE, Adhiyamaan College of Engineering, Hosur, Tamilnadu, India¹

U.G. Student, Department of ECE, Adhiyamaan College of Engineering, Hosur, Tamilnadu, India^{2,3,4}

ABSTRACT: This project is developed for oiling the canon pinion watch component with the help of PLC. The process of oiling operation is automated by HMI, sensors, motor, cylinders and vibrator bowl. This process is fully carried out through the air and vacuum methodology. The canon pinion oiling machine process is based on the PLC. For processing the oiling operation of canon pinion component manually it takes more time. To overcome this problem we using advanced PLC controller model [SIMENS-S7 1200].

KEYWORDS: Sensors, pallet, Programmable Logic Controllers (PLC), Human Machine Interface (HMI), Servo drives.

I. INTRODUCTION

The automation of oiling system is to take care of the component safety to prevent dangerous Conditions occurrence. The risk of human mistakes can be highly reduced, if the process can be handled with the aid of Computer Vision and efficient sensors. The biggest benefit of the automation is that its workers and Times also by designing a system which can be controlled by main control room. The number of personnel can also be kept small so the plant can be also designed to berunat manshifts. However, it's additionally wont to save energy and materials and to boost quality, accuracy, precision. Automation has been achieved by various means including mechanical, hydraulic, pneumatic, electrical, electronics in integration with PLC. The automation of our lubrication system is carried out by using a PLC. A PLC could be computing device used for automation of mechanical device process. PLC is designed for various features of its else such as multiple I/O arrangements, immunity to electrical noise, extended temperature ranges, resistance to vibration and impact, memory backup Online operation of PLC is used for problem detection and finally it indicates the problems occurring place.

II. RELATED WORK

For manual oiling, though maintenance departments are small in many plants, yet there are still the same numbers of productions machines and lubrication point requires. Due to competitive demands, most industries are under increased pressure to be more efficient and improve "uptime". Increased laws that target the surroundings and safety(lock out and tag out requirements)require plant maintenance managers and personnel to follow long In lubrication instrumentality and systems lincoln has more than100 years' experience and lincoln has most unique capability and system solutions to address these Essential issues, yet overall problem is not solved. T.Elakkiya and A. An itta discussed about comparative study of manual lubrication and automatic lubrication.

III. PROPOSED METHOD

Different types of sensors are used in automatic oiling systems. In our automatic oiling system PLC is used for our project, PLC SIEMENS LOGO! Physical variables from sensors are inputs of plc. From programming and collected value from sensors, PLC operates the system by switching while switching is completed by relay. By

Organized by

Department of ECE, Adhiyamaan College of Engineering, Hosur, Tamilnadu, India

switching PLC takes actions such as mode selection Delivery or Recirculation. In this proposed method we use automated oiling machine for the canon pinion component for more production. When the process of oiling the canon pinion automated machine, it finds the damage components easily.

IV. BLOCK DIAGRAM

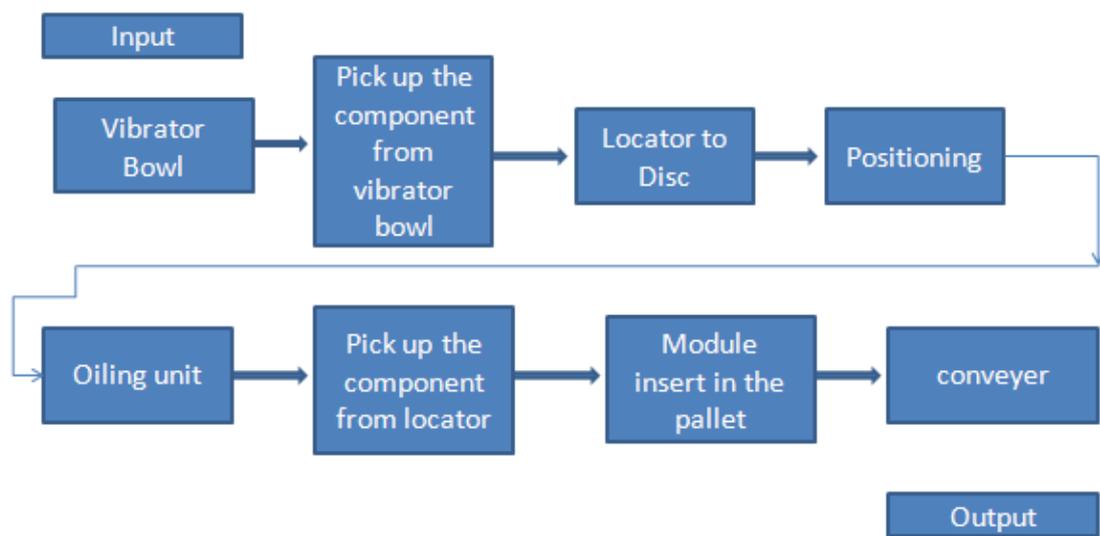


Fig 1 BLOCK DIAGRAM OF MACHINE

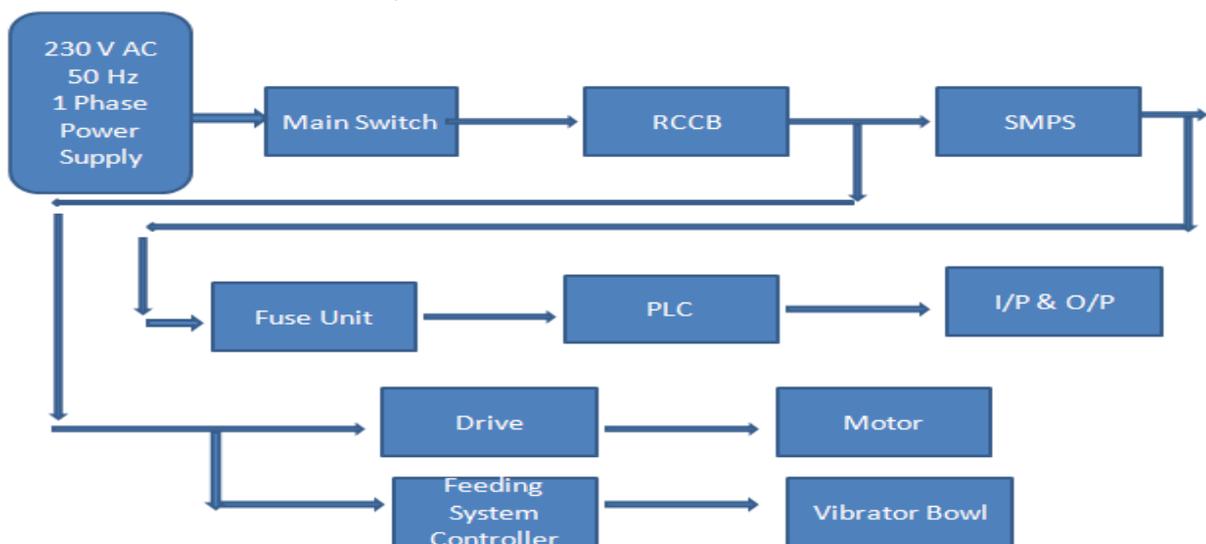


Fig 2 POWER DIAGRAM

V. WORKING PRINCIPLE

In the automated oiling process PLC is mainly used for continuously monitoring the input values from sensors and produces the output for the operation. The pick and place 2 (pp2) will pick the component with the help of vibrator bowl by using over flow sensor and then proximity sensor sensing the component and it will place the component in the locator to disk. The locators will move the component to the positioning unit. The positioning unit will check the component, its position is right or wrong. Whether its position is wrong then it will correct the component position. Then it moves to the oiling unit, it will oil the canon pinion wheel component and gives to the next unit pick and place 1 (pp1). pp1 will pick the component and place in the module then it will convey out through the pallet.

VI. EXPERIMENTAL OUTPUT

In this oiling machine, it completes the oiling process to the canon pinion component and send it to the conveyer and it placed in module.



Fig 3 OILING MACHINE FOR CANON PINION



Fig 4 CANON PINION COMPONENT



Fig 5 WATCH MODULE

VII.CONCLUSION

Thus the canon pinion oiling machine is to increase the high production of the canon pinion components, and also it fix the component in module.

REFERENCES

- [1]Yousef M. Abueejela, A. Albagul, Ibrahim A. Abdallah, Automated Drilling Machine Based on PLC”, in International of Innovative Science, Engineering and Technology, vol.2 3, March 2016.
- [2]H. Karnataka, “PLCcontrolled low cost automatic packing”, International Journal of advanced mechanical engineering vol, 4 no.7, 2015.
- [3]E., Husinu, F. Developing a Human Machine Interface (HMI) for Industrial Automated Systems using Siemens simatic “Wincc flexible Advanced Software” Journal of Engineering Trends in Computing and Information Science.5 (2), 2014.
- [4]ThePrinciple of Programmable Logic Controller and its role in Automation by AvvaruRaviKiran,B.VenkatSundeep, Ch.SreeVardhan, NeelMathews,International Journal of Engineering Trends and Technology-Volume4Issue3-2013.