PLC based automatic bottle filling system

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Declaration

This project is a presentation of our own hard work. Every effort was made to make this clear that there is no contribution of others, on the basis of study, research and discussions. The work was done under the guidance of Sir Jamil Ahmed at the University of Management and Technology.

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Abstract

Nowadays, the application of PLC is widely known due to its uses in industrial world. A Programmable Logic Controller (PLC) is a specialized computer used for controlling, operating and processing machinery and manufacturing processes. The PLCs are used in industrial field to control mechanical movement of the machinery or combined machines in order to produce accurate products. PLC's are very flexible, cost effective, space efficient and reduces complexity. In this project, our design is about implementation of automatically filling of liquids of different viscosities into a bottle using Programmable Logic Controller (PLC). The function of the machine is to fill two different types of fluids based on different viscosities automatically into bottles througha running conveyor belt. The machine is fully controlled by the PLC, which acts as the brain of the system. The process consists of conveyor belt which is normally in stationary condition. The system is switch on by an operator. Empty bottles are placed on conveyor belt, when a container is exactly in front of the sensor 1, the proximity sensor will sense it and the conveyor belt will startmoving. The conveyor belt will continue to move, until the second sensor detects the object in front of it.After detecting the container the conveyor belt will again stop and fill the container with the selected fluid (selected at the beginning by the operator). After that, when the container is filled the pump will stop after the selected time. Then again, the conveyor belt will start moving until it is detected by sensor 3. When reaching sensor 3, the conveyor belt stop. Now, the operator will manually pick up the bottle. In this way, the process completes its one cycle.

CHAPTER #1

INTRODUCTION

Automation has evolved overtime. In the old days, to control a system humans were needed. In recent days, electrical machines have been used to control a system. Earlier, electrical control was done on relays. The function of relay is to switch n and off without a switch or an operator. Logical decisions of controlling are still done with the help of relays. With the advancement of technology and cheap computers, now we have the Programmable Logic Controller (PLC). PLC came into the industry in 1970s and it has now become the most well-known and easiest method for controlling.