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CERTIFICATE

I, **Shilpa**, Roll No. 2K13/C&I/16, a student of M. Tech. (Control & Instrumentation), hereby declare that the dissertation titled “**Automated System for Bottle Filling of Liquid Mixture using PLC**” is a bonafide record of the work carried out by me under the supervision of **Dr. Mini Sreejeth** of Electrical Engineering Department, Delhi Technological University in partial fulfillment of the requirement for the award of the degree of Master of Technology and has not been submitted elsewhere for the award of any other Degree or diploma.

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ABSTRACT

Automating the routine tasks in the industries increases the productivity and reduces the probability of error in the system. Traditional methods of bottle filling involved placing bottles manually and filling it. This method is time consuming and expensive. This task needs separate manpower and thus is prone to errors. To automate the control of liquids and mixing two different liquids in defined proportion and finally filling the generated mixer in the bottles automatically and also to reduce human intervention, a PLC based automated bottle filling system is designed. In this bottle filling system, liquids kept in two different reservoir tanks are mixed in a third tank (overhead tank) and mixed liquid is filled in bottles, placed on the conveyor belt. In such process there is no need of labor so there is no human error. Without human error, the quality of product is better and the cost of production would definitely decrease. The implemented automated system has many features such as high level and low level indicators, emergency alarm creations for warning the operator etc. The ON/OFF controls of motors for controlling the liquid level, conveyor belt motor, operation and control of solenoid valve for filling the bottles etc are carried out by PLC programming through ladder logic.

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LIST OF SYMBOLS AND ABBREVIATIONS

PLC	Programmable Logic Controller
HMI	Human Machine Interface
SCADA	Supervisory Control and Data Acquisition
RTD	Resistance Temperature Detector
LVDT	Linear Variable Differential Transformer
CPU	Central Processing Unit
AC	Alternative Current
DC	Direct Current
LED	Light Emitting Diode
M1	Water Pump of Tank A
M2	Water Pump of Tank B
M3	12V DC Motor for Mixer
M4	12V DC Motor for Conveyor Belt
I/O	Input/Output
IR	Infra Red